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(Acts whose publication is obligatory)

COMMISSION DIRECTIVE 98/73/EC**of 18 September 1998****adapting to technical progress for the 24th time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances****(Text with EEA relevance)**

THE COMMISSION OF THE EUROPEAN COMMUNITIES, HAS ADOPTED THIS DIRECTIVE:

Having regard to the Treaty establishing the European Community,

Article 1

Directive 67/548/EEC is hereby amended as follows:

Having regard to Council Directive 67/548/EEC of 27 June 1967 on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances ⁽¹⁾, as last amended by Commission Directive 97/69/EC ⁽²⁾, and in particular Article 28 thereof,

1. Annex I is amended as follows:

- (a) the entries in Annex I to this Directive replace the corresponding entries in Annex I to Directive 67/548/EEC;
- (b) the entries in Annex II to this Directive are inserted in Annex I to Directive 67/548/EEC.

Whereas Annex I to Directive 67/548/EEC contains a list of dangerous substances, together with particulars of the classification and labelling procedures in respect of each substance; whereas present scientific and technical knowledge has shown that the list of dangerous substances in that Annex should be adapted and supplemented;

2. Annex V is amended as follows:

- (a) the texts in Annexes III A, III B and III C to this Directive are added to Part A of Annex V to Directive 67/548/EEC;
- (b) the text in Annex III D to this Directive is added to Part C of Annex V to Directive 67/548/EEC.

Whereas Annex V to Directive 67/548/EEC lays down the methods for the determination of the physico-chemical properties, toxicity and ecotoxicity of substances and preparations; whereas it is necessary to adapt that Annex to technical progress;

Article 2

Whereas the measures provided for in this Directive are in accordance with the opinion of the Committee on the Adaptation to Technical Progress of the Directives for the Elimination of Technical Barriers to Trade in Dangerous Substances and Preparations,

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 October 1999 at the latest. They shall forthwith inform the Commission thereof.

⁽¹⁾ OJ 196, 16. 8. 1967, p. 1.

⁽²⁾ OJ L 343, 13. 12. 1997, p. 19.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied

by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

Article 3

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Communities*.

Article 4

This Directive is addressed to the Member States.

Done at Brussels, 18 September 1998.

For the Commission

Ritt BJERREGAARD

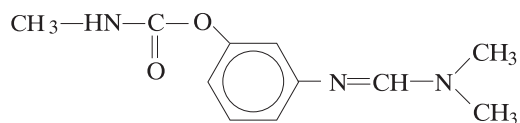
Member of the Commission

*ANEXO I — BILAG I — ANHANG I — ΠΑΡΑΡΤΗΜΑ I — ANNEX I — ANNEXE I —
ALLEGATO I — BIJLAGE I — ANEXO I — LIITE I — BILAGA I*

Cas No 22259-30-9

EC No 244-879-0

No 006-031-00-6





ES: formetanato
 DA: formetanat
 DE: Formetanat
 EL: formetanate
 EN: formetanate
 FR: forméтанate
 IT: formetanato
 NL: formetanaat
 PT: formetanato
 FI: formetanaatti
 SV: formetanat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T+; R 26/28	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

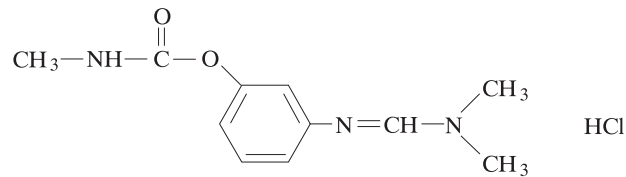
T+	N	
		R: 26/28-43-50/53
		S: (1/2-)24-28-37/39-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçãο, Pitoisuusrajat, Konzentrationsgrænser

Cas No 23422-53-9

EC No 245-656-0

No 006-052-00-0



ES: formetanato, clorhidrato; clorhidrato de formetanato

DA: formetanahydrochlorid

DE: Formetanahydrochlorid

EL: Formetanate υδροχλωρικό· N-μεθυλοκαρβαμικό 3-(N,N-διμεθυλαμινομεθυλεναμινο)φαινύλιο

EN: formetanate hydrochloride; 3-(N,N-dimethylaminomethyleneamino)phenyl N-methylcarbamate

FR: forméтанate-chlorhydrate

IT: formetanato, cloridrato

NL: formetanaahydrochloride

PT: formetanato, cloridrato



FI: formetanaattihydrokloridi

SV: formetanahydroklorid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitus, Klassificering

T+; R 26/28	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnä, Märkning

T+	N	
		R: 26/28-43-50/53
		S: (1/2-)24-28-37/39-45-60-61

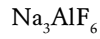
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 13775-53-6
15096-52-3

EC No 237-410-6
239-148-8

No 009-016-00-2

NOTA C





ES: hexafluoroaluminato de trisodio
 DA: trinatriumhexafluoraluminat; cryolit
 DE: Trinatriumhexafluoraluminat; Cryolit
 EL: Εξαφθοροαργλικό τρινάτριο κρυόλιθος
 EN: trisodium hexafluoroaluminate; cryolite
 FR: hexafluoroaluminate de trisodium; cryolithe
 IT: esafluoroalluminato di trisodio; criolite
 NL: trinatriumhexafluoraluminaat
 PT: hexafluoroaluminato de trissódio; criolite
 FI: trinatriumheksafluorialuminaatti; kryoliitti
 SV: trinatriumhexafluoroaluminat; aluminiumtrinatriumhexafluorid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 48/23/25	Xn; R 20/22	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

T	N	
		
		R: 20/22-48/23/25-51/53
		S: (1/2-)22-37-45-61

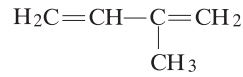
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 78-79-5

EC No 201-143-3

No 601-014-00-5

NOTA D




ES: isopreno
 DA: isopren; 2-methyl-1,3-butadien
 DE: Isopren; 2-Methyl-1,3-butadien
 EL: ισοπρένιο· 2-μεθυλο-1,3-βουταδιένιο
 EN: isoprene; 2-methyl-1,3-butadiene
 FR: isoprène; 2-méthyl-1,3-butadiène
 IT: isoprene; 2-metil-1,3-butadiene
 NL: isopreen
 PT: isopreno; 2-metil-1,3-butadieno
 FI: isopreeni; 2-metyyli-1,3-butadieeni
 SV: isopren; 2-metyl-1,3-butadien

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

F +; R 12	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

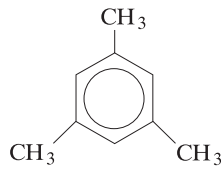
F + 	R: 12-52/53 S: (2-)-9-16-29-33-61
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Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 108-67-8

EC No 203-604-4

No 601-025-00-5



ES: mesitileno
 DA: mesitylen; 1,3,5-trimethylbenzen
 DE: Mesitylen; 1,3,5-Trimethylbenzol
 EL: Μεσιτυλένιο· 1,3,5-τριμεξυλοθενζόλιο
 EN: mesitylene; 1,3,5-trimethylbenzene
 FR: mésitylène; 1,3,5-triméthylbenzène
 IT: mesitilene; 1,3,5-trimetilbenzene
 NL: mesityleen
 PT: mesitileno; 1,3,5-trimetilbenzeno
 FI: mesityleeni; 1,3,5-trimetyylibentseeni
 SV: mesitylen; 1,3,5-trimetylbenzen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

R 10	Xi; R 37	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xi	N	
		R: 10-37-51/53
		S: (2-)61

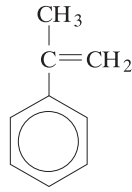
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 25 %	Xi; R 37

Cas No 98-83-9

EC No 202-705-0

No 601-027-00-6





ES: 2-fenilpropeno
 DA: 2-phenylpropen; α -methylstyrene
 DE: 2-Phenylpropen
 EL: 2-φαινυλοπρένιο· α -μεθυλοστυρόλιο
 EN: 2-phenylpropene; α -methylstyrene
 FR: 2-phénylpropène
 IT: 2-fenilpropene; α -metilstirene
 NL: 2-fenylpropeen
 PT: 2-fenilpropeno; α -metilesterino
 FI: 2-fenyylipropreeni; α -metyylistyreeni
 SV: 2-fenylpropen; isopropenylbenzen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

R 10	Xi; R 36/37	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xi	N	
		R: 10-36/37-51/53
		S: (2-)61

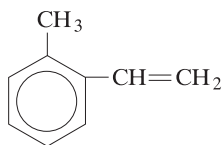
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 25 %	Xi; R 36/37

Cas No 611-15-4

EC No 210-256-7

No 601-028-00-1



ES: 2-metilestireno

DA: 2-methylstyren; 2-vinyltoluen

DE: 2-Methylstyrol

EL: 2-μεθυλοστυρόλιο

EN: 2-methylstyrene; 2-vinyltoluene

FR: 2-méthylstyrène

IT: 2-metilstirene; 2-viniltoluene

NL: 2-methylstyreen

PT: 2-metilestireno; 2-viniltolueno

FI: 2-metyylistyreeni

SV: 2-metylstyren; o-metylstyren; 1-etenyl-2-metylbenzen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 20

N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xn	N	
		R: 20-51/53
		S: (2-)24-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

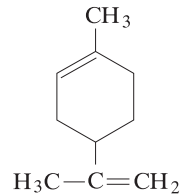
C ≥ 25 %	Xn; R 20

Cas No 138-86-3 [1]
5989-27-5 [2]
5989-54-8 [3]
6876-12-6 [4]
7705-14-8 [5]

EC No 205-341-0 [1]
227-813-5 [2]
227-815-6 [3]
229-977-3 [4]
231-732-0 [5]

No 601-029-00-7

NOTA C



- ES: dipenteno [1]; (*R*)-*p*-menta-1,8-dieno [2]; (*S*)-*p*-menta-1,8-dieno [3]; *trans*-1-metil-4-(1-metilvinil)ciclohexeno [4]; (±)-1-metil-4-(1-metilvinil)ciclohexeno [5]
- DA: dipenten [1]; (*R*)-*p*-mentha-1,8-dien [2]; (*S*)-*p*-mentha-1,8-dien [3]; *trans*-1-methyl-4-(1-methylvinyl)cyclohexen [4]; (±)-1-methyl-4-(1-methylvinyl)cyclohexen [5]; limonen [1]; D-limonen [2]; L-limonen [3]
- DE: Dipenten [1]; (*R*)-*p*-Mentha-1,8-dien [2]; (*S*)-*p*-Mentha-1,8-dien [3]; *trans*-1-Methyl-4-(1-methylvinyl)cyclohexen [4]; (±)-1-Methyl-4-(1-methylvinyl)cyclohexen [5]
- EL: διπεντένιο [1]; (*R*)-*p*-μενθα-1,8-διένιο [2]; (*S*)-*p*-μενθα-1,8-διένιο [3]; *trans*-1-μεθυλο-4-(1-μεθυλοβινυλο)κυκλοεξένιο [4]; (±)-1-μεθυλο-4-(1-μεθυλοβινυλο)κυκλοεξένιο [5]
- EN: dipentene [1]; (*R*)-*p*-mentha-1,8-diene [2]; (*S*)-*p*-mentha-1,8-diene [3]; *trans*-1-methyl-4-(1-methylvinyl)cyclohexene [4]; (±)-1-methyl-4-(1-methylvinyl)cyclohexene [5]; [1] limonene; [2] d-limonene; [3] l-limonene
- FR: dipentène [1]; (*R*)-*p*-mentha-1,8-diène [2]; (*S*)-*p*-mentha-1,8-diène [3]; *trans*-1-méthyl-4-(1-méthylvinyl)cyclohexène [4]; (±)-1-méthyl-4-(1-méthylvinyl)cyclohexène [5]
- IT: dipentene [1]; (*R*)-*p*-menta-1,8-diene [2]; (*S*)-*p*-menta-1,8-diene [3]; *trans*-1-metil-4-(1-metilvinil)cicloesene [4]; (±)-1-metil-4-(1-metilvinil)cicloesene [5]
- NL: dipenteen [1]; (*R*)-*p*-mentha-1,8-dieen [2]; (*S*)-*p*-mentha-1,8-dieen [3]; *trans*-1-methyl-4-(1-methylvinyl)cyclohexeen [4]; (±)-1-methyl-4-(1-methylvinyl)cyclohexeen [5]
- PT: dipenteno [1]; (*R*)-*p*-menta-1,8-dieno [2]; (*S*)-*p*-menta-1,8-dieno [3]; *trans*-1-metil-4-(1-metilvinil)ciclohexeno [4]; (±)-1-metil-4-(1-metilvinil)ciclohexeno [5]
- FI: dipenteeni [1]; (*R*)-*p*-menta-1,8-dieeni [2]; (*S*)-*p*-menta-1,8-dieeni [3]; *trans*-1-metyyli-4-(metyylivinyli)syklohekseeni [4]; (±)-1-metyyli-4-(1-metyylivinyli)syklohekseeni [5]
- SV: dipenten [1]; limonen [1]; (*R*)-*p*-menta-1,8-dien [2]; d-limonen [2]; (*S*)-*p*-menta-1,8-dien [3]; l-limonen [3]; *trans*-1-metyl-4-(1-metylvinyl)cyklohexen [4]; (±)-1-metyl-4-(1-metylvinyl)cyklohexen [5]

Cas No	138-86-3 [1]
	5989-27-5 [2]
	5989-54-8 [3]
	6876-12-6 [4]
	7705-14-8 [5]

EC No	205-341-0 [1]
	227-813-5 [2]
	227-815-6 [3]
	229-977-3 [4]
	231-732-0 [5]



No	601-029-00-7
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NOTA C

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

R 10	Xi; R 38	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

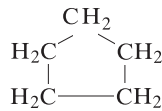
Xi	N	
		
		R: 10-38-43-50/53
		S: (2-)24-37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 287-92-3

EC No 206-016-6

No 601-030-00-2




ES: ciclopentano
 DA: cyclopentan
 DE: Cyclopentan
 EL: κυκλοπεντάνιο
 EN: cyclopentane
 FR: cyclopentane
 IT: ciclopentano
 NL: cyclopentaan
 PT: ciclopentano
 FI: syklopentaani
 SV: cyklopentan

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

F; R 11	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

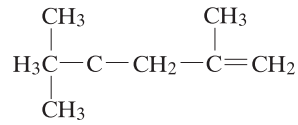
F	
	R: 11-52/53
	S: (2-)9-16-29-33-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 107-39-1

EC No 203-486-4

No 601-031-00-8





ES: 2,4,4-trimetilpent-1-eno
 DA: 2,4,4-trimethylpent-1-en
 DE: 2,4,4-Trimethylpent-1-en
 EL: 2,4,4-τριμεθυλοπεντ-1-ένιο
 EN: 2,4,4-trimethylpent-1-ene
 FR: 2,4,4-triméthylpent-1-ène
 IT: 2,4,4-trimetilpent-1-ene
 NL: 2,4,4-trimethylpent-1-een
 PT: 2,4,4-trimetilpent-1-eno
 FI: 2,4,4-trimetyylipent-1-eeni
 SV: 2,4,4-trimetyl-1-penten

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

F; R 11	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

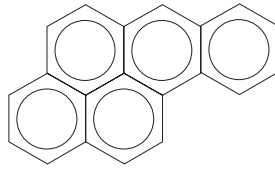
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		R: 11-51/53
		S: (2-9-16-29-33-61)

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 50-32-8

EC No 200-028-5

No 601-032-00-3



ES: benzo[def]criseno

DA: benzo[def]chrysen; benzo[a]pyren

DE: Benzo[def]chrysen; Benzo[a]pyren

EL: βενζο[def]χρυσένιο

EN: benzo[def]chrysene

FR: benzo[def]chrysène; benzo[a]pyrène

IT: benzo[def]crisene; benzo[a]pirene

NL: benzo[def]chryseen

PT: benzo[def]criseno

FI: bentso[def]kryseeni

SV: benz[def]krysen; benz[a]pyren

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 2; R 45

Muta. Cat. 2; R 46

Repr. Cat. 2; R 60-61

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

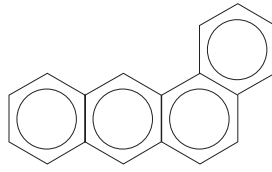
T	N	
		R: 45-46-60-61-50/53
		S: 53-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 56-55-3

EC No 200-280-6

No 601-033-00-9





ES: benzo[*a*]antraceno
 DA: benz[*a*]anthracen
 DE: Benz[*a*]anthracen
 EL: βενζο[*a*]ανθρακένιο
 EN: benz[*a*]anthracene
 FR: benzo[*a*]anthracène
 IT: benzo[*a*]antracene
 NL: benzo[*a*]antraceen
 PT: benze[*a*]antraceno
 FI: bentso[*a*]antraseeni
 SV: benz[*a*]antracen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 2; R 45	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

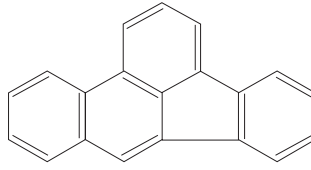
T	N	
		R: 45-50/53
		S: 53-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 205-99-2

EC No 205-911-9

No 601-034-00-4





ES: benzo(e)acefenantrileno
 DA: benz(e)acephenanthrylen
 DE: Benz(e)acephenanthrylen
 EL: βενζο(ε)ακεφαινανθρυλένιο
 EN: benz(e)acephenanthrylene
 FR: benzo(e)acephénanthrylène
 IT: benzo(e)acefenantrilene
 NL: benzo(e)acefenantryleen
 PT: benze(e)acefenantrileno
 FI: bentso(e)asefenatryleeni
 SV: benz(e)acefenantryleen; benz(b)fluoranten

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 2; R 45	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

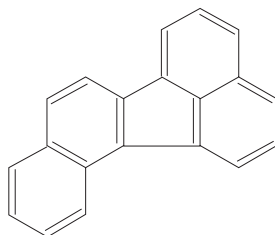
T	N	
		R: 45-50/53
		S: 53-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 205-82-3

EC No 205-910-3

No 601-035-00-X



ES: benzo[ghi]fluoranteno

DA: benzo[ghi]fluoranthen

DE: Benzo[ghi]fluoranthen

EL: βενζο[ghi]φθορανθένιο

EN: benzo[ghi]fluoranthene

FR: benzo[ghi]fluoranthène

IT: benzo[ghi]fluorantene

NL: benzo[ghi]fluorantheen

PT: benzo[ghi]fluoranteno



FI: bentso[ghi]fluoranteeni

SV: benz[ghi]fluoranten

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitutus, Klassificering

Carc. Cat. 2; R 45	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

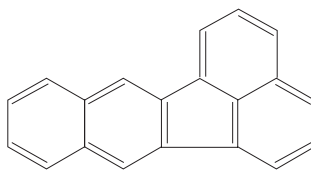
T	N	
		R: 45-50/53
		S: 53-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 207-08-9

EC No 205-916-6

No 601-036-00-5





ES: benzo(*k*)fluoranteno
 DA: benzo(*k*)fluoranthen
 DE: Benzo[*k*]fluoranthen
 EL: βενζο(*k*)φθορανθένιο
 EN: benzo[*k*]fluoranthene
 FR: benzo[*k*]fluoranthène
 IT: benzo(*k*)fluorantene
 NL: benzo(*k*)fluorantheen
 PT: benzo(*k*)fluoranteno
 FI: bentso(*k*)fluoranteeni
 SV: benz(*k*)fluoranten

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc, Cat. 2; R 45	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

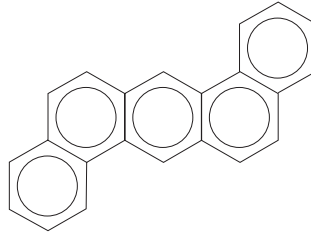
T	N	
		R: 45-50/53
		S: 53-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 53-70-3

EC No 200-181-8

No 601-041-00-2



ES: dibenzo[*a,b*]antraceno
 DA: dibenz[*a,b*]anthracen
 DE: Dibenz[*a,b*]anthracen
 EL: διβενζο[*a,b*]ανθρακένιο
 EN: dibenz[*a,b*]anthracene
 FR: dibenzo[*a,b*]anthracène
 IT: dibenzo[*a,b*]antracene
 NL: dibenzo[*a,b*]antracene
 PT: dibenze[*a,b*]antraceno
 FI: dibents[*a,b*]antraseeni
 SV: dibenz[*a,b*]antracen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitutus, Klassificering

Carc. Cat. 2; R 45	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

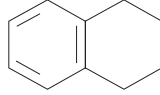
T	N	
		R: 45-50/53
		S: 53-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 119-64-2

EC No 204-340-2

No 601-045-00-4



ES: 1,2,3,4-tetrahidronaftaleno
 DA: 1,2,3,4-tetrahydronaftalen
 DE: 1,2,3,4-Tetrahydronaphthalin
 EL: 1,2,3,4-τετραϋδροναφθαλένιο
 EN: 1,2,3,4-tetrahydronaphthalene
 FR: 1,2,3,4-tétrahydronaphtalène
 IT: 1,2,3,4-tetraidronaftalene
 NL: 1,2,3,4-tetrahydronaftaleen
 PT: 1,2,3,4-tetrahidronaftaleno
 FI: 1,2,3,4-tetrahydronaftaleeni
 SV: 1,2,3,4-tetrahydronaftalen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

R 19	Xi; R 36/38	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

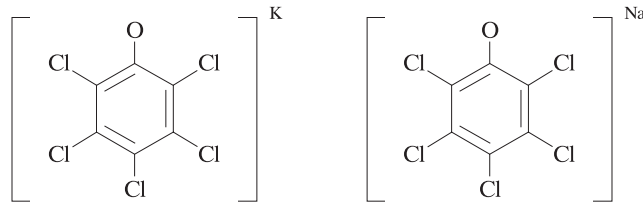
Xi	N	
		R: 19-36/38-51/53
		S: (2-)26-28-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 131-52-2 [1]
7778-73-6 [2]

EC No 205-025-2 [1]
231-911-3 [2]

No 604-003-00-3



ES: pentaclorofenolato de sodio [1]; pentaclorofenolato de potasio [2]; sales alcalinas del pentaclorofenol
 DA: natriumpentachlorphenolat [1]; kaliumpentachlorphenolat [2] alkalisalte af pentachlorphenol
 DE: Natriumpentachlorphenolat [1]; Kaliumpentachlorphenolat [2]; Alkalisalze von Pentachlorphenol
 EL: πενταχλωροφαινολικό νάτριο [1]; πενταχλωροφαινολικό κάλιο [2]; άλατα αλκαλίων της πενταχλωροφαινόλης
 EN: sodium pentachlorophenolate [1]; potassium pentachlorophenolate [2]; alkali salts of pentachlorophenol
 FR: pentachlorophénolate de sodium [1]; pentachlorophénolate de potassium [2] sels alcalins de pentachlorophénol
 IT: pentaclorofenolato di sodio [1]; pentaclorofenolato di potassio [2] sali alcalini del pentaclorofenolo
 NL: natriumpentachloorfenolaat [1]; kaliumpentachloorfenolaat [2] alkalizouten van pentachloorfenol
 PT: pentaclorofenolato de sódio [1]; pentaclorofenolato de potássio [2] sais alcalinos de pentaclorofenol
 FI: natrium pentakloorifenolaatti [1]; kalium pentakloorifenolaatti [2]
 SV: natriumpentaklorfenolat [1]; kaliumpentaklorfenolat [2]

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 3; R 40	T+; R 26	T; R 24/25	Xi; R 36/37/38	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

T+	N	
		R: 24/25-26-36/37/38-40-50/53
		S: (1/2-)22-28-36/37-45-52-60-61

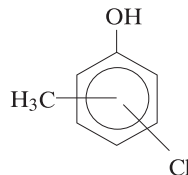
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No	95-65-8 [1]
	95-87-4 [2]
	105-67-9 [3]
	526-75-0 [4]
	576-26-1 [5]
	1300-71-6 [6]
	71975-58-1 [7]

EC No	202-439-5 [1]
	202-461-5 [2]
	203-321-6 [3]
	208-395-3 [4]
	209-400-1 [5]
	215-089-3 [6]
	276-245-4 [7]

No	604-006-00-X
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NOTA C



- ES: 3,4-xilenol [1]; 2,5-xilenol [2]; 2,4-xilenol [3]; 2,3-xilenol [4]; 2,6-xilenol [5]; xilenol [6]; 2,4(o 2,5)-xilenol [7]; xilenol
- DA: 3,4-xylenol [1]; 2,5-xylenol [2]; 2,4-xylenol [3]; 2,3-xylenol [4]; 2,6-xylenol [5]; xylenol [6]; 2,4(og 2,5)-xylenol [7]; xylenol
- DE: 3,4-Xylenol [1]; 2,5-Xylenol [2]; 2,4-Xylenol [3]; 2,3-Xylenol [4]; 2,6-Xylenol [5]; Xylenol [6]; 2,4(oder 2,5)-Xylenol [7] Xylenol
- EL: 3,4-ξυλενόλη [1]; 2,5-ξυλενόλη [2]; 2,4-ξυλενόλη [3]; 2,3-ξυλενόλη [4]; 2,6-ξυλενόλη [5]; ξυλενόλη, η [6]; 2,4(ή 2,5)-ξυλενόλη [7]; ξυλενόλη
- EN: 3,4-xylenol [1]; 2,5-xylenol [2]; 2,4-xylenol [3]; 2,3-xylenol [4]; 2,6-xylenol [5]; xylenol [6]; 2,4(or 2,5)-xylenol [7]; xylenol
- FR: 3,4-xylénoł [1]; 2,5-xylénoł [2]; 2,4-xylénoł [3]; 2,3-xylénoł [4]; 2,6-xylénoł [5]; xylénoł [6]; 2,4(ou 2,5)-xylénoł [7] xylénoł
- IT: 3,4-xilenolo [1]; 2,5-xilenolo [2]; 2,4-xilenolo [3]; 2,3-xilenolo [4]; 2,6-xilenolo [5]; xilenolo [6]; 2,4(o 2,5)-xilenolo [7] xilenolo
- NL: 3,4-xylenol [1]; 2,5-xylenol [2]; 2,4-xylenol [3]; 2,3-xylenol [4]; 2,6-xylenol [5]; xylenol [6]; 2,4(of 2,5)-xylenol [7] xylenol
- PT: 3,4-xilenol [1]; 2,5-xilenol [2]; 2,4-xilenol [3]; 2,3-xilenol [4]; 2,6-xilenol [5]; xilenol [6]; 2,4(ou 2,5)-xilenol [7]; xilenol
- FI: 3,4-ksylenoli [1]; 2,5-ksylenoli [2]; 2,4-ksylenoli [3]; 2,3-ksylenoli [4]; 2,6-ksylenoli [5]; ksylenoli [6]; 2,4(tai 2,5)-ksylenoli [7]
- SV: 3,4-xylenol [1]; 2,5-xylenol [2]; 2,4-xylenol [3]; 2,3-xylenol [4]; 2,6-xylenol [5]; xylenol [6]; dimetylfenol [6]; 2,4(eller 2,5)-xylenol [7]

Cas No	95-65-8 [1]
	95-87-4 [2]
	105-67-9 [3]
	526-75-0 [4]
	576-26-1 [5]
	1300-71-6 [6]
	71975-58-1 [7]

EC No	202-439-5 [1]
	202-461-5 [2]
	203-321-6 [3]
	208-395-3 [4]
	209-400-1 [5]
	215-089-3 [6]
	276-245-4 [7]


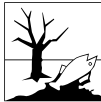
No 604-006-00-X

NOTA C

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitutus, Klassificering

T; R 24/25	C; R 34	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

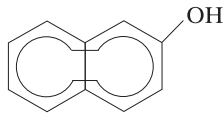
T	N	
		
		R: 24/25-34-51/53
		S: (1/2-)26-36/37/39-45-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 135-19-3

EC No 205-182-7

No 604-007-00-5



ES: 2-naftol
 DA: 2-naphthol
 DE: 2-Naphthol
 EL: 2-ναφθόλη
 EN: 2-naphthol
 FR: 2-naphtol
 IT: 2-naftolo
 NL: 2-naftol
 PT: 2-naftol
 FI: 2-naftoli
 SV: 2-naftol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 20/22	N; R 50
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xn	N	
		R: 20/22-50
		S: (2-)24/25-61

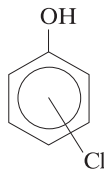
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 95-57-8 [1]
106-48-9 [2]
108-43-0 [3]
25167-80-0 [4]

EEC No 202-433-2 [1]
203-402-6 [2]
203-582-6 [3]
246-691-4 [4]

No 604-008-00-0

NOTA C



ES: 2-clorofenol [1]; 4-clorofenol [2]; 3-clorofenol [3]; clorofenol [4]
 DA: 2-chlorphenol [1]; 4-chlorphenol [2]; 3-chlorphenol [3]; chlorphenol [4]
 DE: 2-Chlorphenol [1]; 4-Chlorphenol [2]; 3-Chlorphenol [3]; Chlorphenol [4]
 EL: 2-χλωροφαινόλη [1]; 4-χλωροφαινόλη [2]; 3-χλωροφαινόλη [3]; χλωροφαινόλη [4]
 EN: 2-chlorophenol [1]; 4-chlorophenol [2]; 3-chlorophenol [3]; chlorophenol [4]
 FR: 2-chlorophénol [1]; 4-chlorophénol [2]; 3-chlorophénol [3]; chlorophénol [4]
 IT: 2-clorofenolo [1]; 4-clorofenolo [2]; 3-clorofenolo [3]; clorofenolo [4]
 NL: 2-chloorfenol [1]; 4-chloorfenol [2]; 3-chloorfenol [3]; chloorfenol [4]
 PT: 2-clorofenol [1]; 4-clorofenol [2]; 3-clorofenol [3]; clorofenol [4]
 FI: 2-kloorifenoli [1]; 4-kloorifenoli [2]; 3-kloorifenoli [3]; kloorifenoli [4]
 SV: 2-klorfenol [1]; *o*-klorfenol [1]; 4-klorfenol [2]; *p*-klorfenol [2]; 3-klorfenol [3]; *m*-klorfenol [3]; klorfenol [4]; klorfenol blandning [4]

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 20/21/22 | N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

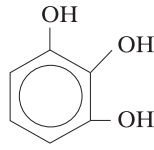
Xn	N	
		R: 20/21/22-51/53
		S: (2-)28-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 87-66-1

EC No 201-762-9

No 604-009-00-6



ES: pirogalol
 DA: pyrogallol; 1,2,3-trihydroxybenzen
 DE: Pyrogallol
 EL: πυρογαλλόλη; 1,2,3-τριϋδροξυβενζόλιο
 EN: pyrogallol; 1,2,3-trihydroxybenzene
 FR: pyrogallol; 1,2,3-benzèneetriol
 IT: pirogallolo; 1,2,3-triidrossibenzene
 NL: pyrogallol
 PT: pirogalol; 1,2,3-trihidroxibenzeno
 FI: pyrogalloli; 1,2,3-trihydroksibentseeni
 SV: pyrogallol; 1,2,3-trihydroxibenzen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Muta. Cat. 3; R 40	Xn; R 20/21/22	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

Xn	
	R: 20/21/22-40-52/53
	S: (2-)36/37-61

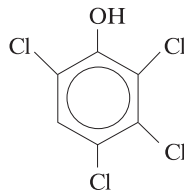
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 10 %	Xn; R 20/21/22-40
1 % ≤ C < 10 %	Xn; R 40

Cas No 58-90-2

EC No 200-402-8

No 604-013-00-8





ES: 2,3,4,6-tetraclorofenol
 DA: 2,3,4,6-tetrachlorphenol
 DE: 2,3,4,6-Tetrachlorphenol
 EL: 2,3,4,6-τετραχλωροφαινόλη
 EN: 2,3,4,6-tetrachlorophenol
 FR: 2,3,4,6-tétrachlorophénol
 IT: 2,3,4,6-tetraclorofenolo
 NL: 2,3,4,6-tetrachloorfenol
 PT: 2,3,4,6-tetraclorofenol
 FI: 2,3,4,6-tetrakloorifenoli
 SV: 2,3,4,6-tetraklorfenol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 25	Xi; R 36/38	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

T	N	
		
		R: 25-36/38-50/53
		S: (1/2-)26-28-37-45-60-61

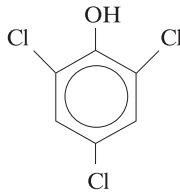
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 20 %	T; R 25-36/38
5 % ≤ C < 20 %	T; R 25
0,5 % ≤ C < 5 %	Xi; R 22

Cas No 88-06-2

EC No 201-795-9

No 604-018-00-5



ES: 2,4,6-triclorofenol
 DA: 2,4,6-trichlorphenol
 DE: 2,4,6-Trichlorphenol
 EL: 2,4,6-τριχλωροφαινόλη
 EN: 2,4,6-trichlorophenol
 FR: 2,4,6-trichlorophénol
 IT: 2,4,6-triclorofenolo
 NL: 2,4,6-trichloorfenol
 PT: 2,4,6-triclorofenol
 FI: 2,4,6-trikloorifenoli
 SV: 2,4,6-triklorfenol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 3; R 40

Xn; R 22

Xi; R 36/38

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

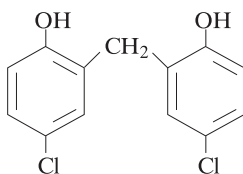
Xn	N	
		R: 22-36/38-40-50/53
		S: (2-)36/37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 97-23-4

EC No 202-567-1

No 604-019-00-0



ES: diclorofeno

DA: dichlorophen; 2,2'-methylenbis[4-chlorphenol]

DE: Dichlorophen

EL: dichlorophen

EN: dichlorophen

FR: dichlorophène

IT: diclorofene

NL: dichlorofoon

PT: diclorofene

FI: diklorofoeni

SV: diklorfen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 36	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

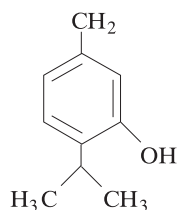
Xn	N	
		R: 22-36-50/53
		S: (2-)26-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 89-83-8

EC No 201-944-8

No 604-032-00-1



ES: timol

DA: thymol

DE: Thymol

EL: θυμόλη

EN: thymol

FR: thymol

IT: timolo

NL: thymol

PT: timol



FI: tymoli

SV: tymol; 2-isopropyl-5-metylfenol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	C; R 34	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

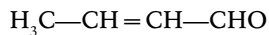
C	N	
		
		R: 22-34-51/53
		S: (1/2-)26-28-36/37/39-45-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 123-73-9
4170-30-3

EC No 204-647-1
224-030-0

No 605-009-00-9



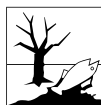


ES: crotonaldehído
 DA: crotonaldehyd; 2-butenal
 DE: Crotonaldehyd
 EL: κροτοναλδεΐδη
 EN: crotonaldehyde; (E)-2-butenal; 2-butenal
 FR: crotonaldéhyde
 IT: crotonaldeide; 2-butenale
 NL: crotonaldehyd
 PT: crotonaldeído
 FI: krotonaldehydi; (E)-2-butenaali
 SV: krotonaldehyd; (E)-2-butenal; 2-butenal

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

F; R 11	T; R 23	Xi; R 36/37/38	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

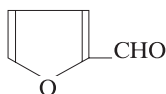
F	T	N	
			
			R: 11-23-36/37/38-50/53
			S: (1/2-)29-33-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 98-01-1

EC No 202-627-7

No 605-010-00-4



ES: 2-furaldehído

DA: 2-furaldehyd

DE: 2-Furaldehyd

EL: 2-φουραλδεΰδη

EN: 2-furaldehyde

FR: 2-furaldéhyde

IT: 2-furaldeide; furfurale

NL: 2-furaldehyd

PT: 2-furaldeído


FI: 2-furfuraali

SV: 2-furfural; 2-furaldehyd

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 3; R 40	T; R 23/25	Xn; R 21	Xi; R 36/37
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinät, Märkning

T	
	R: 21-23/25-36/37-40
	S: (1/2-)26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

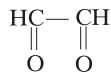
C ≥ 25 %	T; R 21-23/25-36/37-40
20 % ≤ C < 25 %	T; R 23/25-36/37-40
5 % ≤ C < 20 %	T; R 23/25-40
1 % ≤ C < 5 %	Xn; R 20/22-40

Cas No 107-22-2

EC No 203-474-9

No 605-016-00-7

NOTA B



ES: glioxal ... %

DA: glyoxal ... %

DE: Glyoxal ... %

EL: γλυοξάλη ... %

EN: glyoxal ... %; ethandial ... %

FR: glyoxal ... %; éthanedial ... %

IT: gliossale ... %; etandiale ... %

NL: glyoxal ... %

PT: glioxal ... %; etanedial ... %

FI: glyoksaali ... %

SV: glyoxal ... %

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Muta. Cat. 3; R 40

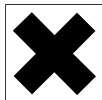
Xn; R 20

Xi; R 36/38

R 43

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xn



R: 20-36/38-40-43

S: (2-)36/37

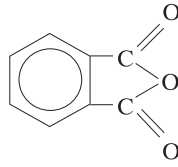
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 10 %	Xn; R 20-36/38-40-43
1 % ≤ C < 10 %	Xn; R 40-43

Cas No 85-44-9

EC No 201-607-5

No 607-009-00-4



ES: anhídrido ftálico
 DA: phthalsyreanhydrid
 DE: Phthalsäureanhydrid
 EL: φθαλικός ανυδρίτης
 EN: phthalic anhydride
 FR: anhydride phtalique
 IT: anidride ftalica
 NL: ftaalzuuranhydride
 PT: anidrido ftálico
 FI: ftaalihappoanhydridi
 SV: ftalsyraanhydrid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 37/38-41	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

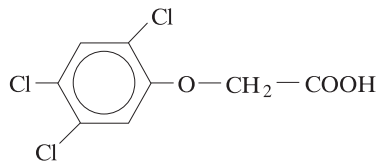
Xn	
	R: 22-37/38-41-42/43
	S: (2-)23-24/25-26-37/39-46

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 93-76-5

EC No 202-273-3

No 607-041-00-9



ES: 2,4,5-T

DA: 2,4,5-T; 2,4,5-trichlorphenoxyeddikesyre

DE: 2,4,5-T; 2,4,5-Trichlorphenoxyessigsäure

EL: 2,4,5-T; 2,4,5-τριχλωροφαινοξοξικό οξύ

EN: 2,4,5-T; 2,4,5-trichlorophenoxy acetic acid

FR: 2,4,5-T; acide 2,4,5-trichlorophénoxyacétique

IT: 2,4,5-T; acido 2,4,5-triclorofenossiacetico

NL: 2,4,5-T

PT: 2,4,5-T; ácido 2,4,5-triclorofenoxiacético

FI: 2,4,5-T; 2,4,5-trikloorifenoksietikkahappo

SV: 2,4,5-T; 2,4,5-triklorfenoxiättiksyra

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 36/37/38	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

Xn	N	
		R: 22-36/37/38-50/53
		S: (2-)24-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No —

EC No —

No 607-042-00-4

NOTA A

ES: sales y ésteres del 2,4,5-T

DA: salte og estere af 2,4,5-T; salte og estere af 2,4,5-trichlorphenoxyeddikesyre

DE: Salze und Ester der 2,4,5-T; Salze und Ester der 2,4,5-Trichlorphenoxyessigsäure

EL: άλατα και εστέρες του 2,4,5-T

EN: salts and esters of 2,4,5-T; salts and esters of 2,4,5-trichlorophenoxy acetic acid

FR: sels et esters de 2,4,5-T

IT: sali ed esteri del 2,4,5-T; acido 2,4,5-triclorofenossiacetico sali e esteri

NL: zouten en esters van 2,4,5-T

PT: sais e ésteres de 2,4,5-T



FI: 2,4,5-T:n suolat ja esterit; 2,4,5-trikloorifenoksietikkahapon suolat ja esterit

SV: 2,4,5-T, salter och estrar; 2,4,5-triklorfenoxiättiksyra, salter och estrar

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 36/37/38	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

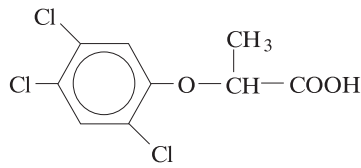
Xn	N	
		R: 22-36/37/38-50/53
		S: (2-)24-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 93-72-1

EC No 202-271-2

No 607-047-00-1



ES: fenoprop

DA: fenoprop; 2-(2,4,5-trichlorophenoxy)propionsyre

DE: Fenoprop

EL: Fenoprop· 2-(2,4,5-τριχλωροφαινοξυ)προπιονικό οξύ

EN: fenoprop; 2-(2,4,5-trichlorophenoxy)propionic acid

FR: féno-prop

IT: fenoprop; acido 2-(2,4,5-triclorofenossi)propionico

NL: fenoprop

PT: fenoprop; ácido 2-(2,4,5-triclorofenoxi)propiónico

FI: fenopropi; 2-(2,4,5-trikloorifenoksi)propionihappo

SV: fenoprop

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 38	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

Xn	N	
		R: 22-38-50/53
		S: (2-)37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No —

EC No —

No 607-048-00-7

NOTA A

ES: sales de fenoprop

DA: salte af fenoprop; salte af 2-(2,4,5-trichlorphenoxy)propionsyre

DE: Salze von Fenoprop

EL: Άλατα του Fenoprop· Άλατα του 2-(2,4,5-τριχλωροφαινοξυ)προπιονικού οξέος

EN: salts of fenoprop; salts of 2-(2,4,5-trichlorophenoxy)propionic acid

FR: sels de fénoprop

IT: sali di fenoprop; acido 2-(2,4,5-triclorofenossi)propionico sali

NL: zouten van fenoprop

PT: sais de fenoprop



FI: fenopropin suolat; 2-(2,4,5-trikloorifenoksi)propionihapon suolat

SV: salter av fenoprop

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 20/21/22	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnt, Märkning

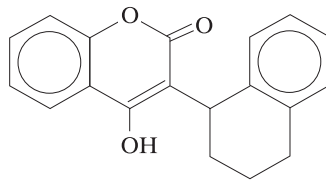
Xn	N	
		R: 20/21/22-50/53
		S: (2-)13-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 5836-29-3

EC No 227-424-0

No 607-059-00-7



ES: cumatetralilo

DA: coumatetralyl; 4-hydroxy-3-(1,2,3,4-tetrahydro-1-naphthyl)coumarin

DE: Coumatetralyl

EL: Coumatetralyl; 4-υδροξυ-3-(1,2,3,4-τετραυδρο-1-ναφθυλο)κουμαρίνη

EN: coumatetralyl; 4-hydroxy-3-(1,2,3,4-tetrahydro-1-naphthyl)coumarin

FR: coumatetralyl

IT: cumatetralil; 4-idrossi-3-(1,2,3,4-tetraidro-1-naftil)cumarina

NL: cumatetralyl

PT: cumatetralilo

FI: kumatetralyyli; 4-hydroksi-3-(1,2,3,4-tetrahydro-1-naftyyli)kumariini

SV: kumatetralyl

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T+; R 27/28	T; R 48/24/25	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

T+



R: 27/28-48/24/25-52/53

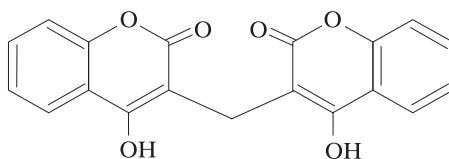
S: (1/2-)28-36/37-45-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 66-76-2

EC No 200-632-9

No 607-060-00-2



ES: dicumarol
 DA: dicumarol; 4,4'-dihydroxy-3,3' methylenbis(2H-chromen-2-on)
 DE: Dicoumarol
 EL: δικουμαρόλη
 EN: dicoumarol; 4,4'-dihydroxy-3,3'-methylenebis(2H-chromen-2-one)
 FR: dicumarol
 IT: dicumarolo; 4,4'-diidrossi-3,3'-metilenebis(2H-cromen-2-one)
 NL: dicumarol
 PT: dicumarol
 FI: dikumariini
 SV: dikumarol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 48/25	Xn; R 22	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

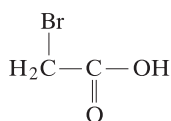
T	N	
		R: 22-48/25-51/53
		S: (1/2-)37-45-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 79-08-3

EC No 201-175-8

No 607-065-00-X



ES: ácido bromoacético

DA: bromeddikesyre

DE: Bromessigsäure

EL: βρωμοοξικό οξύ

EN: bromoacetic acid

FR: acide bromoacétique

IT: acido bromoacetico

NL: broomazijnzuur

PT: ácido bromoacético




FI: bromietikkahappo

SV: bromättiksyra

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 23/24/25	C; R 35	N; R 50
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

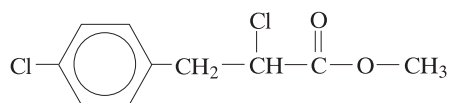
T	C	N	
			
			R: 23/24/25-35-50
			S: (1/2-)26-36/37/39-45-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 14437-17-3

EC No 238-413-5

No 607-075-00-4



ES: clorfenprop-metil

DA: chlorfenprop-methyl; methyl-2-chlor-3-(4-chlorphenyl)propionat

DE: Chlorfenprop-methyl

EL: Chlorfenprop-methyl; 2-χλωρο-3-(4-χλωροφαινυλο)προπιονικό μεθύλιο

EN: chlorfenprop-methyl; methyl 2-chloro-3-(4-chlorophenyl)propionate

FR: chlorfenprop-méthyl

IT: clorfenprop-metil; metil 2-cloro-3-(4-clorofenil)propionato

NL: chloorfenprop-methyl

PT: clorfenprope-metilo

FI: klorfenproppi-metyyli; metyyli-2-kloori-3-(4-kloorifenyli)propionaatti

SV: klorfenprop-metyl

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 21/22	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

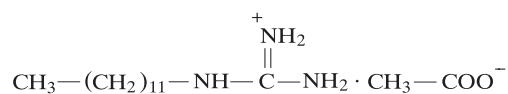
Xn	N	
		R: 21/22-50/53
		S: (2-)36/37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 2439-10-3

EC No 219-459-5

No 607-076-00-X



ES: dodina

DA: dodin; dodecylguanidinacetat

DE: Dodin

EL: dodine

EN: dodine; dodecylguanidinium acetate

FR: dodine

IT: dodina; dodecilguanidina monoacetato

NL: dodine

PT: dodina

FI: dodiini; dodekyyliguanidiiniasettaatti

SV: dodin



Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22

Xi; R 36/38

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

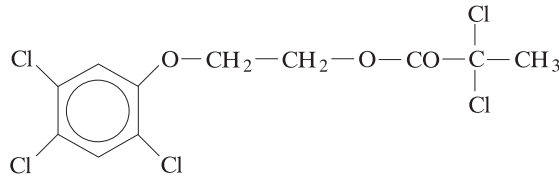
Xn	N	
		R: 22-36/38-50/53
		S: (2-)26-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 136-25-4

EC No —

No 607-077-00-5



ES: erbon

DA: erbon; 2-(2,4,5-trichlorophenoxy)ethyl-2,2-dichlorpropionat

DE: erbon

EL: erbon

EN: erbon; 2-(2,4,5-trichlorophenoxy)ethyl 2,2-dichloropropionate

FR: erbon

IT: erbon; 2-(2,4,5-triclorofenossi)etil 2,2-dicloropropionato

NL: erbon

PT: erbon

FI: erboni; 2-(2,4,5-trikloorifenoksi)etyyli-2,2-diklooripropionaatti

SV: erbon

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22

N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

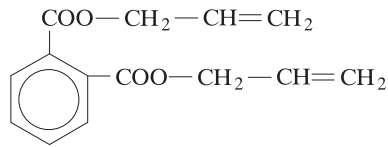
Xn	N	
		R: 22-51/53
		S: (2-)61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 131-17-9

EC No 205-016-3

No 607-086-00-4





ES: ftalato de dialilo
 DA: diallylphthalat
 DE: Diallylphthalat
 EL: φθαλικό διαλλύλιο
 EN: diallyl phthalate
 FR: phtalate de diallyle
 IT: ftalato di diallile
 NL: diallylftalaat
 PT: ftalato de dialilo
 FI: diallyylftalaatti
 SV: diallylftalat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

Xn	N	
		R: 22-50/53
		S: (2-)24/25-60-61

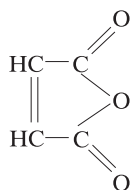
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 25 %	Xn; R 22

Cas No 108-31-6

EC No 203-571-6

No 607-096-00-9



ES: anhídrido maleico
 DA: maleinsyreanhydrid
 DE: Maleinsäureanhydrid
 EL: μηλεϊνικός ανυδρίτης
 EN: maleic anhydride
 FR: anhydride maléique
 IT: anidride maleica
 NL: maleinezuuranhydride
 PT: anidrido maleico
 FI: maleiinianhydridi
 SV: maleinsyraanhydrid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	C; R 34	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

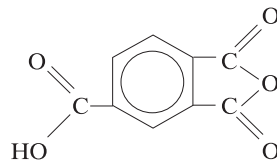
C	
	R: 22-34-42/43
	S: (2-)22-26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 552-30-7

EC No 209-008-0

No 607-097-00-4



- ES: 1,2-anhídrido del ácido benceno-1,2,4-tricarboxílico
 DA: benzen-1,2,4-tricarboxylsyre-1,2-anhydrid
 DE: Benzol-1,2,4-tricarbonsäure-1,2-anhydrid
 EL: 1,2-ανυδρίτης του βενζόλο-1,2,4-τρικαρβοξυλικού οξέος
 EN: benzene-1,2,4-tricarboxylic acid 1,2-anhydride; trimellitic anhydride
 FR: 1,2-anhydride de l'acide benzène-1,2,4-tricarboxylique; anhydride trimellitique
 IT: 1,2-anidride dell'acido benzen-1,2,4-tricarbossilico
 NL: benzeen-1,2,4-tricarbonzuur-1,2-anhydride
 PT: 1,2-anidrido de ácido benzeno-1,2,4-tricarboxélico
 FI: bentseeni-1,2,4-trikarboksylihapon 1,2-anhydridi
 SV: benzen-1,2,4-trikarboxylsyre 1,2-anhydrid; trimellitsyraanhydrid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 37-41	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

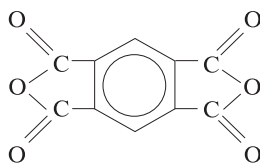
Xn	
	R: 37-41-42/43
	S: (2-)22-26-36/37/39

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 89-32-7

EC No 201-898-9

No 607-098-00-X



- ES: dianhídrido benceno-1,2:4,5-tetracarboxílico; dianhídrido 1,2:4,5-bencenotetracarboxílico; dianhídrido piromelítico
- DA: benzen-1,2:4,5-tetracarboxylsyredianhydrid 1,2,4,5-benzentetracarboxylsyredianhydrid; pyromellitsyredianhydrid
- DE: Benzol-1,2:4,5-tetracarbonsäuredianhydrid Pyromellitsäuredianhydrid; 1,2,4,5-Benzoltetracarbonsäuredianhydrid
- EL: βενζολο-1,2:4,5-τετρακαρβοξυλικό διανυδρίδιο· διανυδρίτης του 1,2,4,5-βενζοτετρακαρβοξυλικού οξέος· πυρομελλιτικός διανυδρίτης
- EN: benzene-1,2:4,5-tetracarboxylic dianhydride; benzene-1,2:4,5-tetracarboxylic dianhydride; pyromellitic dianhydride
- FR: anhydride benzène-1,2:4,5-tétracarboxylique dianhydride 1,2,4,5-benzènetétracarboxylique; dianhydride pyromellitique
- IT: dianidride benzen-1,2:4,5-tetracarbossilica dianidride dell'acido 1,2,4,5-benzen tetracarbossilico; dianidride piromellitica
- NL: benzeen-1,2:4,5-tetracarbonzuurdianhydride 1,2,4,5-benzeentetracarbonzuurdianhydride; pyromellietzuurdianhydride
- PT: dianidrido benzeno-1,2:4,5-tetracarboxílico dianidrido 1,2,4,5-benzenotetracarboxélico; dianidrido piromelético
- FI: bentseeni-1,2:4,5-tetrakarboxyylidianhydridi; pyromelliittihappodianhydridi
- SV: benzen-1,2:4,5-tetrakarboxylsyredianhydrid; pyromellitsyredianhydrid

Cas No 89-32-7

EC No 201-898-9

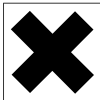
No 607-098-00-X

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificaçã, Luokitus, Klassificering

Xi; R 41	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

Xn



R: 41-42/43

S: (2-)22-24-26-37/39

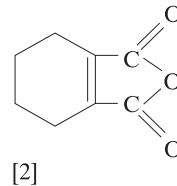
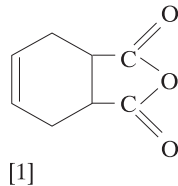
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 85-43-8 [1]
935-79-5 [2]
2426-02-0 [3]
26266-63-7 [4]

EEC No 201-605-4 [1]
213-308-7 [2]
219-374-3 [3]
247-570-9 [4]

No 607-099-00-5

NOTA C



- ES: anhídrido 1,2,3,6-tetrahidroftálico [1]; anhídrido *cis*-1,2,3,6-tetrahidroftálico [2]; anhídrido 3,4,5,6-tetrahidroftálico [3]; anhídrido tetrahidroftálico [4] anhídrido 4-ciclohexeno-1,2-dicarboxílico; anhídrido tetrahidroftálico
- DA: 1,2,3,6-tetrahydrophthalsyreanhydrid [1]; *cis*-1,2,3,6-tetrahydrophthalsyreanhydrid [2]; 3,4,5,6-tetrahydrophthalsyreanhydrid [3]; tetrahydrophthalsyreanhydrid [4] 4-cyclohexen-1,2-dicarboxylsyreanhydrid; tetrahydrophthalsyreanhydrid
- DE: 1,2,3,6-Tetrahydrophthalsäureanhydrid [1]; *cis*-1,2,3,6-Tetrahydrophthalsäureanhydrid [2]; 3,4,5,6-Tetrahydrophthalsäureanhydrid [3]; Tetrahydrophthalsäureanhydrid [4] Tetrahydrophthalsäureanhydrid
- EL: 1,2,3,6-τετραϋδροφθαλικός ανυδρίτης [1]; *cis*-1,2,3,6-τετραϋδροφθαλικός ανυδρίτης [2]; 3,4,5,6-τετραϋδροφθαλικός ανυδρίτης [3]; τετραϋδροφθαλικός ανυδρίτης [4]; ανυδρίτης του 4-κυκλοεξενο-1,2-δικαρβοξυλικού οξέος; ανυδρίτης του τετραϋδροφθαλικού οξέος
- EN: 1,2,3,6-tetrahydrophthalic anhydride [1]; *cis*-1,2,3,6-tetrahydrophthalic anhydride [2]; 3,4,5,6-tetrahydrophthalic anhydride [3]; tetrahydrophthalic anhydride [4] cyclohex-4-ene-1,2-dicarboxylic anhydride; tetrahydrophthalic anhydride
- FR: anhydride 1,2,3,6-tétrahydrophthalique [1]; anhydride *cis*-1,2,3,6-tétrahydrophthalique [2]; anhydride 3,4,5,6-tétrahydrophthalique [3]; anhydride tétrahydrophthalique [4] anhydride 4-cyclohexène-1,2-dicarboxylique; anhydride tétrahydrophthalique
- IT: anidride 1,2,3,6-tetraidroftalica [1]; anidride *cis*-1,2,3,6-tetraidroftalica [2]; anidride 3,4,5,6-tetraidroftalica [3]; anidride tetraidroftalica [4] anidride tetraidroftalica; anidride 4-cicloesen-1,2-dicarbossilica
- NL: 1,2,3,6-tetrahydroftaalzuuranhydride [1]; *cis*-1,2,3,6-tetrahydroftaalzuuranhydride [2]; 3,4,5,6-tetrahydroftaalzuuranhydride [3]; tetrahydroftaalzuuranhydride [4] 4-cyclohexeen-1,2-dicarbonzuuranhydride; tetrahydroftaalzuuranhydride
- PT: anidrido 1,2,3,6-tetrahidroftálico [1]; anidrido *cis*-1,2,3,6-tetrahidroftálico [2]; anidrido 3,4,5,6-tetrahidroftálico [3]; anidrido tetrahidroftálico [4] anidrido 4 cicloexeno-1,2-dicarboxílico; anidrido tetrahidroftálico
- FI: 1,2,3,6-tetrahydroftaalihappoanhydridi [1]; *cis*-1,2,3,6-tetrahydroftaalihappoanhydridi [2]; 3,4,5,6-tetrahydroftaalihappoanhydridi [3]; tetrahydroftaalihappoanhydridi [4]
- SV: 1,2,3,6-tetrahydroftalsyreanhydrid [1]; *cis*-1,2,3,6-tetrahydroftalsyreanhydrid [2]; 3,4,5,6-tetrahydroftalsyreanhydrid [3]; tetrahydroftalsyreanhydrid [4]

Cas No 85-43-8 [1]
935-79-5 [2]
2426-02-0 [3]
26266-63-7 [4]

EEC No 201-605-4 [1]
213-308-7 [2]
219-374-3 [3]
247-570-9 [4]

No 607-099-00-5

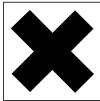
NOTA C

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 41	R 42/43	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xn



R: 41-42/43-52/53

S: (2-)22-24-26-37/39-61

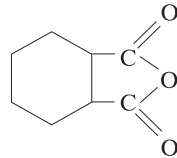
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No	85-42-7 [1]
	13149-00-3 [2]
	14166-21-3 [3]

EC No	201-604-9 [1]
	236-086-3 [2]
	238-009-9 [3]

No	607-102-00-X
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NOTA C



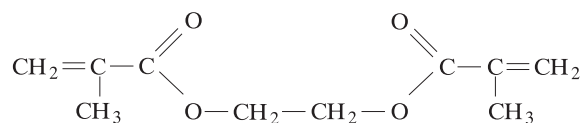
- ES: anhídrido ciclohexano-1,2-dicarboxílico [1]; anhídrido *cis*-ciclohexano-1,2-dicarboxílico [2]; anhídrido *trans*-ciclohexano-1,2-dicarboxílico [3]
- DA: cyclohexan-1,2-dicarboxylsyreanhydrid [1]; *cis*-cyclohexan-1,2-dicarboxylsyreanhydrid [2]; *trans*-cyclohexan-1,2-dicarboxylsyreanhydrid [3]
- DE: Cyclohexan-1,2-dicarbonsäureanhydrid [1]; *cis*-Cyclohexan-1,2-dicarbonsäureanhydrid [2]; *trans*-Cyclohexan-1,2-dicarbonsäureanhydrid [3]; Hexahydrophthalsäure [1]
- EL: κυκλοεξανο-1,2-δικαρβοξυλικός ανυδρίτης [1]; *cis*-κυκλοεξανο-1,2-δικαρβοξυλικός ανυδρίτης [2]; *trans*-κυκλοεξανο-1,2-δικαρβοξυλικός ανυδρίτης [3]
- EN: cyclohexane-1,2-dicarboxylic anhydride [1]; *cis*-cyclohexane-1,2-dicarboxylic anhydride [2]; *trans*-cyclohexane-1,2-dicarboxylic anhydride [3]
- FR: anhydride cyclohexane-1,2-dicarboxylique [1]; anhydride *cis*-cyclohexane-1,2-dicarboxylique [2]; anhydride *trans*-cyclohexane-1,2-dicarboxylique [3]
- IT: anidride cicloesan-1,2-dicarbossilica [1]; anidride *cis*-cicloesan-1,2-dicarbossilica [2]; anidride *trans*-cicloesan-1,2-dicarbossilica [3]
- NL: cyclohexaan-1,2-dicarbonzuuranhydride [1]; *cis*-cyclohexaan-1,2-dicarbonzuuranhydride [2]; *trans*-cyclohexaan-1,2-dicarbonzuuranhydride [3]
- PT: anidrido ciclohexano-1,2-dicarboxílico [1]; anidrido *cis*-ciclohexano-1,2-dicarboxílico [2]; anidrido *trans*-ciclohexano-1,2-dicarboxílico [3]
- FI: sykloheksaani-1,2-dikarboksylianhydridi [1]; *cis*-sykloheksaani-1,2-dikarboksylianhydridi [2]; *trans*-sykloheksaani-1,2-dikarboksylianhydridi [3]
- SV: cyklohexan-1,2-dikarboxylsyreanhydrid [1]; *cis*-cyklohexan-1,2-dikarboxylsyreanhydrid [2]; *trans*-cyklohexan-1,2-dikarboxylsyreanhydrid [3]

Cas No 97-90-5

EC No 202-617-2

No 607-114-00-5

NOTA D



ES: dimetacrilato de etileno

DA: ethylendimethacrylat

DE: Ethylendimethacrylat

EL: διμεθακρυλικό αιθυλένιο

EN: ethylene dimethacrylate

FR: diméthacrylate d'éthylène

IT: dimetacrilato di etilene

NL: ethyleendimethacrylaat

PT: dimetacrilato de etileno


FI: etyleenidimetakrylaatti

SV: etylendimetakrylat; etandiol-1,2-dimetakrylat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 37	R 43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xi	
	R: 37-43 S: (2-)24-37

Límites de concentración, Koncentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Koncentrationsgrænser

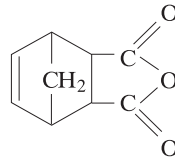
C ≥ 10 %	Xi; R 37-43
1 % ≤ C < 10 %	Xi; R 43

Cas No 129-64-6 [1]
826-62-0 [2]
2746-19-2 [3]

EC No 204-957-7 [1]
212-557-9 [2]
220-384-5 [3]

No 607-105-00-6

NOTA C



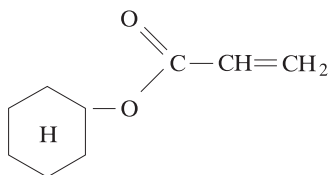
- ES: anhídrido 8,9,10-trinorborn-5-eno-2,3-dicarboxílico [1]; anhídrido 1,2,3,6-tetrahidro-3,6-metanoftálico [2]; anhídrido (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetrahidro-3,6-metanoftálico [3];
- DA: 8,9,10-trinorborn-5-en-2,3-dicarboxylsyreanhydrid [1]; 1,2,3,6-tetrahydro-3,6-methanophthalsyreanhydrid [2]; (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetrahydro-3,6-methanophthalsyreanhydrid [3]; (1 α ,2 α ,3 α ,6 α)-1,2,3,6-tetrahydro-3,6-methanophthalsyreanhydrid [1]
- DE: endo-3,6-Methylen-1,2,3,6-tetrahydrophthalsäureanhydrid [1]; 1,2,3,6-Tetrahydro-3,6-methanophthalsäureanhydrid [2]; exo-3,6-Methylen-1,2,3,6-tetrahydrophthalsäureanhydrid [3]
- EL: 8,9,10-τρινορβορν-5-ενο-2,3-δικαρβοξυλικός ανυδρίτης [1]; 1,2,3,6-τετραϋδρο-3,6-μεθανοφθαλικός ανυδρίτης [2]; (1 α ,2 α ,3 β ,6 β)-1,2,3,6-τετραϋδρο-3,6-μεθανοφθαλικός ανυδρίτης [3]
- EN: 8,9,10-trinorborn-5-ene-2,3-dicarboxylic anhydride [1]; 1,2,3,6-tetrahydro-3,6-methanophthalic anhydride [2]; (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetrahydro-3,6-methanophthalic anhydride [3]
- FR: anhydride endo-3,6-méthylène-1,2,3,6-tétrahydrophthalique [1]; anhydride 1,2,3,6-tétrahydro-3,6-méthanophthalique [2]; anhydride exo-3,6-méthylène-1,2,3,6-tétrahydrophthalique [3]
- IT: anidride 8,9,10-trinorborn-5-en-2,3-dicarbossilica [1]; anidride 1,2,3,6-tetraidro-3,6-metanoftalica [2]; anidride (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetraidro-3,6-metanoftalica [3]
- NL: 8,9,10-trinorborn-5-een-2,3-dicarbonzuuranhydride [1]; 1,2,3,6-tetrahydro-3,6-methanoftaalzuuranhydride [2]; (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetrahydro-3,6-methanoftaalzuuranhydride [3]
- PT: anidrido 8,9,10-trinorborn-5-eno-2,3-dicarboxílico [1]; anidrido 1,2,3,6-tetrahidro-3,6-metanoftálico [2]; anidrido (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetrahidro-3,6-metanoftálico [3]
- FI: 8,9,10-trinorborn-5-eeni-2,3-dikarboksylianhydridi [1]; 1,2,3,6-tetrahydro-3,6-metaaniftaalihappoanhydridi [2]; (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetrahydro-3,6-metaaniftaalihappoanhydridi [3]
- SV: 8,9,10-trinorborn-5-en-2,3-dikarboxylsyreanhydrid [1]; 1,2,3,6-tetrahydro-3,6-metanoftalsyreanhydrid [2]; (1 α ,2 α ,3 β ,6 β)-1,2,3,6-tetrahydro-3,6-metanoftalsyreanhydrid [3]

Cas No 3066-71-5

EC No 221-319-3

No 607-116-00-6

NOTA D



ES: acrilato de ciclohexilo

DA: cyclohexylacrylat

DE: Cyclohexylacrylat

EL: ακρυλικό κυκλοεξύλιο

EN: cyclohexyl acrylate

FR: acrylate de cyclohexyle

IT: acrilato di cicloesile

NL: cyclohexylacrylaat

PT: acrilato de ciclohexilo

FI: sykloheksyyliakrylaatti

SV: cyklohexylakrylat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 37/38

N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xi	N	
		R: 37/38-51/53
		S: (2-)61

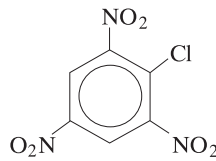
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 10 %	Xi; R 37/38

Cas No 88-88-0

EC No 201-864-3

No 610-004-00-X



ES: 2-cloro-1,3,5-trinitrobencono

DA: 2-chlor-1,3,5-trinitrobenzen

DE: 2-Chlor-1,3,5-trinitrobenzol

EL: 2-χλωρο-1,3,5-τρινιτροβενζόλιο

EN: 2-chloro-1,3,5-trinitrobenzene

FR: 2-chloro-1,3,5-trinitrobenzène

IT: 2-cloro-1,3,5-trinitrobenzene

NL: 2-chloor-1,3,5-trinitrobenzeen

PT: 2-cloro-1,3,5-trinitrobenzeno




FI: 2-kloori-1,3,5-trinitrobenseeni

SV: 2-klor-1,3,5-trinitrobenzen; klortrinitrobenzen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

E; R 2	T+; R 26/27/28	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

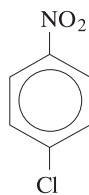
E	T+	N	
			
			R: 2-26/27/28-50/53
			S: (1/2-)28-35-36/37-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 100-00-5

EC No 202-809-6

No 610-005-00-5



ES: 1-cloro-4-nitrobenceno

DA: 1-chlor-4-nitrobenzen

DE: 1-Chlor-4-nitrobenzol

EL: 1-χλωρο-4-νιτροβενζόλιο

EN: 1-chloro-4-nitrobenzene

FR: 1-chloro-4-nitrobenzène

IT: 1-cloro-4-nitrobenzene

NL: 1-chloor-4-nitrobenzeen

PT: 1-cloro-4-nitrobenzeno



FI: 1-kloori-4-nitrobentseeni

SV: 1-klor-4-nitrobenzen

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 23/24/25	R 33	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

T	N	
		
		R: 23/24/25-33-51/53
		S: (1/2-)28-36/37-45-61

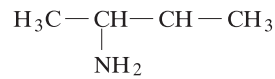
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 513-49-5 [1]
13250-12-9 [2]
13952-84-6 [3]

EC No 208-164-7 [1]
236-232-6 [2]
237-732-7 [3]

No 612-052-00-7

NOTA C






- ES: (*S*)-*sec*-butilamina [1]; (*R*)-*sec*-butilamina [2]; *sec*-butilamina [3]
 DA: (*S*)-*sec*-butylamin [1]; (*R*)-*sec*-butylamin [2]; *sec*-butylamin [3]
 DE: (*S*)-*sec*-Butylamin [1]; (*R*)-*sec*-Butylamin [2]; *sec*-Butylamin [3]
 EL: (*S*)-δευτεροταγής-βουτυλαμίνη [1]; (*R*)-δευτεροταγής-βουτυλαμίνη [2]; δευτεροταγής-βουτυλαμίνη [3]
 EN: (*S*)-*sec*-butylamine [1]; (*R*)-*sec*-butylamine [2]; *sec*-butylamine [3]; (*S*)-2-aminobutane [1]; (*R*)-2-aminobutane [2]; 2-aminobutane [3]
 FR: (*S*)-*sec*-butylamine [1]; (*R*)-*sec*-butylamine [2]; *sec*-butylamine [3]
 IT: (*S*)-*sec*-butilamina [1]; (*R*)-*sec*-butilamina [2]; *sec*-butilamina [3]
 NL: (*S*)-*sec*-butylamine [1]; (*R*)-*sec*-butylamine [2]; *sec*-butylamine [3]
 PT: (*S*)-*sec*-butilamina [1]; (*R*)-*sec*-butilamina [2]; *sec*-butilamina [3]
 FI: (*S*)-*sek*-butyyliamiini [1]; (*R*)-*sek*-butyyliamiini [2]; *sek*-butyyliamiini [3]
 SV: (*S*)-*sek*-butylamin [1]; (*R*)-*sek*-butylamin [2]; *sek*-butylamin [3]

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

F; R 11	Xn; R 20/22	C; R 35	N; R 50
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

F	C	N	
			
			R: 11-20/22-35-50
			S: (1/2)-9-16-26-28-36/37/39-45-61

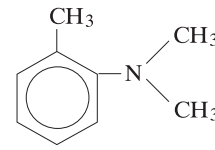
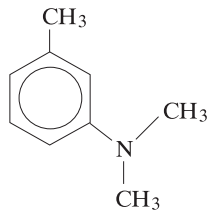
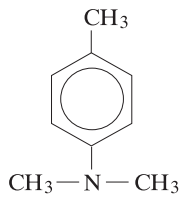
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 99-97-8 [1]
121-72-2 [2]
609-72-3 [3]

EC No 202-805-4 [1]
204-495-6 [2]
210-199-8 [3]

No 612-056-00-9

NOTA C




ES: *N,N*-dimetil-*p*-toluidina [1]; *N,N*-dimetil-*m*-toluidina [2]; *N,N*-dimetil-*o*-toluidina [3]
 DA: *N,N*-dimethyl-*p*-toluidin [1]; *N,N*-dimethyl-*m*-toluidin [2]; *N,N*-dimethyl-*o*-toluidin [3]
 DE: *N,N*-dimethyl-*p*-toluidin [1]; *N,N*-Dimethyl-*m*-toluidin [2]; *N,N*-Dimethyl-*o*-toluidin [3]
 EL: *N,N*-διμεθυλο-*p*-τολουιδίνη [1]; *N,N*-διμεθυλο-*m*-τολουιδίνη [2]; *N,N*-διμεθυλο-*o*-τολουιδίνη [3]
 EN: *N,N*-dimethyl-*p*-toluidine [1]; *N,N*-dimethyl-*m*-toluidine [2]; *N,N*-dimethyl-*o*-toluidine [3]
 FR: *N,N*-diméthyl-*p*-toluidine [1]; *N,N*-diméthyl-*m*-toluidine [2]; *N,N*-diméthyl-*o*-toluidine [3]
 IT: *N,N*-dimetil-*p*-toluidina [1]; *N,N*-dimetil-*m*-toluidina [2]; *N,N*-dimetil-*o*-toluidina [3]
 NL: *N,N*-dimethyl-*p*-toluïdine [1]; *N,N*-dimethyl-*m*-toluïdine [2]; *N,N*-dimethyl-*o*-toluïdine [3]
 PT: *N,N*-dimetil-*p*-toluidina [1]; *N,N*-dimetil-*m*-toluidina [2]; *N,N*-dimetil-*o*-toluidina [3]
 FI: *N,N*-dimetyyli-*p*-toluidiini [1]; *N,N*-dimetyyli-*m*-toluidiini [2]; *N,N*-dimetyyli-*o*-toluidiini [3]
 SV: *N,N*-dimetyl-*p*-toluidin [1]; *N,N*-dimetyl-*m*-toluidin [2]; *N,N*-dimetyl-*o*-toluidin [3]

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classifikation, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 23/24/25	R 33	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

T	
	R: 23/24/25-33-52/53
	S: (1/2-)28-36/37-45-61

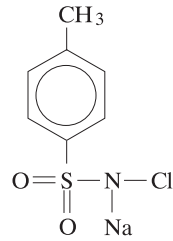
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 5 %	T; R 23/24/25-33
1 % ≤ C < 5 %	Xn; R 20/21/22-33

Cas No 127-65-1

EC No 204-854-7

No 616-010-00-9



- ES: tosilcloramida sódica
 DA: tosylchloramidnatrium; chloramin T, natrium salt
 DE: Tosylchloramidnatrium; Chloramin T (sodium salt)
 EL: Τοσυλχλωραμίδιο του νατρίου
 EN: tosylchloramide sodium
 FR: tosylchloramide sodique; chloramine T (sel de sodium)
 IT: tosilcloramide sodica; cloramina T (sale di sodio)
 NL: tosylchloramidenatrium
 PT: sodio tosilcloramida
 FI: tosyliklooriamidinatrium
 SV: tosykloramidnatrium; kloramin T, natriumsalt

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	R 31	C; R 34	R 42
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

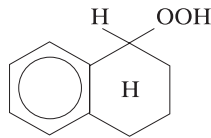
C	
	R: 22-31-34-42
	S: (1/2)-7-22-26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 771-29-9

EC No 212-230-0

No 617-004-00-9



ES: hidropéroxido de 1,2,3,4-tetrahidro-1-naftilo
 DA: 1,2,3,4-tetrahydro-1-naphthylhydroperoxid
 DE: 1,2,3,4-Tetrahydro-1-naphthylhydroperoxid
 EL: υδροϋπεροξειδίο του 1,2,3,4-τετραϋδρο-1-ναφθυλίου
 EN: 1,2,3,4-tetrahydro-1-naphthyl hydroperoxide
 FR: hydroperoxyde de 1,2,3,4-tétrahydro-1-naphtyle
 IT: idroperossido di 1,2,3,4-tetraidro-1-naftile
 NL: 1,2,3,4-tetrahydro-1-naftylhydroperoxide
 PT: hidropéroxido de 1,2,3,4-tetrahidro-1-naftilo
 FI: 1,2,3,4-tetrahydro-1-naftylihydroperoksidi
 SV: 1,2,3,4-tetrahydro-1-naftylhydroperoxid; tetralinhydroperoxid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

O; R 7	C; R 34	Xn; R 22	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

O	C	N	
			R: 7-22-34-50/53
			S: (1/2-)3/7-14-26-36/37/39-45-60-61

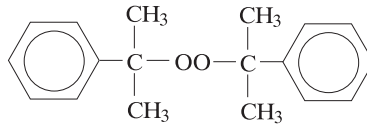
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 25 %	C; R 22-34
10 % ≤ C < 25 %	C; R 34
5 % ≤ C < 10 %	Xi; R 36/37/38

Cas No 80-43-3

EC No 201-279-3

No 617-006-00-X


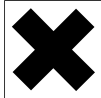



ES: peróxido de bis(α - α -dimetilbencilo)
 DA: bis (α - α -dimethylbenzyl)peroxid
 DE: Bis(α , α -dimethylbenzyl)peroxid
 EL: υπεροξείδιο του δις(α , α -διμεθυλοβενζυλίου)
 EN: bis(α , α -dimethylbenzyl) peroxide
 FR: peroxyde de bis(α , α -diméthylbenzyle)
 IT: perossido di bis(α - α -dimetilbenzile); dicumilperossido
 NL: bis(α - α -dimethylbenzyl)peroxide
 PT: peróxido de bis(α - α -dimetilbencilo)
 FI: bis(α , α -dimetylibentsyyl)peroksidi
 SV: bis(α , α -dimetylbenzyl)peroxid; dikumylperoxid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitus, Klassificering

O; R 7	Xi; R 36/38	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnt, Märkning

O	Xi	N	
			
			R: 7-36/38-51/53
			S: (2-)/3/7-14-36/37/39-61

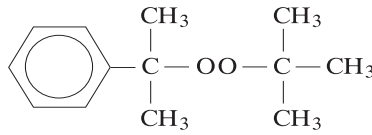
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

*ANEXO II — BILAG II — ANHANG II — ΠΑΡΑΡΤΗΜΑ II — ANNEX II — ANNEXE II —
ALLEGATO II — BIJLAGE II — ANEXO II — LIITE II — BILAGA II*

Cas No 3457-61-2

EC No 222-389-8

No 617-007-00-5


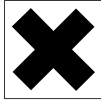



- ES: peróxido de terc-butilo y α - α -dimetilbencilo
 DA: tert-butyl- α - α -dimethylbenzylperoxid
 DE: tert-Butyl- α , α -dimethylbenzylperoxid
 EL: Υπεροξειδίο του τριτοταγούς-δουτυλο- α , α -διμεθυλοβενζυλίου
 EN: tert-butyl α , α -dimethylbenzyl peroxide
 FR: peroxyde de tert-butyle et de α , α -diméthylbenzyle
 IT: perossido di terz-butile e α - α -dimetilbenzile
 NL: tert-butyl- α - α -dimethylbenzylperoxide
 PT: peróxido de terc-butilo e α - α -dimetilbenzilo
 FI: tert-butyyl- α , α -dimetyylibentsyyli-peroksidi
 SV: tert-butyl- α , α -dimetylbenzylperoxid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

O; R 7	Xi; R 38	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

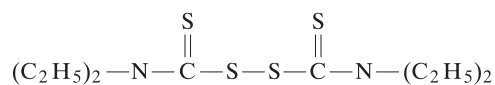
O	Xi	N	
			R: 7-38-51/53
			S: (2-)3/7-14-36/37/39-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 97-77-8

EC No 202-607-8

No 006-079-00-8





ES: disulfiramo
 DA: disulfiram
 DE: Disulfiram
 EL: δισουλφιράμη
 EN: disulfiram; tetraethylthiuramdisulfide
 FR: disulfirame; disulfure de tétraéthylthiurame
 IT: disulfiram; tetraetiltiuramdisolfuro
 NL: disulfiram
 PT: dissulfirame
 FI: disulfiraami; tetraetyylitiuraamidisulfidi
 SV: disulfiram; tetraetyltiuramdisulfid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitus, Klassificering

Xn; R 22-48/22	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnt, Märkning

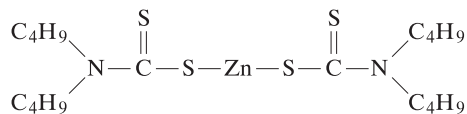
Xn	N	
		R: 22-43-48/22-50/53
		S: (2-)24-37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 136-23-2

EC No 205-232-8

No 006-081-00-9





ES: bis(dibutilditiocarbamato) de cinc
 DA: zinkbis(dibutyldithiocarbamat)
 DE: Zinkbis(dibutyldithiocarbamat)
 EL: διςδιβουτυλοδιθειοκαρβαμιδικός ψευδάργυρος
 EN: zinc bis(dibutyldithiocarbamate)
 FR: bis(dibutyldithiocarbamate) de zinc
 IT: bis(dibutilditiocarbammato) di zinco
 NL: zinkbis(dibutyldithiocarbamaat)
 PT: bis(dibutilditiocarbamato) de zinco
 FI: sinkkibis(dibutyyliditiokarbamaatti)
 SV: zinkbis(dibutylditiokarbamat)

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitutus, Klassificering

Xi; R 36/37/38	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

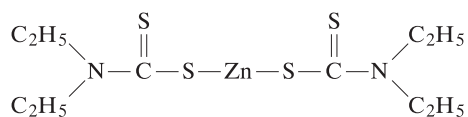
Xi 	N 	R: 36/37/38-43-50/53 S: (2-)24-37-60-61
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Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 14324-55-1

EC No 238-270-9

No 006-082-00-4



ES: bis(dietilditiocarbamato) de cinc

DA: zinkbis(diethyldithiocarbamat)

DE: Zinkbis(diethyldithiocarbamat)

EL: δις(διαιθυλοδιθειοκαρβαμδικός) ψευδάργυρος

EN: zinc bis(diethyldithiocarbamate)

FR: bis(diéthyldithiocarbamate) de zinc

IT: bis(dietilditiocarbammato) di zinco

NL: zinkbis(diethyldithiocarbamaat)

PT: bis(dietilditiocarbamato) de zinco



FI: sinkkibis(dietyliditiokarbamaatti)

SV: zinkbis(dietylditiokarbamat)

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 36/37/38	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

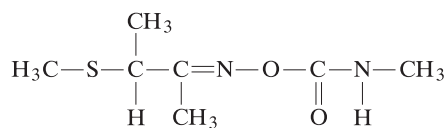
Xn	N	R: 22-36/37/38-43-50/53 S: (2-)24-37-60-61
		

Límites de concentración, Koncentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Koncentrationsgränser

Cas No 34681-10-2

EC No 252-139-3

No 006-083-00-X



ES: butocarboxim

DA: butocarboxim

DE: Butocarboxim

EL: butocarboxim

EN: butocarboxim; 3-(methylthio)-2-butanone *O*-[(methylamino)carbonyl]oxime

FR: butocarboxime

IT: butocarbossim

NL: butocarboxim



PT: butocarboxima

FI: butokarboksiimi; 3-(metyyltio)-2-butanoni-*O*-[(metyyliamino)karbonyyli]oksiimiSV: butokarboxim; 3-(metyltio)-2-butanon *O*-[(metylamino)karbonyl]oxim

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

R 10	T; R 23/24/25	Xi; R 36	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

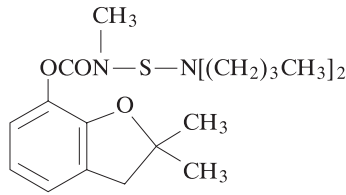
T	N	
		
		R: 10-23/24/25-36-50/53
		S: (1/2)36/37-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 55285-14-8

EC No 259-565-9

No 006-084-00-5





- ES: [(dibutilamino)tio]metilcarbamato de 2,3-dihidro-2,2-dimetil-7-benzofurilo
 DA: 2,3-dihydro-2,2-dimethyl-7-benzofuryl-[(dibutylamino)thio]methylcarbamate; carbosulfan
 DE: 2,3-Dihydro-2,2-dimethyl-7-benzofuryl-[(dibutylamino)thio]methylcarbamate
 EL: [(διβουτυλαμινο)θειο]μεθυλοκαρβαμιδικό 2,3-διυδρο-2,2-διμεθυλο-7-βενζοφουρύλιο
 EN: 2,3-dihydro-2,2-dimethyl-7-benzofuryl [(dibutylamino)thio]methylcarbamate; carbosulfan
 FR: [(dibutylamino)thio]méthylcarbamate de 2,3-dihydro-2,2-diméthyl-7-benzofuryle; carbosulfan
 IT: [(dibutilammino)tio]metilcarbammato di 2,3-diidro-2,2-dimetil-7-benzofurile
 NL: 2,3-dihydro-2,2-dimethyl-7-benzofuryl-[(dibutylamino)thio]methylcarbamaat
 PT: [(dibutilamino)tio]metilcarbamato de 2,3-dihidro-2,2-dimetil-7-benzofurilo
 FI: 2,3-dihydro-2,2-dimetyyli-7-bentsofuryyli[(dibutyliamino)tio]metyylikarbamaatti; karbosulfaani
 SV: 2,3-dihydro-2,2-dimetyl-7-benzofenyl[(dibutylamino)tio]metylkarbamate; karbosulfan

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 23/25	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

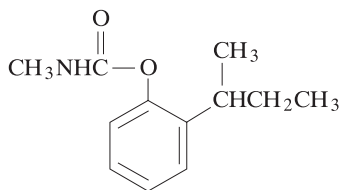
T	N	
		
		R: 23/25-43-50/53
		S: (1/2-)24-37-38-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 3766-81-2

EC No 223-188-8

No 006-085-00-0



ES: metilcarbamat de 2-butilfenilo
 DA: 2-butylphenylmethylcarbamate; fenobucarb
 DE: 2-*sec*-butylphenylmethylcarbamate
 EL: μεθυλοκαρβαμιδικό 2-βουτυλοφαινόλιο
 EN: 2-butylphenyl methylcarbamate; fenobucarb
 FR: méthylcarbamate de 2-*sec*-butylphényle; fénobucarbe
 IT: metilcarbammato di 2-butilfenile; fenobucarb
 NL: 2-butylfenylmethylcarbamaat
 PT: metilcarbamat de 2-butilfenilo
 FI: 2-butyylifenyyylimetyylikarbamaatti; fenobukarbi
 SV: 2-sek-butylfenylmetylkarbamate

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokititus, Klassificering

Xn; R 22

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

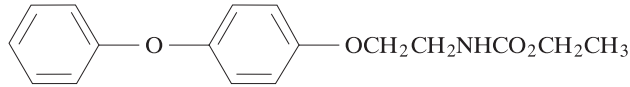
Xn	N	
		R: 22-50/53
		S: (2-)60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 72490-01-8

EC No 276-696-7

No 006-086-00-6



ES: [2-(4-fenoxifenoxi)etil]carbamato de etilo
 DA: ethyl-[2-(4-phenoxyphenoxy)ethyl]carbamat; fenoxycarb
 DE: Ethyl-[2-(4-phenoxyphenoxy)ethyl]carbamat
 EL: [2-(4-φαινοξυφαινοξυ)αιθυλο]καρβαμιδικό αιθύλιο
 EN: ethyl [2-(4-phenoxyphenoxy)ethyl]carbamate; fenoxycarb
 FR: [2-(4-phénoxyphénoxy)éthyl]carbamate d'éthyle; fénoxycarbe
 IT: [2-(4-fenossifenossi)etil]carbammato di etile
 NL: ethyl-[2-(4-fenoxyfenoxy)ethyl]carbamaat
 PT: [2-(4-fenoxifenoxi)etil]carbamato de etilo
 FI: etyyli[2-(4-fenoksifenoksi)etyyli]karbamaatti; fenoksikarbi
 SV: etyl[2-(4-fenoxifenoxi)etyl]karbamat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

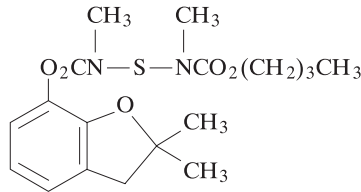
N	
	R: 50/53
	S: 60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 65907-30-4

EC No 265-974-3

No 006-087-00-1





- ES: 2,4-dimetil-6-oxa-5-oxo-3-tia-2,4-diazadecanoato de 2,3-dihidro-2,2-dimetil-7-benzofurilo
 DA: 2,3-dihydro-2,2-dimethyl-7-benzofuryl-2,4-dimethyl-6-oxa-5-oxo-3-thia-2,4-diazadecanoat; furathiocarb
 DE: 2,3-Dihydro-2,2-dimethyl-7-benzofuryl-2,4-dimethyl-6-oxa-5-oxo-3-thia-2,4-diazadecanoat
 EL: 2,4-διμεθυλ-6-οξο-5-οξο-3-θειο-2,4-διαζαδεκανοϊκό 2,3-διυδρο-2,2-διμεθυλο-7-βενζοφουρύλιο
 EN: 2,3-dihydro-2,2-dimethyl-7-benzofuryl 2,4-dimethyl-6-oxa-5-oxo-3-thia-2,4-diazadecanoate; furathiocarb
 FR: 2,4-diméthyl-6-oxa-5-oxo-3-thia-2,4-diazadecanoate de 2,3-dihydro-2,2-diméthyl-7-benzofuryle; furathiocarbe
 IT: 2,4-dimetil-6-ossa-5-osso-3-tia-2,4-diazadecanoato di 2,3-diidro-2,2-dimetil-7-benzofurile
 NL: 2,3-dihydro-2,2-dimethyl-7-benzofuryl-2,4-dimethyl-6-oxa-5-oxo-3-thia-2,4-diazadecanoaat
 PT: 2,4-dimetil-6-oxa-5-oxo-3-tia-2,4-diazadecanoato de 2,3-dihidro-2,2-dimetil-7-benzofurilo
 FI: 2,3-dihydro-2,2-dimetyyli-7-bentsofuryyli-2,4-dimetyyli-6-oksa-5-okso-3-tia-2,4-diatsadekanoaatti; furatiokarbi
 SV: 2,3-dihydro-2,2-dimetyl-7-benzofuryl-2,4-dimetyl-6-oxa-5-oxo-3-tia-2,4-diazadekanoat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T+; R 26	T; R 25	Xn; R 48/22	Xi; R 36/38	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

T+	N	
		R: 25-26-36/38-43-48/22-50/53
		S: (1/2-)28-36/37-38-45-60-61

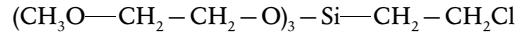
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 37894-46-5

EC No 253-704-7

No 014-014-00-X

NOTA E




- ES: 6-(2-cloroetil)-6-(2-metoxietoxi)-2,5,7,10-tetraoxa-6-silaundecano
 DA: 6-(2-chlorethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecan; etacelasil
 DE: 6-(2-Chlorethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecan
 EL: 6-(2-χλωροαιθυλο)-6-(2-μεθοξυαιθυλοξυ)-2,5,7,10-τετραοξα-6-σιλαενδεκάνιο
 EN: 6-(2-chloroethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecane; etacelasil
 FR: 6-(2-chloroéthyl)-6-(2-méthoxyéthoxy)-2,5,7,10-tétraoxa-6-silaundécane; etacelasil
 IT: 6-(2-cloroetil)-6-(2-metossietossi)-2,5,7,10-tetraossa-6-silaundecano; etacelasil
 NL: 6-(2-chloorethyl)-6-(2-methoxyethoxy)-2,5,7,10-tetraoxa-6-silaundecaan
 PT: 6-(2-cloroetil)-6-(2-metoxietoxi)-2,5,7,10-tetraoxa-6-silaundecano
 FI: 6-(2-kloorietyyli)-6-(2-metoksietoksi)-2,5,7,10-tetraoksa-6-silaunidekaani; etaselasiili
 SV: 6-(2-kloretyl)-6-(2-metoxietoxi)-2,5,7,10-tetraoxa-6-silaundekan

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Repr. Cat. 2; R 61	Xn; R 22-48/22
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

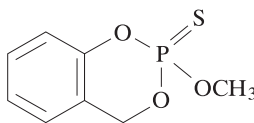
T	
	R: 61-22-48/22
	S: 53-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 3811-49-2

EC No 223-292-3

No 015-152-00-3





ES: 2-sulfuro de 2-metoxi-4H-1,3,2-benzodioxafosforino
 DA: 2-methoxy-4H-1,3,2-benzodioxaphosphorin-2-sulfid; dioxabenzofos
 DE: 2-Methoxy-4H-1,3,2-benzodioxaphosphorin-2-sulfid
 EL: 2-σουλφίδιο της 2-μεθοξυ-4H-1,3,2-βενζοδιοξωφωσφορίνης
 EN: 2-methoxy-4H-1,3,2-benzodioxaphosphorin 2-sulphide; dioxabenzofos
 FR: 2-sulfure de 2-méthoxy-4H-1,3,2-benzodioxaphosphorine; dioxabenzofos
 IT: 2-solfuro di 2-metossi-4H-1,3,2-benzodiossafosforina; diossabenzofos
 NL: 2-methoxy-4H-1,3,2-benzodioxafosforinine-2-sulfide
 PT: 2-sulfureto de 2-metoxi-4H-1,3,2-benzodioxafosforino
 FI: 2-metoksi-4H-1,3,2-bentsodioksafosforiini-2-sulfidi; dioksabentsofossi
 SV: 2-metoxi-4H-1,3,2-benzodioaxfosforin-2-sulfid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokititus, Klassificering

T; R 24/25-39/25 N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

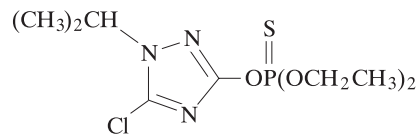
T	N	
		
		R: 24/25-39/25-51/53
		S: (1/2-)36/37-38-45-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 42509-80-8

EC No 255-863-8

No 015-153-00-9





- ES: tiofosfato de *O*-(5-cloro-1-isopropil-1,2,4-triazol-3-ilo) y de *O,O*-dietilo
 DA: *O*-(5-chlor-1-isopropyl-1,2,4-triazol-3-yl)-*O,O*-diethylthiophosphat; isazofos
 DE: *O*-(5-Chlor-1-isopropyl-1,2,4-triazol-3-yl)-*O,O*-diethylthiophosphat; Isazofos
 EL: θειοφωσφορικό *O,O*-διαιθυλο *O*-(5-χλωρο-1-ισοπροπυλο-1,2,4-τριαζολ-3-ύλιο)
 EN: *O*-(5-chloro-1-isopropyl-1,2,4-triazol-3-yl) *O,O*-diethyl phosphorothioate; isazofos
 FR: thiophosphate de *O*-(5-chloro-1-isopropyl-1,2,4-triazole-3-yle) et de *O,O*-diéthyle; isazofos
 IT: tiofosfato di *O*-(5-cloro-1-isopropil-1,2,4-triazol-3-ile) e di *O,O*-dietile
 NL: *O*-(5-chloor-1-isopropyl-1,2,4-triazool-3-yl)-*O,O*-diethylthiofosfaat
 PT: tiofosfato de *O*-(5-cloro-1-isopropil-1,2,4-triazole-3-ilo) e *O,O*-dietilo
 FI: *O*-(5-kloori-1-isopropyli-1,2,4-triatsoli-3-yyli)-*O,O*-dietylifosforitioaatti; isatsofossi
 SV: *O*-(5-kloro-1-isopropyl-1,2,4-triazol-3-yl)-*O,O*-dietylfosforotioat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitutus, Klassificering

T+; R 26	T; R 24/25	Xn; R 48/20	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

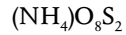
T+	N	
		R: 24/25-26-43-48/20-50/53
		S: (1/2-)28-36/37-38-45-59-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 7727-54-0

EC No 231-786-5

No 016-060-00-6





ES: peroxodisulfato de diamonio
 DA: diammoniumperoxodisulfat
 DE: Diammoniumperoxodisulfat
 EL: υπεροξειδιθειικό διαμμώνιο
 EN: diammonium peroxodisulphate; ammonium persulphate
 FR: peroxodisulfate de diammonium
 IT: perossodisolfato di diammonio
 NL: diammoniumperoxodisulfaat
 PT: peroxidissulfato de diamónio
 FI: diammoniumperoksodisulfaatti; ammoniumpersulfaatti
 SV: diammoniumperoxodisulfat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

O; R 8	Xn; R 22	Xi; R 36/37/38	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

O	Xn	
		R: 8-22-36/37/38-42/43
		S: (2-)22-24-26-37

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 7727-21-1

EC No 231-781-8

No 016-061-00-1


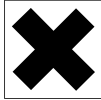


ES: peroxodisulfato de dipotasio
 DA: dikaliumperoxodisulfat
 DE: Dikaliumperoxodisulfat
 EL: υπεροξειθειικό δικάλιο
 EN: dipotassium peroxodisulphate; potassium persulphate
 FR: peroxodisulfate de dipotassium
 IT: perossodisolfato di dipotassio
 NL: dikaliumperoxodisulfaat
 PT: peroxodissulfato de dipotássio
 FI: dikaliumperoksodisulfaatti; kaliumpersulfaatti
 SV: dikaliumperoxodisulfat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

O; R 8	Xn; R 22	Xi; R 36/37/38	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

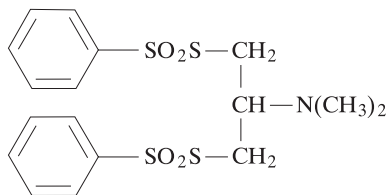
O	Xn	
		R: 8-22-36/37/38-42/43
		S: (2-)22-24-26-37

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 17606-31-4

EC No —

No 016-062-00-7



ES: bensultap

DA: bensultap; di-S-benzensulfonyl-2-(dimethylamino)propan-1,3-dithiol

DE: 1,3-Bis(phenylsulfonylthio)-2-(N,N-dimethylamino)propan

EL: bensultap

EN: bensultap; 1,3-bis(phenylsulfonylthio)-2-(N,N-dimethylamino)propane

FR: bensultap

IT: bensultap; 1,3-bis(fenilsulfoniltio)-2-(N,N-dimetilamino)propan-1,3-ditiolo

NL: bensultap

PT: bensultap

FI: bensultappi; 1,3-bis(fenyylisulfonyylitio)-2-(N,N-dimetyyliamino)propaani

SV: bensultap; S,S'-[2-(dimetylamiino)-1,3-propandiyl]dibenzensulfontioat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

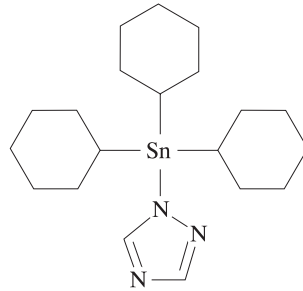
Xn	N	
		R: 22-50/53
		S: (2-)60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 41083-11-8

EC No 255-209-1

No 050-019-00-3





- ES: 1-(tricyclohexylestannil)-1 *H*-1,2,4-triazol
 DA: 1-(tricyclohexylstannyl)-1 *H*-1,2,4-triazol; azocyclotin
 DE: 1-(Tricyclohexylstannyl)-1 *H*-1,2,4-triazol
 EL: 1-(τρικυκλοεξυλοκασιτερυλο)-1 *H*-1,2,4-τριαζόλιο
 EN: 1-(tricyclohexylstannyl)-1 *H*-1,2,4-triazole; azocyclotin
 FR: 1-(tricyclohexylstannyl)-1 *H*-1,2,4-triazole; azocyclotin
 IT: 1-(tricioesilstannil)-1 *H*-1,2,4-triazolo; azociclotin
 NL: 1-(tricyclohexylstannyl)-1 *H*-1,2,4-triazool
 PT: 1-(tricyclohexilestanil)-1 *H*-1,2,4-triazole
 FI: 1-(trisykloheksyylistannyyli)-1 *H*-1,2,4-triatsoli; atsosyklotiini
 SV: 1-(tricyklohexylstannyl)-1 *H*-1,2,4-triazol; azocyklotin

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T+; R 26	T; R 25	Xi; R 37/38-41	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

T+	N	
		R: 25-26-37/38-41-50/53
		S: (1/2-)26-28-36/37/39-38-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No —

EC No —


No 078-001-00-0

- ES: tetrachloroplatinatos, excepto aquellos específicamente expresados en este anexo
- DA: tetrachloroplatinater, undtagen sådanne nævnt andetsteds i dette bilag
- DE: Tetrachlorplatinat mit Ausnahme der namentlich in diesem Anhang bezeichneten
- EL: τετραχλωρολευκοχρυσικές ενώσεις, εκτός εκείνων που κατονομάζονται σε άλλο σημείο του παραρτήματος
- EN: tetrachloroplatinates, with the exception of those specified elsewhere in this Annex
- FR: tétrachloroplatinates, à l'exception de ceux nommément désignés dans cette annexe
- IT: tetrachloroplatinati, esclusi quelli espressamente indicati in questo allegato
- NL: tetrachloorplatinaten, met uitzondering van de in deze bijlage met name genoemde
- PT: tetrachloroplatinatos, com excepção dos expressamente referidos no presente anexo
- FI: tetraklooriplatinaatit, paitsi muualla tässä luettelossa mainitut
- SV: tetrakloroplatinater, med undantag för sådana som är upptagna på annat ställe i denna bilaga

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 25	Xi; R 41	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

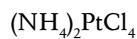
T	
	R: 25-41-42/43
	S: (2-)22-26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 13820-41-2

EC No 237-499-1

No 078-002-00-6




ES: tetrachloroplatinato de diamonio
 DA: diammoniumtetrachloroplatinat
 DE: Diammoniumtetrachloroplatinat
 EL: τετραχλωρολευκοχρυσικό διαμμώνιο
 EN: diammonium tetrachloroplatinate
 FR: tétrachloroplatinate de diammonium
 IT: tetrachloroplatinato di diammonio
 NL: diammoniumtetrachloroplatinaat
 PT: tetrachloroplatinato de diamónio
 FI: diammoniumtetraklooriplatinaatti
 SV: diammoniumtetrakloroplatinat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 25	Xi; R 38-41	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

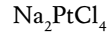
T	
	R: 25-38-41-42/43
	S: (2-)22-26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 10026-00-3

EC No 233-051-4

No 078-003-00-1




ES: tetracloroplatinato de disodio
 DA: dinatriumtetrachloroplatinat
 DE: Dinatriumtetrachloroplatinat
 EL: τετραχλωρολευκοχρυσικό δινάτριο
 EN: disodium tetrachloroplatinate
 FR: tétrachloroplatinate de disodium
 IT: tetracloroplatinato di disodio
 NL: dinatriumtetrachloroplatinaat
 PT: tetracloroplatinato de dissódio
 FI: dinatriumtetraklooriplatinaatti
 SV: dinatriumtetrakloroplatinat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 25	Xi; R 38-41	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

T	
	R: 25-38-41-42/43
	S: (2-)22-26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 10025-99-7

EC No 233-050-9

No 078-004-00-7




ES: tetrachloroplatinato de dipotasio
 DA: dikaliumtetrachloroplatinat
 DE: Dikaliumtetrachloroplatinat
 EL: τετραχλωρολευκοχρυσικό δικάλιο
 EN: dipotassium tetrachloroplatinate
 FR: tétrachloroplatinate de dipotassium
 IT: tetrachloroplatinato di dipotassio
 NL: dikaliumtetrachloroplatinaat
 PT: tetrachloroplatinato de dipotássio
 FI: dikaliumtetraklooriplatinaatti
 SV: dikaliumtetrakloroplatinat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 25	Xi; R 38-41	R 42/43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merknätt, Märkning

T	
	R: 25-38-41-42/43
	S: (2-)22-26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 68609-97-2

EC No 271-846-8

No 603-103-00-4


R = C₁₂-C₁₄ alkyl chain

- ES: oxirano, mono[(C₁₂₋₁₄-alquiloxi)metil] derivados
 DA: oxiran, mono[(C₁₂₋₁₄-alkyloxy)methyl]derivater; (C₁₂,C₁₄) alkylglycidylether
 DE: Oxiran, Mono[(C₁₂₋₁₄-alkyloxy)methyl]derivate
 EL: μονο[(C₁₂₋₁₄-αλκυλοξυ)μεθυλο] παράγωγα οξιρανίου
 EN: oxirane, mono[(C₁₂₋₁₄-alkyloxy)methyl] derivs.
 FR: oxiranne, dérivés mono[(alcoolates en C₁₂₋₁₄)méthyl]; oxyde de glycidyle et d'alkyle en C₁₂-C₁₄
 IT: ossirano, mono[(C₁₂₋₁₄-alchilossi)metil] derivati
 NL: oxiraan, mono[(C₁₂₋₁₄-alkoxy)methyl]-derivaten
 PT: oxirano, derivados mono[(C₁₂₋₁₄-alquiloxi)metilo]
 FI: oksiraani, mono[(C₁₂₋₁₄-alkylioksi)metyyli]johdannaiset
 SV: oxiran, mono[(C₁₂₋₁₄-alkyloxi)metyl]derivat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 38	R 43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

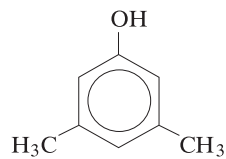
Xi	
	R: 38-43
	S: (2-)24-37

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 108-68-9

EC No 203-606-5

No 604-037-00-9



ES: 3,5-xilenol

DA: 3,5-xilenol; 3,5-dimethylphenol

DE: 3,5-Xylenol

EL: 3,5-ξυλενόλη

EN: 3,5-xylenol; 3,5-dimethylphenol

FR: 3,5-xylénoł

IT: 3,5-xilenolo

NL: 3,5-xylenol

PT: 3,5-xilenol


FI: 3,5-ksylenoli; 3,5-dimetyylifenoli

SV: 3,5-xylenol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 24/25	C; R 34
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

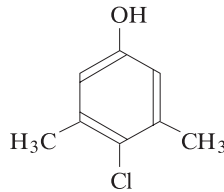
T	
	R: 24/25-34
	S: (1/2-)26-28-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 88-04-0
1321-23-9

EC No 201-793-8
215-316-6

No 604-038-00-4



ES: cloroxilenol
 DA: chlorxylenol; 4-chlor-3,5-dimethylphenol
 DE: Chlorxylenol; 4-Chlor-3,5-xylenol
 EL: 4-χλωρο-3,5-ξυλενόλη
 EN: chloroxylenol; 4-chloro-3,5-dimethylphenol
 FR: chloroxylénoł
 IT: cloroxilenolo
 NL: chloorxylenol
 PT: cloroxilenol; 4-cloro-3,5-dimetilfenol
 FI: klooriksylenoli; 4-kloori-3,5-dimetyylifenoli
 SV: 3,5-dimetyl-4-klorfenol; 4-klor-3,5-xylenol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 36/38	R 43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

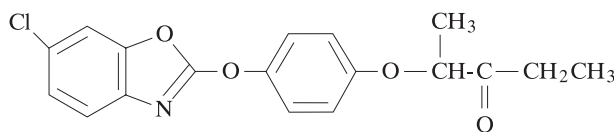
Xn	
	R: 22-36/38-43
	S: (2-)24-37

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 66441-23-4

EC No 266-362-9

No 604-039-00-X



ES: 2-[4-[(6-clorobenzoxazol-2-il)oxi]fenoxi]propionato de etilo

DA: ethyl-2-[4-[(6-chlorbenzoxazol-2-yl)oxy]phenoxy]propionat; fenoxaprop-ethyl

DE: Ethyl-2-[4-[(6-chlorbenzoxazol-2-yl)oxy]phenoxy]propionat

EL: 2-[4-[(6-χλωροβενζοξάζολ-2-υλ)οξύ]φαινοξύ]προπιονικό αιθύλιο

EN: ethyl 2-[4-[(6-chlorobenzoxazol-2-yl)oxy]phenoxy]propionate; fenoxaprop-ethyl

FR: 2-[4-[(6-chlorobenzoxazole-2-yl)oxy]phénoxy]propionate d'éthyle; fénoxaprop-éthyl

IT: 2-[4-[(6-clorobenzossazol-2-il)ossi]fenossi]propionato di etile

NL: ethyl-2-[4-[(6-chloorbenzoxazool-2-yl)oxy]fenoxy]propionaat

PT: 2-[4-[(6-clorobenzoxazole-2-il)oxi]fenoxi]propionato de etilo

FI: etyyli-2-[4-[(6-klooribentsoksatsoli-2-yyli)oksi]fenoksi]propionaatti; fenoksapropi-etyyli

SV: etyl-2-[4-[(6-klorobenzoxazol-2-yl)oxi]fenoxi]propionat; fenoxaprop-etyl

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitutus, Klassificering

R 43 N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

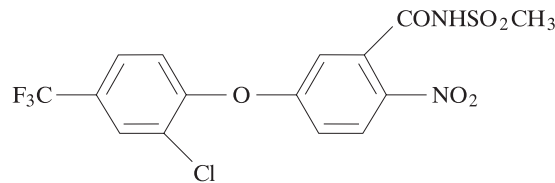
Xi	N	
		R: 43-50/53
		S: (2-)24-37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 72178-02-0

EC No 276-439-9

No 604-040-00-5



- ES: 5-[2-cloro-4-(trifluorometil)fenoxi]-N-(metilsulfonil)-2-nitrobenzamida
 DA: 5-[2-chlor-4-(trifluormethyl)phenoxy]-N-(methylsulfonyl)-2-nitrobenzamid; fomesafen
 DE: 5-[2-Chlor-4-(trifluormethyl)phenoxy]-N-(methylsulfonyl)-2-nitrobenzamid
 EL: 5-[2-χλωρο-4-(τριφθορομεθυλο)φαινοξύ]-N-(μεθυλοσουλφονυλο)-2-νιτροβενζαμίδιο
 EN: 5-[2-chloro-4-(trifluoromethyl)phenoxy]-N-(methylsulphonyl)-2-nitrobenzamide; fomesafen
 FR: 5-[2-chloro-4-(trifluorométhyl)phénoxy]-N-(méthylsulfonyl)-2-nitrobenzamide; fomesafen
 IT: 5-[2-cloro-4-(trifluorometil)fenossi]-N-(metilsolfonil)-2-nitrobenzamide
 NL: 5-[2-chloor-4-(trifluormethyl)fenoxy]-N-(methylsulfonyl)-2-nitrobenzamide
 PT: 5-[2-cloro-4-(trifluorometil)fenoxi]-N-(metilsulfonil)-2-nitrobenzamida
 FI: 5-[2-kloori-4-(trifluorimetyyli)fenoksi]-N-(metyylisulfonyyli)-2-nitrobentsamidi; fomesafeeni
 SV: 5-[2-klor-4-(trifluorometyl)fenoxi]-N-(metylsulfonyl)-2-nitrobenzamid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnet, Märkning

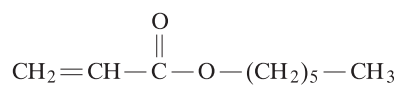
Xn	
	R: 22
	S: (2)

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 2499-95-8

EC No 219-698-5

No 607-233-00-2



ES: acrilato de hexilo

DA: hexylacrylat

DE: Hexylacrylat

EL: ακρυλικό εξύλιο

EN: hexyl acrylate

FR: acrylate d'hexyle

IT: acrilato di esile

NL: hexylacrylaat

PT: acrilato de hexilo

FI: heksyyliakrylaatti

SV: hexylakrylat



Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 36/37/38

R 43

N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

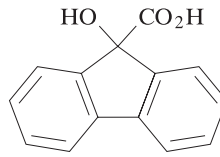
Xi	N	
		
		R: 36/37/38-43-51/53
		S: (2-)24-26-37-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 467-69-6

EC No 207-397-1

No 607-234-00-8



ES: flurenol

DA: flurenol; 9-hydroxy-9H-fluoren-9-carboxylsyre

DE: Flurenol

EL: flurenol

EN: flurenol; 9-hydroxy-9H-fluorene-9-carboxylic acid

FR: flurenol

IT: flurenolo

NL: flurenol

PT: flurenol

FI: flurenoli; 9-hydroksi-9H-fluoreeni-9-karboksyylihappo

SV: flurenol; 9-hydroxi-9H-fluoren-9-karboxylsyra

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

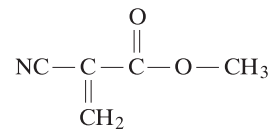
N	
	R: 51/53
	S: 61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 137-05-3

EC No 205-275-2

No 607-235-00-3



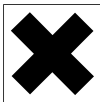
ES: mecrilato
 DA: mecrilat; methyl-2-cyanacrylat
 DE: Mecrilat
 EL: μεκριλάτη
 EN: mecrilate; methyl-2-cyanoacrylate
 FR: mecrilate; 2-cyanoacrylate de méthyle
 IT: mecrilato; 2-cianoacrilato di metile
 NL: mecrilaat
 PT: mecrilato
 FI: mekri-laatti; metyyli-2-syanoakrylaatti
 SV: metyl-2-cyanakrylat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 36/37/38

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xi



R: 36/37/38

S: (2-)23-24/25-26

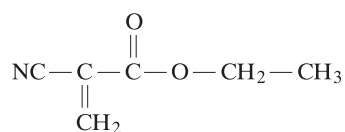
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 10 %	Xi; R 36/37/38

Cas No 7085-85-0

EC No 230-391-5

No 607-236-00-9



ES: 2-cianoacrilato de etilo

DA: ethyl-2-cyanacrylat

DE: Ethyl-2-cyanacrylat

EL: 2-κυανοακρυλικό αιθύλιο

EN: ethyl 2-cyanoacrylate

FR: 2-cyanoacrylate d'éthyle

IT: 2-cianoacrilato di etile

NL: ethyl-2-cyaanacrylaat

PT: 2-cianoacrilato de etilo

FI: etyyli-2-syanoakrylaatti

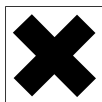
SV: etyl-2-cyanakrylat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 36/37/38

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xi



R: 36/37/38

S: (2-)23-24/25-26

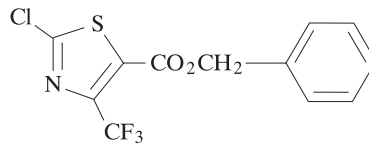
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 10 %	Xi; R 36/37/38

Cas No 72850-64-7

EC No 276-942-3

No 607-237-00-4



- ES: 2-cloro-4-(trifluorometil)tiazol-5-carboxilato de bencilo
 DA: benzyl-2-chlor-4-(trifluormethyl)thiazol-5-carboxylat; flurazol
 DE: Benzyl-2-chlor-4-(trifluormethyl)thiazol-5-carboxylat
 EL: 2-χλωρο-4-(τριφθορομεθυλο)θειαζολο-5-καρβοξυλικό βενζύλιο
 EN: benzyl 2-chloro-4-(trifluoromethyl)thiazole-5-carboxylate; flurazole
 FR: 2-chloro-4-(trifluorométhy)thiazole-5-carboxylate de benzyle
 IT: 2-cloro-4-(trifluorometil)tiazol-5-carbossilato di benzile
 NL: benzyl-2-chloor-4-(trifluormethyl)thiazool-5-carboxylaat
 PT: 2-cloro-4-(trifluorometil)tiazole-5-carboxilato de benzilo
 FI: bentsyyli-2-kloori-4-(trifluorimetyyli)tiatsoli-5-karboksylaatti; fluratsoli
 SV: benzyl-2-klor-4-(trifluorometyl)tiazol-5-karboxylat; flurazol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

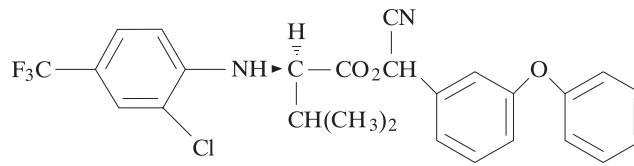
N	
	R: 51/53
	S: 61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 102851-06-9

EC No —

No 607-238-00-X



ES: tau-fluvalinate

DA: tau-fluvalinat; cyan(3-phenoxyphenyl)methyl-*N*-[2-chlor-4-(trifluoromethyl)phenyl]-*D*-valinatDE: *N*-[2-chlor-4-(trifluoromethyl)phenyl]-*D*-valine cyano(3-phenoxyphenyl)methylester

EL: tau-fluvalinate

EN: tau-fluvalinate; cyano-(3-phenoxyphenyl)methyl *N*-[2-chloro-4-(trifluoromethyl)phenyl]-*D*-valinate

FR: tau-fluvalinate

IT: tau-fluvalinato

NL: tau-fluvalinaat

PT: tau-fluvalinate

FI: tau-fluvalinaatti; syano-(3-fenoksifenyyl)metyyli)-*N*-[2-kloori-4-(trifluorimetyyli)fenyyli]-*D*-valinaattiSV: tau-fluvalinat; cyano(3-fenoxifenyyl)metyl-*N*-[2-kloro-4-(trifluorometyl)fenyl]-*D*-valinat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	Xi; R 38	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

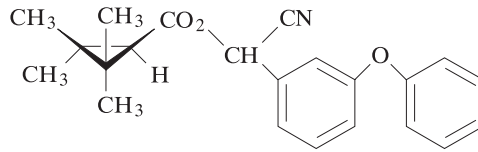
Xn	N	
		R: 22-38-50/53
		S: (2-)24-59-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 39515-41-8

EC No 254-485-0

No 607-239-00-5


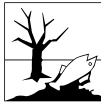


- ES: 2,2,3,3-tetrametilciclopropanocarboxilato de α -ciano-3-fenoxibencilo
 DA: α -cyan-3-phenoxybenzyl-2,2,3,3-tetramethylcyclopropanecarboxylat; fenpropathrin
 DE: α -Cyan-3-phenoxybenzyl-2,2,3,3-tetramethylcyclopropanecarboxylat
 EL: 2,2,3,3-τετραμεθυλοκυκλοπροπανοκαρβοξυλικό α -κυανο-3-φαινοξυβενζύλιο
 EN: α -cyano-3-phenoxybenzyl 2,2,3,3-tetramethylcyclopropanecarboxylate; fenpropathrin
 FR: 2,2,3,3-tétraméthylcyclopropanecarboxylate de α -cyano-3-phénoxybenzyle; fenpropathrine
 IT: 2,2,3,3-tetrametilciclopropanecarbossilato di α -ciano-3-fenossibenzile; fenpropatrin
 NL: α -cyaan-3-fenoxybenzyl-2,2,3,3-tetramethylcyclopropaanecarboxylaal
 PT: 2,2,3,3-tetrametilciclopropanocarboxilato de α -ciano-3-fenoxibenzilo
 FI: α -syano-3-fenoksibentsyyl-2,2,3,3-tetrametyylisyklopropanikarboksylaatti; fenpropatriini
 SV: α -cyano-3-fenoxibenzyl-2,2,3,3-tetrametylcyklopropankarboxylat; fenpropatrin

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T+; R 26	T; R 25	Xn; R 21	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

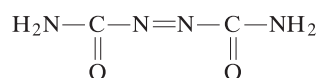
T+	N	
		
		R: 21-25-26-50/53
		S: (1/2)-28-36/37-38-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 123-77-3

EC No 204-650-8

No 611-028-00-3




- ES: C,C'-azodi(formamida)
 DA: C,C'-azodi(formamid); diazendicarboxamid
 DE: C,C'-Azodi(formamid)
 EL: C,C'-αζωδι(φορμαμίδιο)
 EN: C,C'-azodi(formamide)
 FR: C,C'-azodi(formamide); azodicarbonamide
 IT: C,C'-azodi(formamide); azodicarbonamide
 NL: C,C'-azodi(formamide)
 PT: C,C'-azodi(formamide)
 FI: C,C'-atsodi(formamidi)
 SV: C,C'-azodi(formamid); azodikarbonamid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

R 42	R 44
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xn	
	R: 42-44
	S: (2-)22-24-37

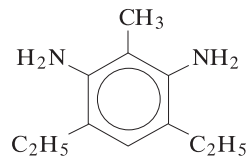
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 2095-01-4 [1]
2095-02-5 [2]
68479-98-1 [3]

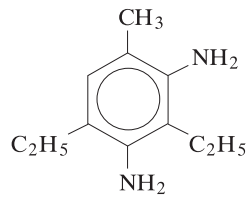
EC No 218-255-3 [1]
218-256-9 [2]
270-877-4 [3]

No 612-130-00-0

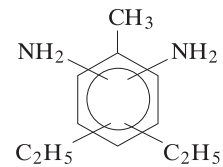
NOTA C



[1]



[2]



[3]

- ES: 2,6-diamino-3,5-diethyltolueno [1]; 2,4-diamino-3,5-diethyltolueno [2]; dietilmetilbencenodiamina [3]
 DA: 2,6-diamino-3,5-diethyltoluen [1]; 2,4-diamino-3,5-diethyltoluen [2]; diethylmethylbenzendiamin [3]; 4,6-diethyl-2-methylbenzen-1,3-diamin [1]; 2,4-diethyl-6-methylbenzen-1,3-diamin [2]
 DE: 2,6-Diamino-3,5-diethyltoluol [1]; 2,4-Diamino-3,5-diethyltoluol [2]; Diethylmethylbenzoldiamin [3]
 EL: 2,6-διαμνο-3,5-διαιθυλοτολουόλιο [1] 2,4-διαμνο-3,5-διαιθυλοτολουόλιο [2] διαιθυλομεθυλοβενζολοδιαμίνη [3]
 EN: 2,6-diamino-3,5-diethyltoluene [1]; 2,4-diamino-3,5-diethyltoluene [2]; diethylmethylbenzenediamine [3]; 4,6-diethyl-2-methyl-1,3-benzenediamine [1]; 2,4-diethyl-6-methyl-1,3-benzenediamine [2]
 FR: 2,6-diamino-3,5-diéthyltoluène [1]; 2,4-diamino-3,5-diéthyltoluène [2]; diéthylméthylbenzènediamine [3]
 IT: 2,6-diamino-3,5-dietiltoluene [1]; 2,4-diamino-3,5-dietiltoluene [2]; dietilmetilbenzendiamina [3]
 NL: 2,6-diamino-3,5-diethyltolueen [1]; 2,4-diamino-3,5-diethyltolueen [2]; diethylmethylbenzeendiamine [3]
 PT: 2,6-diamino-3,5-dietiltolueno [1]; 2,4-diamino-3,5-dietiltolueno [2]; dietilmetilbenzenodiamina [3]
 FI: 2,6-diamino-3,5-dietyylitolueeni [1]; 2,4-diamino-3,5-dietyylitolueeni [2]; dietyylimetyylibentseenidiamiini [3]
 SV: 2,6-diamino-3,5-dietyltoluen [1]; 2,4-diamino-3,5-dietyltoluen [2]; dietylmetylbendiamin [3]

Cas No 2095-01-4 [1]
 2095-02-5 [2]
 68479-98-1 [3]

EC No 218-255-3 [1]
 218-256-9 [2]
 270-877-4 [3]



No 612-130-00-0

NOTA C

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 21/22-48/22	Xi; R 36	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

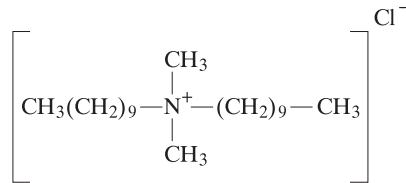
Xn	N	
		<p>R: 21/22-36-48/22-50/53</p> <p>S: (2-)26-28-36/37/39-60-61</p>

Límites de concentración, Konzentrationsgränser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgränser

Cas No 7173-51-5

EC No 230-525-2

No 612-131-00-6




ES: cloruro de didecildimetilamonio
 DA: didecyldimethylammoniumchlorid
 DE: Didecyldimethylammoniumchlorid
 EL: χλωρίδιο του διδεκυλοδιμεθυλαμμωνίου
 EN: didecyldimethylammonium chloride
 FR: chlorure de didécyl diméthylammonium
 IT: cloruro di didecildimetilammonio
 NL: didecyldimethylammoniumchloride
 PT: cloreto de didecildimetilamónio
 FI: didekyylimetyyliammoniumkloridi
 SV: didecyldimetylammoniumklorid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	C; R 34
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

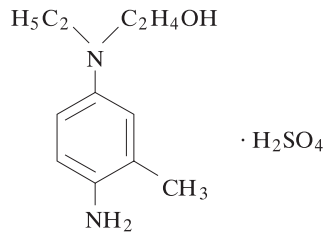
C	
	
	R: 22-34
	S: (2-)26-36/37/39-45

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 25646-77-9

EC No 247-162-0

No 612-133-00-7



- ES: sulfato de (4-amonio-*m*-tolil)etil(2-hidroxietyl)amonio; sulfato de 4-(N-etil-N-2-hidroxietyl)-2-metilfenildiamina
- DA: (4-ammonio-*m*-tolyl)ethyl(2-hydroxyethyl)ammoniumsulfat; 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenyldiaminsulfat
- DE: (4-ammonio-*m*-tolyl)ethyl(2-hydroxyethyl)ammoniumsulfat; 4-(N-ethyl-N-2-hydroxyethyl)-2-methyl-phenyldiaminsulfat
- EL: θειικό (4-αμμωνιο-*m*-τολυλο)αιθυλ(2-υδροξυαιθυλ)αμμώνιο· θειική 4-(N-αιθυλο-N-2-υδροξυαιθυλο)-2-μεθυλοφαινυλενοδιαμίνη
- EN: (4-ammonio-*m*-tolyl)ethyl(2-hydroxyethyl)ammonium sulphate; 4-(N-ethyl-N-2-hydroxyethyl)-2-methylphenylenediamine sulphate
- FR: sulfate de (4-ammonio-*m*-tolyl)éthyl(2-hydroxyéthyl)ammonium; sulfate de 4-(N-éthyl-N-2-hydroxyéthyl)-2-méthylphénylènediamine
- IT: solfato di (4-ammonio-*m*-tolil)etil(2-idrossietil)ammonio; solfato di 4-(N-etil-N-2-idrossietil)-2-metilfenilendiamina
- NL: (4-ammonio-*m*-tolyl)ethyl(2-hydroxyethyl)ammoniumsulfaat; 4-(N-ethyl-N-2-hydroxyethyl)-2-methylfenyleendiaminesulfaat
- PT: sulfato de (4-amónio-*m*-tolil)etil(2-hidroxietyl)amónio; sulfato 4-(N-etil-N-2-hidroxietyl)-2-metilfenilenodiamina
- FI: (4-ammonio-*m*-tolyyli)etyyli(2-hydroksietyyli)ammoniumsulfaatti; 4-(N-etyyli-N-2-hydroksietyyli)-2-metyylifenyleenidiamiinisulfaatti
- SV: *N*[#]-etyl-*N*[#]-hydroxietyl-2-metyl-1,4-benzendiammoniumsulfat; 4-(N-etyl-N-2-hydroxyetyl)-2-metylfenylendiaminsulfat

Cas No 25646-77-9



EC No 247-162-0

No 612-133-00-7

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitus, Klassificering

T; R 25	Xn; R 48/22	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

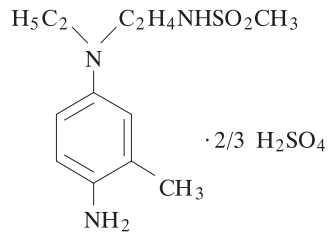
T	N	
		
		R: 25-43-48/22-50/53
		S: (1/2-)24-37-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 25646-71-3

EC No 247-161-5

No 612-134-00-2



- ES: sesquisulfato de N-(2-(4-amino-N-etil-m-toluidino)etil)metanosulfonamida; 4-(N-etil-N-2-metanosulfonilaminoetil)-2-metilfenilendiamina sesquisulfato monohidrato
- DA: N-(2-(4-amino-N-ethyl-m-toluidino)ethyl)methansulfonamidsesquisulfat; 4-(N-ethyl-N-2-metansulfonylaminoethyl)-2-methylphenylendiamin sesquisulfat monohydrat
- DE: N-(2-(4-Amino-N-ethyl-m-toluidino)ethyl)methansulfonamidsesquisulfat; 4-(N-ethyl-N-2-methansulfonylaminoethyl)-2-methylphenylendiamin-sesquisulfat, Monohydrat
- EL: Σεσκιθειϊκό N-[2-(4-αμινο-N-αιθυλο-m-τολουιδιν)αιθυλο]μεθανοσουλφοναμίδιο· 3/2 Μονοένυδρη θειική 4-(N-αιθυλο-N-2-μεθανοσουλφονυλαμινοαιθυλο)-2-μεθυλοφαινυλενοδιαμίνη
- EN: N-(2-(4-amino-N-ethyl-m-toluidino)ethyl)methanesulphonamide sesquisulphate; 4-(N-ethyl-N-2-methanesulphonylaminoethyl)-2-methylphenylenediamine sesquisulphate monohydrate
- FR: sesquisulfate de N-(2-(4-amino-N-éthyl-m-toluidino)éthyl)méthanesulfonamide; sesquisulfate monohydraté de 4-(N-éthyl-N-2-méthanesulfonylaminoéthyl)-2-méthylphénylènediamine
- IT: sesquisolfato di N-(2-(4-amino-N-etil-m-toluidino)etil)metansolfonamide; sesquisulfato monoidrato di 4-(N-etil-N-2-metanosulfonilaminoetil)-2-metilfenilendiamina
- NL: N-(2-(4-amino-N-ethyl-m-toluidino)ethyl)methaansulfonamidesesquisulfaat; 4-(N-ethyl-N-2-methaansulfonylaminoethyl)-2-methylfeyleneendiamine sesquisulfaat monohydraat
- PT: sesquissulfato de N-(2-(4-amino-N-etil-m-toluidino)etil)metanossulfonamida; 4-(N-etil-N-2-metanosulfonilaminoetil)-2-metilfenilenodiamina sesquisulfato monohidrato
- FI: N-(2-(4-amino-N-etyyli-m-toluidino)etyyli)metaanisulfonamidiseskvisulfaatti; 4-(N-etyyli-N-2-metaanisulfonyyliaminoetyyli)-2-metyylifenyleendiamiiniseskvisulfaattimonohydraatti
- SV: $N^{\#}$ -etyl- $N^{\#}$ -[(2-metansulfonamido)etyl]-2-metyl-1,4-benzendiammoniumsulfat; 4-(N-etyl-N-2-metansulfonylaminoetyl)-2-metylfenylendiaminesekvisulfatmonohydrat

Cas No 25646-71-3



EC No 247-161-5

No 612-134-00-2

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificaçã, Luokitus, Klassificering

Xn; R 22 | R 43 | N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

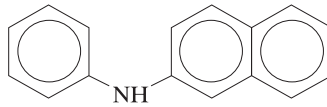
Xn	N	
		<p>R: 22-43-50/53</p> <p>S: (2-)24-37-60-61</p>

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 135-88-6

EC No 205-223-9

No 612-135-00-8



ES: N-2-naftilanilina

DA: N-2-naphthylanilin; N-phenyl-2-naphthylamin

DE: N-Naphthylanilin

EL: N-2-ναφθυλανιλίνη; N-φαινυλ-2-ναφθυλαμίνη

EN: N-2-naphthylaniline; N-phenyl-2-naphthylamine

FR: N-2-naphthylaniline; N-phényl-2-naphthylamine

IT: N-2-naftilanilina

NL: N-2-naftylaniline

PT: N-2-naftilanilina

FI: N-2-naftylianiliini

SV: N-2-naftyylanilin

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 3; R 40	Xi; R 36/38	R 43	N; R 51/53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

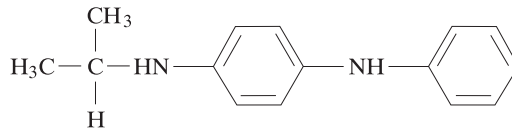
Xn	N	
		R: 36/38-40-43-51-53
		S: (2-)26-36/37-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 101-72-4

EC No 202-969-7

No 612-136-00-3





- ES: *N*²-fenil-*N*-isopropil-*p*-fenilendiamina
 DA: *N*-isopropyl-*N*²-phenyl-*p*-phenylendiamin
 DE: *N*-Isopropyl-*N*²-phenyl-*p*-phenylendiamin
 EL: *N*-ισοπροπυλο-*N*²-φαινυλο-*p*-φαινυλενοδιαμίνη
 EN: *N*-isopropyl-*N*²-phenyl-*p*-phenylenediamine
 FR: *N*-isopropyl-*N*²-phényl-*p*-phénylènediamine
 IT: *N*²-fenil-*N*-isopropil-*p*-fenilendiamina
 NL: *N*²-fenyl-*N*-isopropyl-*p*-fenyleendiamine
 PT: *N*-isopropil-*N*²-fenil-*p*-fenilenodiamina
 FI: *N*-isopropyyli-*N*²-fennyli-*p*-fenyleenidiamiini
 SV: *N*-isopropyl-*N*²-fenyl-*p*-fenylendiamin

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

Xn 	N 	<p>R: 22-43-50/53</p> <p>S: (2-)24-37-60-61</p>
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Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

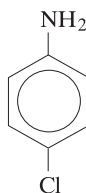
C ≥ 25 %	Xn; R 22-43
0,1 % ≤ C < 25 %	Xi; R 43

Cas No 106-47-8

EC No 203-401-0

No 612-137-00-9

NOTA E





ES: 4-cloroanilina
 DA: 4-chloranilin
 DE: 4-Chloranilin
 EL: 4-χλωροανιλίνη
 EN: 4-chloroaniline
 FR: 4-chloroaniline
 IT: 4-cloroanilina
 NL: 4-chlooraniline
 PT: 4-cloroanilina
 FI: 4-kloorianiliini
 SV: 4-kloranilin; 4-klorbenzenamin

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Carc. Cat. 2; R 45	T; R 23/24/25	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

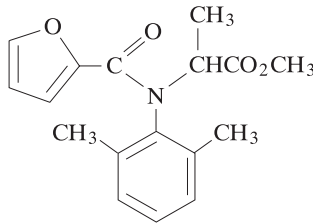
T	N	
		R: 45-23/24/25-43-50/53
		S: 53-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 57646-30-7

EC No 260-875-1

No 612-138-00-4



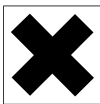
- ES: *N*-(2,6-dimetilfenil)-*N*-(2-furilcarbonil)-DL-alaninato de metilo
 DA: methyl-*N*-(2,6-dimethylphenyl)-*N*-(2-furylcarbonyl)-DL-alaninat; furalaxyl
 DE: Methyl-*N*-(2,6-dimethylphenyl)-*N*-(2-furylcarbonyl)-DL-alaninat
 EL: *N*-(2,6-διμεθυλοφαινυλο)-*N*-(2-φουρυλοκαρβονυλ)-DL-αλανινικό μεθύλιο
 EN: methyl *N*-(2,6-dimethylphenyl)-*N*-(2-furylcarbonyl)-DL-alaninate; furalaxyl
 FR: *N*-(2,6-diméthylphényl)-*N*-(2-furylcarbonyl)-DL-alaninate de méthyle; furalaxyl
 IT: *N*-(2,6-dimetilfenil)-*N*-(2-furilcarbonil)-DL-alaninato di metile
 NL: methyl-*N*-(2,6-dimethylfenyl)-*N*-(2-furylcarbonyl)-DL-alaninaat
 PT: *N*-(2,6-dimetilfenil)-*N*-(2-furilcarbonil)-DL-alaninato de metilo
 FI: metyyli-*N*-(2,6-dimetyylifenyyli)-*N*-(2-furyylikarbonyyli)-DL-alaninaatti; furalaksyyli
 SV: metyl-*N*-(2,6-dimetylfenyl)-*N*-(2-furylkarbonyl)-DL-alaninat; Furalaxyl

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

Xn



R: 22-52/53

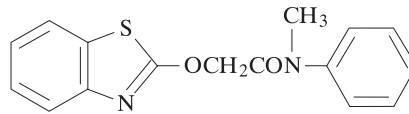
S: (2-)36/37/39-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 73250-68-7

EC No 277-328-8

No 612-139-00-X




- ES: 2-(benzotiazol-2-iloxi)-N-metil-N-fenilacetamida
 DA: 2-(benzothiazol-2-yloxy)-N-methyl-N-phenylacetamid; mefenacet
 DE: 2-(Benzothiazol-2-yloxy)-N-methyl-N-phenylacetamid
 EL: 2-(βενζοθιαζολ-2-υλοξυ)-N-μεθυλο-N-φαινυλακεταμίδιο
 EN: 2-(benzothiazol-2-yloxy)-N-methyl-N-phenylacetamide; mefenacet
 FR: 2-(benzothiazole-2-yloxy)-N-méthyl-N-phénylacétamide; mefenacet
 IT: 2-(benzotiazol-2-ilossi)-N-metil-N-fenilacetamide
 NL: 2-(benzothiazool-2-yloxy)-N-methyl-N-fenylacetamide
 PT: 2-(benzotiazole-2-iloxi)-N-metil-N-fenilacetamida
 FI: 2-(bentsotiatsoli-2-yloksi)-N-metyyli-N-fenyyliaasetamidi; mefenasetti
 SV: 2-(benzotiazol-2-yloxi)-N-metyl-N-fenylacetamid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

N; R 51-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

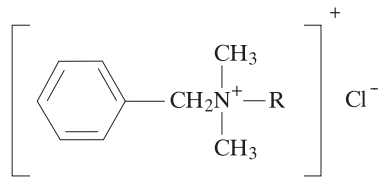
N	
	R: 51/53
	S: 61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 63449-41-2

EC No 264-151-6

No 612-140-00-5

R = C₈H₁₇-C₁₈H₃₇

- ES: compuestos de amonio cuaternario, bencil-C₈₋₁₈-alquildimetil, cloruros
 DA: kvaternære ammoniumforbindelser, benzyl-C₈₋₁₈-alkyldimethyl-, chlorider
 DE: Quaternäre Ammoniumverbindungen, Benzyl-C₈₋₁₈-alkyldimethyl-, Chloride
 EL: χλωρίδια των βενζυλο-C₈₋₁₈-αλκυλοδιμεθυλο τεταρτοταγών ενώσεων αμμωνίου
 EN: quaternary ammonium compounds, benzyl-C₈₋₁₈-alkyldimethyl, chlorides
 FR: composés de l'ion ammonium quaternaire, alkyl en C₈₋₁₈ benzyldiméthyles, chlorures
 IT: composti di ammonio quaternario, benzil-C₈₋₁₈-alchildimetil, cloruri
 NL: quaternaire ammoniumverbindingen, benzyl-C₈₋₁₈-alkyldimethyl, chloriden
 PT: compostos de amónio quaternário, benzil-C₈₋₁₈-alquildimetil, cloretos
 FI: kvaternääriset ammoniumyhdisteet, bentsyyli-C₈₋₁₈-alkyylidimetyylikloridit;
 (C₈₋₁₈)alkyylibentsyylidimetyyliammoniumkloridi
 SV: (C₈₋₁₈)Alkylbenzyldimetylammoniumklorid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 21/22	C; R 34	N; R 50
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

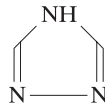
C	N	
		R: 21/22-34-50
		S: (2-)36/37/39-45-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 288-88-0

EC No 206-022-9

No 613-111-00-X



ES: 1,2,4-triazol
 DA: 1,2,4-triazol
 DE: 1,2,4-Triazol
 EL: 1,2,4-τριαζόλιο
 EN: 1,2,4-triazole
 FR: 1,2,4-triazole
 IT: 1,2,4-triazolo
 NL: 1,2,4-triazool
 PT: 1,2,4-triazole
 FI: 1,2,4-triatsoli
 SV: 1,2,4-triazol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Repr. Cat. 3; R 63	Xn; R 22	Xi; R 36
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

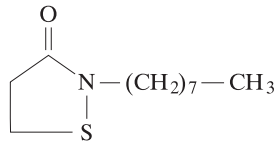
Xn	
	R: 22-36-63
	S: (2-)36/37

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 26530-20-1

EC No 247-761-7

No 613-112-00-5

ES: 2-octil-2*H*-isotiazol-3-onaDA: 2-octyl-2*H*-isothiazol-3-on; octhilinonDE: 2-Octyl-2*H*-isothiazol-3-onEL: 2-οκτυλο-2*H*-ισοθιαζολ-3-όνηEN: 2-octyl-2*H*-isothiazol-3-oneFR: 2-octyl-2*H*-isothiazole-3-oneIT: 2-ottil-2*H*-isotiazol-3-oneNL: 2-octyl-2*H*-isothiazool-3-onPT: 2-octil-2*H*-isotiazole-3-onaFI: 2-oktyyli-2*H*-isotiatsoli-3-oniSV: 2-oktyl-2*H*-isotiazol-3-on

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 23/24	Xn; R 22	C; R 34	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinät, Märkning

T	N	
		R: 22-23/24-34-43-50/53
		S: (1/2-)26-36/37/39-45-60-61

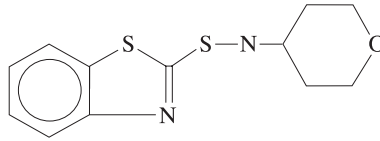
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 25 %	T; R 22-23/24-34-43
10 % ≤ C < 25 %	C; R 20/21-34-43
5 % ≤ C < 10 %	Xn; R 20/21-36/38-43
3 % ≤ C < 5 %	Xn; R 20/21-43
0,05 % ≤ C < 3 %	Xi; R 43

Cas No 102-77-2

EC No 203-052-4

No 613-113-00-0



ES: 2-(morfolinotio)benzotiazol
 DA: 2-(morpholinothio)benzothiazol
 DE: 2-(Morpholinothio)benzothiazol
 EL: 2-(μορφολινοθειο)βενζοθειαζόλιο
 EN: 2-(morpholinothio)benzothiazole
 FR: 2-(morpholinothio)benzothiazole
 IT: 2-(morfolinotio)benzotiazolo
 NL: 2-(morfolinothio)benzothiazool
 PT: 2-(morfolinotio)benzotiazole
 FI: 2-(morfolinotio)bentsotiatsoli
 SV: 2-(morfolinotio)benzotiazol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 36/38	R 43	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

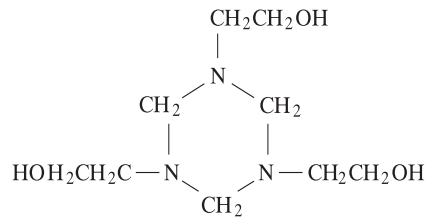
Xi	N	
		R: 36/38-43-51/53
		S: (2-)24-26-37-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 4719-04-4

EC No 225-208-0

No 613-114-00-6




- ES: 2,2',2''-(hexahidro-1,3,5-triazina-1,3,5-triil)trietanol
 DA: 2,2',2''-(hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol
 DE: 2,2',2''-(Hexahydro-1,3,5-triazin-1,3,5-triyl)triethanol
 EL: 2,2',2''-(εξάϋδρο-1,3,5-τριαζινο-1,3,5-τριωλο)τριαιθανόλη
 EN: 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol; 1,3,5-tris(2-hydroxyethyl)hexahydro-1,3,5-triazine
 FR: 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triéthanol
 IT: 2,2',2''-(esaidro-1,3,5-triazin-1,3,5-triil)trietanolo
 NL: 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol
 PT: 2,2',2''-(hexahidro-1,3,5-triazina-1,3,5-triil)trietanol
 FI: 2,2',2''-(heksahydro-1,3,5-triatsiini-1,3,5-triyyli)trietanoli
 SV: 2,2',2''-(hexahydro-1,3,5-triazin-1,3,5-triyl)trietanol; 1,3,5-tris(2-hydroxyetyl)-1,3,5-triazin

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitutus, Klassificering

Xn; R 22	R 43
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xn	
	R: 22-43
	S: (2-)24-37

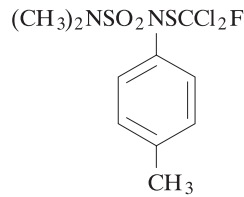
Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

C ≥ 25 %	Xn; R 22-43
0,1 % ≤ C < 25 %	Xi; R 43

Cas No 731-27-1

EC No 211-986-9

No 613-116-00-7





- ES: dicloro-*N*-[(dimetilamino)sulfonyl]fluoro-*N*-(*p*-tolil)metanosulfenamida
 DA: dichlor-*N*-[(dimethylamino)sulfonyl]fluor-*N*-(*p*-tolyl)methansulfenamid; tolylfluanid
 DE: Dichlor-*N*-[(dimethylamino)sulfonyl]fluor-*N*-(*p*-tolyl)methansulfenamid
 EL: διχλωρο-*N*-[(διμεθυλαμινο)σουλφονυλο]φθορο-*N*-(*p*-τολυλο)μεθανοσουλφεναμίδιο
 EN: dichloro-*N*-[(dimethylamino)sulphonyl]fluoro-*N*-(*p*-tolyl)methanesulphenamide; tolylfluanid
 FR: dichloro-*N*-[(diméthylamino)sulfonyl]fluoro-*N*-(*p*-tolyl)méthanesulfenamide; tolylfluamide
 IT: dicloro-*N*-[(dimetilamino)solfonyl]fluoro-*N*-(*p*-tolil)metansolfenamide
 NL: dichloor-*N*-[(dimethylamino)sulfonyl]fluor-*N*-(*p*-tolyl)methaansulfenamide
 PT: dicloro-*N*-[(dimetilamino)sulfonyl]fluoro-*N*-(*p*-tolil)metanossulfenamida
 FI: dikloori-*N*-[(dimetyyliamino)sulfonyyli]fluori-*N*-(*p*-tolyyli)metaanisulfeeniamidi; tolyylifluanidi
 SV: diklor-*N*-[(dimetylamino)sulfonal]fluoro-*N*-(*p*-tolyl)sulfenamid; tolylfluanid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T; R 23	Xi; R 36/37	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

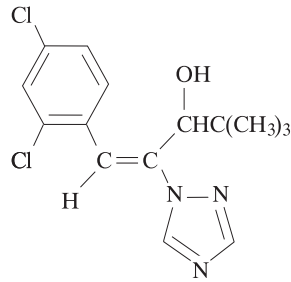
T	N	
		
		R: 23-36/37-43-50/53
		S: (1/2)-24-26-37-38-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 76714-88-0
83657-24-3

EC No —

No 613-117-00-2



ES: diniconazole

DA: diniconazole

DE: (*E*)-β-[(dichlorophenyl)methylen]-α-(1,1-dimethylethyl)-1*H*-1,2,4-triazol-1-ethanol

EL: diniconazole

EN: diniconazole; (*E*)-β-[(2,4-dichlorophenyl)methylene]-α-(1,1-dimethylethyl)-1*H*-1,2,4-triazol-1-ethanol
(*E*)-(RS)-1-(2,4-dichlorophenyl)-4,4-dimethyl-2-(1*H*-1,2,4-triazol-1-yl)pent-1-en-3-ol

FR: diniconazole

IT: diniconazolo

NL: diniconazol

PT: diniconazole

FI: dinikonatsoli; (*E*)-β-[(2,4-dikloorifenyli)metyleeni]-α-(1,1-dimetyylietyyli)-1*H*-1,2,4-triatsoli-1-etanol

SV: dinikonazol; (*E*)-β-[(2,4-diklorofenyl)metylen]-α-(1,1-dimetyletyl)-1*H*-1,2,4-triazol-1-etanol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22 | N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

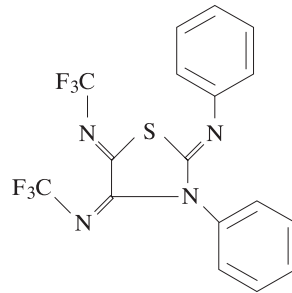
Xn	N	
		R: 22-50/53
		S: (2-)60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 37893-02-0

EC No 253-703-1

No 613-118-00-8



- ES: *N*-[3-fenil-4,5-bis[(trifluorometil)imino]tiazolidin-2-iliden]anilina
 DA: *N*-[3-phenyl-4,5-bis[(trifluormethyl)imino]thiazolidin-2-yliden]anilin; flubenzimin
 DE: *N*-[3-Phenyl-4,5-bis[(trifluormethyl)imino]thiazolidin-2-yliden]anilin
 EL: *N*-[3-φαινυλο-4,5-δις[(τριφθορομεθύλ)ιμινο]θιαζολιδιν-2-υλιδεν]ανιλίνη
 EN: *N*-[3-phenyl-4,5-bis[(trifluoromethyl)imino]thiazolidin-2-ylidene]aniline; flubenzimine
 FR: *N*-[3-phényl-4,5-bis[(trifluorométhy)imino]thiazolidine-2-ylidène]aniline; flubenzimine
 IT: *N*-[3-fenil-4,5-bis[(trifluorometil)imino]tiazolidin-2-iliden]anilina
 NL: *N*-[3-fenyl-4,5-bis[(trifluormethyl)imino]thiazolidine-2-ylideen]aniline
 PT: *N*-[3-fenil-4,5-bis[(trifluorometil)imino]tiazolidina-2-ilideno]anilina
 FI: *N*-[3-fenyyli-4,5-bis[(trifluorimetyyli)imino]tiatsolidiini-2-yylideeni]aniliini; flubentsimiini
 SV: *N*-[3-fenyl-4,5-bis[(trifluorometyl)imino]tiazolidin-2-ylidinanilin

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 36	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

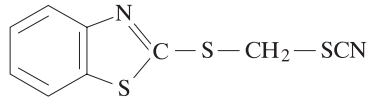
Xi	N	
		R: 36-50/53
		S: (2-)26-60-61

Límites de concentración, Koncentrationsgränser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgränser

Cas No 21564-17-0

EC No 244-445-0

No 613-119-00-3





ES: tiocianato de (benzotiazol-2-iltio)metilo
 DA: (benzothiazol-2-ylthio)methylthiocyanat; TCMTB
 DE: (Benzothiazol-2-ylthio)methylthiocyanat
 EL: θειοκυανικό (βενζοθειαζολ-2-υλοθειο)μεθύλιο
 EN: (benzothiazol-2-ylthio)methyl thiocyanate; TCMTB
 FR: thiocyanate de (benzothiazole-2-ylthio)méthyle
 IT: tiocianato di (benzotiazol-2-iltio)metile
 NL: (benzothiazool-2-ylthio)methylthiocyanaat
 PT: tiocianato de (benzotiazole-2-iltio)metilo
 FI: (bentsotiatsoli-2-yylitio)metyylitiosyanaatti; TCMTB
 SV: (benzotiazol-2-yltio)metyltiocyanat

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

T+; R 26	Xn; R 22	Xi; R 36/38	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

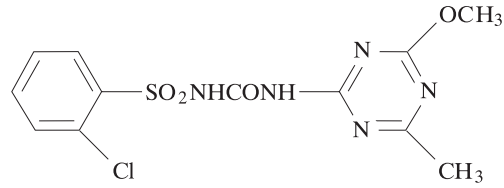
T+	N	
		R: 22-26-36/38-43-50/53
		S: (1/2-)28-36/37-38-45-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 64902-72-3

EC No 265-268-5

No 613-121-00-4




- ES: 2-cloro-*N*-[[6-metil-4-metoxi-1,3,5-triazin-2-il]amino]carbonil]bencenosulfonamida
 DA: 2-chlor-*N*-[[4-methoxy-6-methyl-1,3,5-triazin-2-yl]amino]carbonyl]benzensulfonamid; chlorsulfuron
 DE: 2-Chlor-*N*-[[4-methoxy-6-methyl-1,3,5-triazin-2-yl]amino]carbonyl]benzolsulfonamid
 EL: 2-χλωρο-*N*-[[4-μεθοξύ-6-μεθυλο-1,3,5-τριαζιν-2-υλ]αμινο]καρβονυλο]βενζολοσουλφοναμίδιο· chlorsulfuron
 EN: 2-chloro-*N*-[[4-methoxy-6-methyl-1,3,5-triazin-2-yl]amino]carbonyl]benzenesulphonamide; chlorsulfuron
 FR: 2-chloro-*N*-[[4-méthoxy-6-méthyl-1,3,5-triazine-2-yl]amino]carbonyl]benzènesulfonamide; chlorsulfuron
 IT: 2-cloro-*N*-[[6-metil-4-metossi-1,3,5-triazin-2-il]amino]carbonil]benzensolfonamide
 NL: 2-chloor-*N*-[[4-methoxy-6-methyl-1,3,5-triazine-2-yl]amino]carbonyl]benzeensulfonamide
 PT: 2-cloro-*N*-[[6-metil-4-metoxi-1,3,5-triazina-2-il]amino]carbonil]benzenossulfonamida
 FI: 2-kloori-*N*-[[4-metoksi-6-metyyli-1,3,5-triatsiini-2-yyli]amino]karbonyyli]bentseenisulfonamidi; klorsulfuroni
 SV: 2-klor-*N*-[[6-metyl-4-metoxi-1,3,5-triazin-2-yl]amino]karbonyl]benzensulfonamid; klorsulfuron

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitutus, Klassificering

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

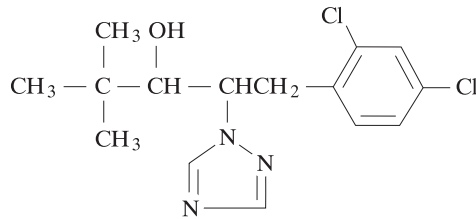
N	
	R: 50/53
	S: 60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 75736-33-3

EC No —

No 613-122-00-X



ES: diclobutrazole

DA: diclobutrazol

DE: Diclobutrazol

EL: diclobutrazole

EN: diclobutrazole; (R*, R*)-(±)-β-[(2,4-dichlorophenyl)methyl]-α-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol; (2RS, 3RS)-1-(2,4-dichlorophenyl)-4,4-dimethyl-2-(1H-1,2,4-triazol-1-yl)pentan-3-ol

FR: diclobutrazol

IT: diclobutrazolo

NL: diclobutrazol

PT: diclobutrazole

FI: diklobutratsoli; (R*, R*)-(±)-β-[(2,4-dikloorifenyyli)metyyli]-α-(1,1-dimetyylietyyli)-1H-1,2,4-triatsoli-1-etanol

SV: diklobutrazol; (R*, R*)-(±)-β-[(2,4-diklorofenyl)metyl]-α-(1,1-dimetyletyl)-1H-1,2,4-triazol-1-etanol

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 36	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Ètiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

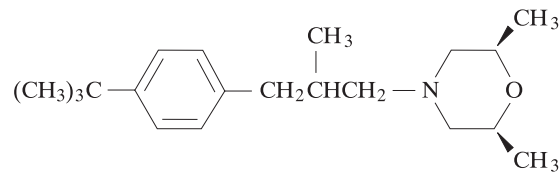
Xi	N	
		R: 36-51/53
		S: (2-)26-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçao, Pitoisuusrajat, Konzentrationsgrænser

Cas No 67564-91-4

EC No 266-719-9

No 613-124-00-0



- ES: *cis*-4-[3-(*p-tert*-butilfenil)-2-metilpropil]-2,6-dimetilmorfolina
 DA: *cis*-4-[3-(*p-tert*-butylphenyl)-2-methylpropyl]-2,6-dimethylmorpholin; fenpropimorph
 DE: *cis*-4-[3-(*p-tert*-Butylphenyl)-2-methylpropyl]-2,6-dimethylmorpholin
 EL: *cis*-4-[3-(*p-τριτοταγέξ*-βουτυλοφαινυλο)-2-μεθυλοπροπυλο]-2,6-διμεθυλομορφολίνη
 EN: *cis*-4-[3-(*p-tert*-butylphenyl)-2-methylpropyl]-2,6-dimethylmorpholine; fenpropimorph
 FR: *cis*-4-[3-(*p-tert*-butylphényl)-2-méthylpropyl]-2,6-diméthylmorpholine; fenpropimorphe
 IT: *cis*-4-[3-(*p-terz*-butilfenil)-2-metilpropil]-2,6-dimetilmorfolina
 NL: *cis*-4-[3-(*p-tert*-butylfenyl)-2-methylpropyl]-2,6-dimethylmorpholine
 PT: *cis*-4-[3-(*p-tert*-butilfenil)-2-metilpropil]-2,6-dimetilmorfolina
 FI: *cis*-4-[3-(*p-tert*-butyylifenyyl)-2-metyylipropyyli]-2,6-dimetyylimorfoliini; fenpropimorfi
 SV: *cis*-4-[3-(*p-tert*-butylfenyl)-2-metylpropyl]-2,6-dimetylmorfolin; fenpropimorf

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 20	Xi; R 38	N; R 51-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

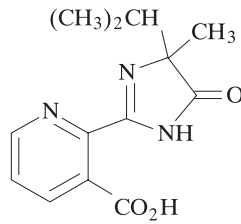
Xn	N	
		R: 20-38-51/53
		S: (2-)36/37/39-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 81334-34-1

EC No —

No 613-126-00-1



ES: imazapyr

DA: imazapyr

DE: Imazapyr

EL: imazapyr

EN: imazapyr; 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridine carboxylate

FR: imazapyr

IT: imazapir

NL: imazapyr

PT: imazapyr

FI: imatsapyyri; 2-[4,5-dihydro-4-metyyli-4-(1-metyylietyyli)-5-okso-1H-imidatsoli-2-yyli]-3-pyridiini-3-karboxylaatti

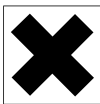
SV: imazapyr; 2-[4,5-dihydro-4-metyl-4-(1-metyletyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinkarboxylsyra

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xi; R 36	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισημάνση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

Xi



R: 36-52/53

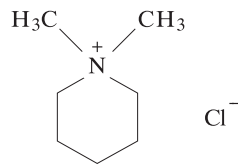
S: (2-)26-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 24307-26-4

EC No 246-147-6

No 613-127-00-7




- ES: cloruro de 1,1-dimetilpiperidinio
 DA: 1,1-dimethylpiperidiniumchlorid; mepiquat-chlorid
 DE: 1,1-Dimethylpiperidiniumchlorid
 EL: χλωρίδιο του 1,1-διμεθυλοπυπεριδινίου
 EN: 1,1-dimethylpiperidinium chloride; mepiquat chloride
 FR: chlorure de 1,1-diméthylpipéridinium; mériquat-chlorure
 IT: cloruro di 1,1-dimetilpiperidinio; mepiquat-cloruro
 NL: 1,1-dimethylpiperidiniumchloride
 PT: cloreto de 1,1-dimetilpiperidinio
 FI: 1,1-dimetyylipiperidiniumkloridi; mepikvattikloridi
 SV: 1,1-dimetylpyperidiniumklorid

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classificazione, Indeling, Classificaçã, Luokitutus, Klassificering

Xn; R 22	R 52-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

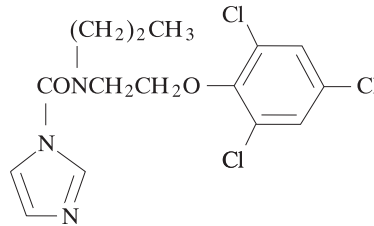
Xn	
	R: 22-52/53
	S: (2-)61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentraçã, Pitoisuusrajat, Konzentrationsgrænser

Cas No 67747-09-5

EC No 266-994-5

No 613-128-00-2



- ES: *N*-propil-*N*-[2-(2,4,6-triclorofenoxi)etil]-1*H*-imidazol-1-carboxamida
 DA: *N*-propyl-*N*-[2-(2,4,6-trichlorophenoxy)ethyl]-1*H*-imidazol-1-carboxamid; prochloraz
 DE: *N*-Propyl-*N*-[2-(2,4,6-trichlorphenoxy)ethyl]-1*H*-imidazol-1-carboxamid
 EL: *N*-προπυλο-*N*-[2-(2,4,6-τριχλωροφαινοξυ)αιθυλο]-1*H*-ιμιδαζολο-1-καρβοξαμίδιο
 EN: *N*-propyl-*N*-[2-(2,4,6-trichlorophenoxy)ethyl]-1*H*-imidazole-1-carboxamide; prochloraz
 FR: *N*-propyl-*N*-[2-(2,4,6-trichlorophénoxy)éthyl]-1*H*-imidazole-1-carboxamide; prochloraz
 IT: *N*-propil-*N*-[2-(2,4,6-triclorofenossi)etil]-1*H*-imidazolo-1-carbossamide; procloraz
 NL: *N*-propyl-*N*-[2-(2,4,6-trichloorfenoxy)ethyl]-1*H*-imidazool-1-carbonamide
 PT: *N*-propil-*N*-[2-(2,4,6-triclorofenoxi)etil]-1*H*-imidazole-1-carboxamida
 FI: *N*-propyyli-*N*-[2-(2,4,6-trikloorifenoksi)etyyli]-1*H*-imidatsoli-1-karboksamidi; prokloratsi
 SV: *N*-propyl-*N*-[2-(2,4,6-triklorfenoxi)etyl]-1*H*-imidazol-1-karboxamid; prokloraz

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnät, Märkning

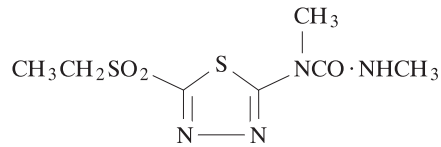
Xn	N	
		R: 22-50/53
		S: (2-)60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 30043-49-3

EC No 250-010-6

No 616-030-00-8




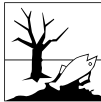
- ES: 1-(5-etilsulfonyl-1,3,4-tiadiazol-2-il)-1,3-dimetilourea
 DA: 1-(5-ethylsulfonyl-1,3,4-thiadiazol-2-yl)-1,3-dimethylurinstof; ethidimuron
 DE: 1-(5-Ethylsulfonyl-1,3,4-thiadiazol-2-yl)-1,3-dimethylharnstoff
 EL: 1-(5-αιθυλοσουλφονυλο-1,3,4-θειαδιαζολ-2-υλο)-1,3-διμεθυλουρία
 EN: 1-(5-ethylsulphonyl-1,3,4-thiadiazol-2-yl)-1,3-dimethylurea; ethidimuron
 FR: 1-(5-éthylsulfonyl-1,3,4-thiadiazole-2-yl)-1,3-diméthylurée; éthidimuron
 IT: 1-(5-etilsolfonyl-1,3,4-tiadiazol-2-il)-1,3-dimetilurea; etidimuron
 NL: 1-(5-ethylsulfonyl-1,3,4-thiadiazool-2-yl)-1,3-dimethylureum
 PT: 1-(5-etilsulfonyl-1,3,4-tiadiazole-2-il)-1,3-dimetilureia
 FI: 1-(5-etyylisulfonyyli-1,3,4-triadiaatsoli-2-yyli)-1,3-dimetyyliurea; etidimuroni
 SV: 1-(5-etylsulfonyl-1,3,4-tiadiazol-2-yl)-1,3-dimetylurea

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

R 43

N; R 50-53

Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinnäät, Märkning

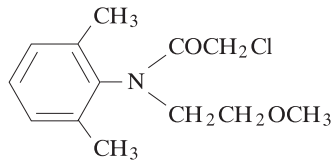
Xi	N	
		
		R: 43-50/53
		S: (2-)24-37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

Cas No 50563-36-5

EC No 256-625-6

No 616-031-00-3



- ES: 2-cloro-*N*-(2,6-dimetilfenil)-*N*-(2-metoxietil)acetamida
 DA: 2-chlor-*N*-(2,6-dimethylphenyl)-*N*-(2-methoxyethyl)acetamid; dimethachlor
 DE: 2-Chlor-*N*-(2,6-dimethylphenyl)-*N*-(2-methoxyethyl)acetamid
 EL: 2-χλωρο-*N*-(2,6-διμεθυλοφαινυλο)-*N*-(2-μεθοξυαιθυλ)ακεταμίδιο
 EN: 2-chloro-*N*-(2,6-dimethylphenyl)-*N*-(2-methoxyethyl)acetamide; dimethachlor
 FR: 2-chloro-*N*-(2,6-diméthylphényl)-*N*-(2-méthoxyéthyl)acétamide; dimethachlor
 IT: 2-cloro-*N*-(2,6-dimetilfenil)-*N*-(2-metossietil)acetamide; dimetaclor
 NL: 2-chloor-*N*-(2,6-dimethylfenyl)-*N*-(2-methoxyethyl)acetamide;
 PT: 2-cloro-*N*-(2,6-dimetilfenil)-*N*-(2-metoxietil)acetamida
 FI: 2-kloori-*N*-(2,6-dimetyylifenyli)-*N*-(2-metoksietyyli)asetamidi; dimetakloori
 SV: 2-klor-*N*-(2,6-dimetylfenyl)-*N*-(2-metoxietyl)acetamid; dimetaklor

Clasificación, Klassificering, Einstufung, Ταξινόμηση, Classification, Classification, Classificazione, Indeling, Classificação, Luokitus, Klassificering

Xn; R 22	R 43	N; R 50-53
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Etiquetado, Etikettering, Kennzeichnung, Επισήμανση, Labelling, Étiquetage, Etichettatura, Kenmerken, Rotulagem, Merkinntät, Märkning

Xn	N	
		R: 22-43-50/53
		S: (2-)24-37-60-61

Límites de concentración, Konzentrationsgrænser, Konzentrationsgrenzwerte, Όρια συγκέντρωσης, Concentration limits, Limites de concentration, Limiti di concentrazione, Concentratiegrenzen, Limites de concentração, Pitoisuusrajat, Konzentrationsgrænser

ANNEX III A

A.18. NUMBER-AVERAGE MOLECULAR WEIGHT AND MOLECULAR WEIGHT DISTRIBUTION OF POLYMERS

1. METHOD

This Gel Permeation Chromatographic method is a replicate of the OECD TG 118 (1996). The fundamental principles and further technical information are given in reference 1.

1.1. Introduction

Since the properties of polymers are so varied, it is impossible to describe one single method setting out precisely the conditions for separation and evaluation which cover all eventualities and specificities occurring in the separation of polymers. In particular complex polymer systems are often not amenable to gel permeation chromatography (GPC). When GPC is not practicable, the molecular weight may be determined by means of other methods (see Annex). In such cases, full details and justification should be given for the method used.

The method described is based on DIN standard 55672 (1). Detailed information about how to carry out the experiments and how to evaluate the data can be found in this DIN standard. In case modifications of the experimental conditions are necessary, these changes must be justified. Other standards may be used, if fully referenced. The method described uses polystyrene samples of known polydispersity for calibration and it may have to be modified to be suitable for certain polymers, e.g. water soluble and long-chain branched polymers.

1.2. Definitions and units

The number-average molecular weight M_n and the weight average molecular weight M_w are determined using the following equations:

$$M_n = \frac{\sum_{i=1}^n H_i}{\sum_{i=1}^n H_i / M_i} \quad M_w = \frac{\sum_{i=1}^n H_i x M_i}{\sum_{i=1}^n H_i}$$

where,

H_i is the level of the detector signal from the baseline for the retention volume V_i

M_i is the molecular weight of the polymer fraction at the retention volume V_i , and

n is the number of data points.

The breadth of the molecular weight distribution, which is a measure of the dispersity of the system, is given by the ratio M_w/M_n .

1.3. Reference substances

Since GPC is a relative method, calibration must be undertaken. Narrowly distributed, linearly constructed polystyrene standards with known average molecular weights M_n and M_w and a known molecular weight distribution are normally used for this. The calibration curve can only be used in the determination of the molecular weight of the unknown sample if the conditions for the separation of the sample and the standards have been selected in an identical manner.

A determined relationship between the molecular weight and elution volume is only valid under the specific conditions of the particular experiment. The conditions include, above all, the temperature, the solvent (or solvent mixture), the chromatography conditions and the separation column or system of columns.

The molecular weights of the sample determined in this way are relative values and are described as 'polystyrene equivalent molecular weights'. This means that dependent on the structural and chemical differences between the sample and the standards, the molecular weights can deviate from the absolute values to a greater or a lesser degree. If other standards are used, e.g. polyethylene glycol, polyethylene oxide, polymethyl methacrylate, polyacrylic acid, the reason should be stated.

1.4. Principle of the test method

Both the molecular weight distribution of the sample and the average molecular weights (M_n , M_w) can be determined using GPC. GPC is a special type of liquid chromatography in which the sample is separated according to the hydrodynamic volumes of the individual constituents (2).

Separation is effected as the sample passes through a column which is filled with a porous material, typically an organic gel. Small molecules can penetrate the pores whereas large molecules are excluded. The path of the large molecules is thereby shorter and these are eluted first. The medium-sized molecules penetrate some of the pores and are eluted later. The smallest molecules, with a mean hydrodynamic radius smaller than the pores of the gel, can penetrate all of the pores. These are eluted last.

In an ideal situation, the separation is governed entirely by the size of the molecular species, but in practice it is difficult to avoid at least some absorption effects interfering. Uneven column packing and dead volumes can worsen the situation (2).

Detection is effected by, for example, refractive index or UV-absorption and yields a simple distribution curve. However, to attribute actual molecular weight values to the curve, it is necessary to calibrate the column by passing down polymers of known molecular weight and, ideally, of broadly similar structure e.g. various polystyrene standards. Typically a Gaussian curve results, sometimes distorted by a small tail to the low molecular weight side, the vertical axis indicating the quantity, by weight, of the various molecular weight species eluted, and the horizontal axis the log molecular weight.

1.5. Quality criteria

The repeatability (Relative Standard Deviation: RSD) of the elution volume should be better than 0,3 %. The required repeatability of the analysis has to be ensured by correction via an internal standard if a chromatogram is evaluated time-dependently and does not correspond to the abovementioned criterion (1). The polydispersities are dependent on the molecular weights of the standards. In the case of polystyrene standards typical values are:

$$\begin{array}{ll} M_p < 2\,000 & M_w/M_n < 1,20 \\ 2\,000 \leq M_p \leq 10^6 & M_w/M_n < 1,05 \\ M_p > 10^6 & M_w/M_n < 1,20 \end{array}$$

(M_p is the molecular weight of the standard at the peak maximum)

1.6. Description of the test method

1.6.1. Preparation of the standard polystyrene solutions

The polystyrene standards are dissolved by careful mixing in the chosen eluent. The recommendations of the manufacturer must be taken into account in the preparation of the solutions.

The concentrations of the standards chosen are dependent on various factors, e.g. injection volume, viscosity of the solution and sensitivity of the analytical detector. The maximum injection volume must be adapted to the length of the column, in order to avoid overloading. Typical injection volumes for analytical separations using GPC with a column of 30 cm \times 7,8 mm are normally between 40 and 100 μ l. Higher volumes are possible, but they should not exceed 250 μ l. The optimal ratio between the injection volume and the concentration must be determined prior to the actual calibration of the column.

1.6.2. *Preparation of the sample solution*

In principle, the same requirements apply to the preparation of the sample solutions. The sample is dissolved in a suitable solvent, e.g. tetrahydrofuran (THF), by shaking carefully. Under no circumstances should it be dissolved using an ultrasonic bath. When necessary, the sample solution is purified via a membrane filter with a pore size of between 0,2 and 2 μm .

The presence of undissolved particles must be recorded in the final report as these may be due to high molecular weight species. An appropriate method should be used to determine the percentage by weight of the dissolved particles. The solutions should be used within 24 hours.

1.6.3. *Apparatus*

- solvent reservoir,
- degasser (where appropriate),
- pump,
- pulse dampener (where appropriate),
- injection system,
- chromatography columns,
- detector,
- flowmeter (where appropriate),
- data recorder-processor,
- waste vessel.

It must be ensured that the GPC system is inert with regard to the utilised solvents (e.g. by the use of steel capillaries for THF solvent).

1.6.4. *Injection and solvent delivery system*

A defined volume of the sample solution is loaded onto the column either using an auto-sampler or manually in a sharply defined zone. Withdrawing or depressing the plunger of the syringe too quickly, if done manually, can cause changes in the observed molecular weight distribution. The solvent-delivery system should, as far as possible, be pulsation-free ideally incorporating a pulse dampener. The flow rate is of the order of 1 ml/min.

1.6.5. *Column*

Depending on the sample, the polymer is characterised using either a simple column or several columns connected in sequence. A number of porous column materials with defined properties (e.g. pore size, exclusion limits) are commercially available. Selection of the separation gel or the length of the column is dependent on both the properties of the sample (hydrodynamic volumes, molecular weight distribution) and the specific conditions for separation such as solvent, temperature and flow rate (1) (2) (3).

1.6.6. *Theoretical plates*

The column or the combination of columns used for separation must be characterised by the number of theoretical plates. This involves, in the case of THF as elution solvent, loading a solution of ethyl benzene or other suitable non-polar solute onto a column of known length. The number of theoretical plates is given by the following equation:

$$N = 5,54 \left(\frac{V_e}{W_{1/2}} \right)^2 \quad \text{or} \quad N = 16 \left(\frac{V_e}{W} \right)^2$$

where,

N is the number of theoretical plates

V_e is the elution volume at the peak maximum

W is the baseline peak width

$W_{1/2}$ is the peak width at half height.

1.6.7. *Separation efficiency*

In addition to the number of theoretical plates, which is a quantity determining the bandwidth, a part is also played by the separation efficiency, this being determined by the steepness of the calibration curve. The separation efficiency of a column is obtained from the following relationship:

$$\frac{V_{e,M_x} - V_{e,(10M_x)}}{\text{cross sectional area of the column}} \geq 6,0 \left[\frac{\text{cm}^3}{\text{cm}^2} \right]$$

where,

V_{e,M_x} is the elution volume for polystyrene with the molecular weight M_x

$V_{e,(10M_x)}$ is the elution volume for polystyrene with a 10 times greater molecular weight.

The resolution of the system is commonly defined as follows:

$$R_{1,2} = 2 \times \frac{V_{e1} - V_{e2}}{W_1 + W_2} \times \frac{1}{\log_{10}(M_2/M_1)}$$

where,

V_{e1} , V_{e2} are the elution volumes of the two polystyrene standards at the peak maximum

W_1 , W_2 are the peak widths at the baseline

M_1 , M_2 are the molecular weights at the peak maximum (should differ by a factor of 10).

The R-value for the column system should be greater than 1,7 (4).

1.6.8. *Solvents*

All solvents must be of high purity (for THF purity of 99,5 % is used). The solvent reservoir (if necessary in an inert gas atmosphere) must be sufficiently large for the calibration of the column and several sample analyses. The solvent must be degassed before it is transported to the column via the pump.

1.6.9. *Temperature control*

The temperature of the critical internal components (injection loop, columns, detector and tubing) should be constant and consistent with the choice of solvent.

1.6.10. *Detector*

The purpose of the detector is to record quantitatively the concentration of sample eluted from the column. In order to avoid unnecessary broadening of peaks the cuvette volume of the detector cell must be kept as small as possible. It should not be larger than 10 μl except for light scattering and viscosity detectors. Differential refractometry is usually used for detection. However, if required by the specific properties of the sample or the elution solvent, other types of detectors can be used, e.g. UV/VIS, IR, viscosity detectors, etc.

2. **DATA AND REPORTING**2.1. **Data**

The DIN Standard (1) should be referred to for the detailed evaluation criteria as well as for the requirements relating to the collecting and processing of data.

For each sample, two independent experiments must be carried out. They have to be analysed individually.

M_n , M_w , M_w/M_n and M_p must be provided for every measurement. It is necessary to indicate explicitly that the measured values are relative values equivalent to the molecular weights of the standard used.

After determination of the retention volumes or the retention times (possibly corrected using an internal standard), $\log M_p$ values (M_p being the peak maxima of the calibration standard) are plotted against one of those quantities. At least two calibration points are necessary per molecular weight decade, and at least five measurement points are required for the total curve, which should cover the estimated molecular weight of the sample. The low molecular weight end-point of the calibration curve is defined by n-hexyl benzene or another suitable non-polar solute. The number average and the weight-average molecular weights are generally determined by means of electronic data processing, based on the formulas of section 1.2. In case manual digitisation is used, ASTM D 3536-91 can be consulted (3).

The distribution curve must be provided in the form of a table or as figure (differential frequency or sum percentages against $\log M$). In the graphic representation, one molecular weight decade should be normally about 4 cm in width and the peak maximum should be about 8 cm in height. In the case of integral distribution curves the difference in the ordinate between 0 and 100 % should be about 10 cm.

2.2. Test report

The test report must include the following information:

2.2.1. Test substance

- available information about test substance (identity, additives, impurities),
- description of the treatment of the sample, observations, problems.

2.2.2. Instrumentation

- reservoir of eluent, inert gas, degassing of the eluent, composition of the eluent, impurities,
- pump, pulse dampener, injection system,
- separation columns (manufacturer, all information about the characteristics of the columns, such as pore size, kind of separation material etc., number, length and order of the columns used),
- number of the theoretical plates of the column (or combination), separation efficiency (resolution of the system),
- information on symmetry of the peaks,
- column temperature, kind of temperature control,
- detector (measurement principle, type, cuvette volume),
- flowmeter if used (manufacturer, measurement principle),
- system to record and process data (hardware and software).

2.2.3. Calibration of the system

- detailed description of the method used to construct the calibration curve,
- information about quality criteria for this method (e.g. correlation coefficient, error sum of squares, etc.),
- information about all extrapolations, assumptions and approximations made during the experimental procedure and the evaluation and processing of data,
- all measurements used for constructing the calibration curve have to be documented in a table which includes the following information for each calibration point:
 - name of the sample,
 - manufacturer of the sample,
 - characteristic values of the standards M_p , M_n , M_w and M_w/M_n , as provided by the manufacturer or derived by subsequent measurements, together with details about the method of determination,
 - injection volume and injection concentration,
 - M_p value used for calibration,

- elution volume or corrected retention time measured at the peak maxima,
- M_p calculated at the peak maximum,
- percentage error of the calculated M_p and the calibration value.

2.2.4. Evaluation:

- evaluation on a time basis: methods used to ensure the required reproducibility (method of correction, internal standard, etc.),
- information about whether the evaluation was effected on the basis of the elution volume or the retention time,
- information about the limits of the evaluation if a peak is not completely analysed,
- description of smoothing methods, if used,
- preparation and pre-treatment procedures of the sample,
- the presence of undissolved particles, if any,
- injection volume (μ l) and injection concentration (mg/ml),
- observations indicating effects which lead to deviations from the ideal GPC profile,
- detailed description of all modifications in the testing procedures,
- details of the error ranges,
- any other information and observations relevant for the interpretation of the results.

3. REFERENCES

- (1) DIN 55672 (1995). Gelpermeationschromatographie (GPC) mit Tetrahydrofuran (THF) als Elutionsmittel, Teil 1.
 - (2) Yau, W. W., Kirkland, J. J., and Bly, D. D. eds, (1979). *Modern Size Exclusion Liquid Chromatography*, J. Wiley and Sons.
 - (3) ASTM D 3536-91, (1991). Standard Test Method for Molecular Weight Averages and Molecular Weight Distribution by Liquid Exclusion Chromatography (Gel Permeation Chromatography-GPC). American Society for Testing and Materials, Philadelphia, Pennsylvania.
 - (4) ASTM D 5296-92, (1992). Standard Test Method for Molecular Weight Averages and Molecular Weight Distribution of Polystyrene by High Performance Size-Exclusion Chromatography. American Society for Testing and Materials, Philadelphia, Pennsylvania.
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*Annex***Examples of other methods for determination of number-average molecular weight (M_n) for polymers**

Gel permeation chromatography (GPC) is the preferred method for determination of M_n , especially when a set of standards are available, whose structure is comparable with the polymer structure. However, where there are practical difficulties in using GPC or there is already an expectation that the substance will fail a regulatory M_n criterion (and which needs confirming), alternative methods are available, such as:

1. Use of colligative properties

- 1.1. *Ebullioscopy/cryoscopy*: involves measurement of boiling point elevation (ebullioscopy) or freezing point depression (cryoscopy) of a solvent, when the polymer is added. The method relies on the fact that the effect of the dissolved polymer on the boiling/freezing point of the liquid is dependent on the molecular weight of the polymer (1) (2).

Applicability: $M_n < 20\,000$.

- 1.2. *Lowering of vapour pressure*: involves the measurement of the vapour pressure of a chosen reference liquid before and after the addition of known quantities of polymer (1) (2).

Applicability: $M_n < 20\,000$ (theoretically; in practice however of limited value).

- 1.3. *Membrane osmometry*: relies on the principle of osmosis, i.e. the natural tendency of solvent molecules to pass through a semi-permeable membrane from a dilute to a concentrated solution to achieve equilibrium. In the test, the dilute solution is at zero concentration, whereas the concentrated solution contains the polymer. The effect of drawing solvent through the membrane causes a pressure differential that is dependent on the concentration and the molecular weight of the polymer (1) (3) (4).

Applicability: M_n between 20 000 – 200 000.

- 1.4. *Vapour phase osmometry*: involves comparison of the rate of evaporation of a pure solvent aerosol to at least three aerosols containing the polymer at different concentrations (1) (5) (6).

Applicability: $M_n < 20\,000$.

2. End-group analysis

To use this method, knowledge of both the overall structure of the polymer and the nature of the chain terminating end groups is needed (which must be distinguishable from the main skeleton by, for example, NMR or titration/derivatisation). The determination of the molecular concentration of the end groups present on the polymer can lead to a value for the molecular weight (7) (8) (9).

Applicability, M_n up to 50 000 (with decreasing reliability).

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- (1) Billmeyer, F. W. Jr., (1984). *Textbook of Polymer Science*, 3rd Edn., John Wiley, New York.
- (2) Glover, C. A., (1975). *Absolute Colligative Property Methods*. Chapter 4. In: *Polymer Molecular Weights*, Part I P. E. Slade, Jr. ed., Marcel Dekker, New York.
- (3) ASTM D 3750-79, (1979). Standard Practice for Determination of Number-Average Molecular Weight of Polymers by Membrane Osmometry. American Society for Testing and Materials, Philadelphia, Pennsylvania.
- (4) Coll, H. (1989). *Membrane Osmometry*. In: *Determination of Molecular Weight*, A. R. Cooper ed., J. Wiley and Sons, pp. 25 to 52.
- (5) ASTM 3592-77, (1977). Standard Recommended Practice for Determination of Molecular Weight by Vapour Pressure, American Society for Testing and Materials, Philadelphia, Pennsylvania.

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- (6) Morris, C. E. M., (1989). *Vapour Pressure Osmometry*. In: *Determination of Molecular Weight*, A. R. Cooper ed., John Wiley and Sons.
 - (7) Schröder, E., Müller, G., and Arndt, K-F., (1989). *Polymer Characterisation*, Carl Hanser Verlag, Munich.
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 - (9) Amiya, S., et al. (1990). *Pure and Applied Chemistry*, 62, 2139-2146.
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ANNEX III B

A.19 LOW MOLECULAR WEIGHT CONTENT OF POLYMERS

1. METHOD

This gel permeation chromatographic method is a replicate of the OECD TG 119 (1996). The fundamental principles and further technical information are given in the references.

1.1. Introduction

Since the properties of polymers are so varied, it is impossible to describe one single method setting out precisely the conditions for separation and evaluation which cover all eventualities and specificities occurring in the separation of polymers. In particular complex polymer systems are often not amenable to gel permeation chromatography (GPC). When GPC is not practicable, the molecular weight may be determined by means of other methods (see Annex). In such cases, full details and justification should be given for the method used.

The method described is based on DIN Standard 55672 (1). Detailed information about how to carry out the experiments and how to evaluate the data can be found in this DIN standard. In case modifications of the experimental conditions are necessary, these changes must be justified. Other standards may be used, if fully referenced. The method described uses polystyrene samples of known polydispersity for calibration and it may have to be modified to be suitable for certain polymers, e.g. water soluble and long-chain branched polymers.

1.2. Definitions and units

Low molecular weight is arbitrarily defined as a molecular weight below 1 000 dalton.

The number-average molecular weight M_n and the weight average molecular weight M_w are determined using the following equations:

$$M_n = \frac{\sum_{i=1}^n H_i}{\sum_{i=1}^n H_i / M_i} \quad M_w = \frac{\sum_{i=1}^n H_i x M_i}{\sum_{i=1}^n H_i}$$

where,

H_i is the level of the detector signal from the baseline for the retention volume V_i

M_i is the molecular weight of the polymer fraction at the retention volume V_i , and

n is the number of data points.

The breadth of the molecular weight distribution, which is a measure of the dispersity of the system, is given by the ratio M_w/M_n .

1.3. Reference substances

Since GPC is a relative method, calibration must be undertaken. Narrowly distributed, linearly constructed polystyrene standards with known average molecular weights M_n and M_w and a known molecular weight distribution are normally used for this. The calibration curve can only be used in the determination of the molecular weight of the unknown sample if the conditions for the separation of the sample and the standards have been selected in an identical manner.

A determined relationship between the molecular weight and elution volume is only valid under the specific conditions of the particular experiment. The conditions include, above all, the temperature, the solvent (or solvent mixture), the chromatography conditions and the separation column or system of columns.

The molecular weights of the sample determined in this way are relative values and are described as 'polystyrene equivalent molecular weights'. This means that dependent on the structural and chemical differences between the sample and the standards, the molecular weights can deviate from the absolute values to a greater or a lesser degree. If other standards are used, e.g. polyethylene glycol, polyethylene oxide, polymethyl methacrylate, polyacrylic acid, the reason should be stated.

1.4. Principle of the test method

Both the molecular weight distribution of the sample and the average molecular weights (M_n , M_w) can be determined using GPC. GPC is a special type of liquid chromatography in which the sample is separated according to the hydrodynamic volumes of the individual constituents (2).

Separation is effected as the sample passes through a column which is filled with a porous material, typically an organic gel. Small molecules can penetrate the pores whereas large molecules are excluded. The path of the large molecules is thereby shorter and these are eluted first. The medium-sized molecules penetrate some of the pores and are eluted later. The smallest molecules, with a mean hydrodynamic radius smaller than the pores of the gel, can penetrate all of the pores. These are eluted last.

In an ideal situation, the separation is governed entirely by the size of the molecular species, but in practice it is difficult to avoid at least some absorption effects interfering. Uneven column packing and dead volumes can worsen the situation (2).

Detection is effected by e.g. refractive index or UV-absorption and yields a simple distribution curve. However, to attribute actual molecular weight values to the curve, it is necessary to calibrate the column by passing down polymers of known molecular weight and, ideally, of broadly similar structure e.g. various polystyrene standards. Typically a Gaussian curve results, sometimes distorted by a small tail to the low molecular weight side, the vertical axis indicating the quantity, by weight, of the various molecular weight species eluted, and the horizontal axis the log molecular weight.

The low molecular weight content is derived from this curve. The calculation can only be accurate if the low molecular weight species respond equivalently on a per mass basis to the polymer as a whole.

1.5. Quality criteria

The repeatability (Relative Standard Deviation: RSD) of the elution volume should be better than 0,3 %. The required repeatability of the analysis has to be ensured by correction via an internal standard if a chromatogram is evaluated time-dependently and does not correspond to the abovementioned criterion (1). The polydispersities are dependent on the molecular weights of the standards. In the case of polystyrene standards typical values are:

$$\begin{array}{ll} M_p < 2\,000 & M_w/M_n < 1,20 \\ 2\,000 \leq M_p \leq 10^6 & M_w/M_n < 1,05 \\ M_p > 10^6 & M_w/M_n < 1,20 \end{array}$$

(M_p is the molecular weight of the standard at the peak maximum).

1.6. Description of the test method

1.6.1. Preparation of the standard polystyrene solutions

The polystyrene standards are dissolved by careful mixing in the chosen eluent. The recommendations of the manufacturer must be taken into account in the preparation of the solutions.

The concentrations of the standards chosen are dependent on various factors, e.g. injection volume, viscosity of the solution and sensitivity of the analytical detector. The maximum injection volume must be adapted to the length of the column, in order to avoid overloading. Typical injection volumes for analytical separations using GPC with a column of 30 cm × 7,8 mm are normally between 40 and 100 µl. Higher volumes are possible, but they should not exceed 250 µl. The optimal ratio between the injection volume and the concentration must be determined prior to the actual calibration of the column.

1.6.2. *Preparation of the sample solution*

In principle, the same requirements apply to the preparation of the sample solutions. The sample is dissolved in a suitable solvent, e.g. tetrahydrofuran (THF), by shaking carefully. Under no circumstances should it be dissolved using an ultrasonic bath. When necessary, the sample solution is purified via a membrane filter with a pore size of between 0,2 and 2 µm.

The presence of undissolved particles must be recorded in the final report as these may be due to high molecular weight species. An appropriate method should be used to determine the percentage by weight of the undissolved particles. The solutions should be used within 24 hours.

1.6.3. *Correction for content of impurities and additives*

Correction of the content of species of $M < 1\,000$ for the contribution from non-polymer specific components present (e.g. impurities and/or additives) is usually necessary, unless the measured content is already $< 1\%$. This is achieved by direct analysis of the polymer solution or the GPC eluate.

In cases where the eluate, after passage through the column, is too dilute for a further analysis it must be concentrated. It may be necessary to evaporate the eluate to dryness and dissolve it again. Concentration of the eluate must be effected under conditions which ensure that no changes occur in the eluate. The treatment of the eluate after the GPC step is dependent on the analytical method used for the quantitative determination.

1.6.4. *Apparatus*

GPC apparatus comprises the following components:

- solvent reservoir,
- degasser (where appropriate),
- pump,
- pulse dampener (where appropriate),
- injection system,
- chromatography columns,
- detector,
- flowmeter (where appropriate),
- data recorder-processor,
- waste vessel.

It must be ensured that the GPC system is inert with regard to the utilised solvents (e.g. by the use of steel capillaries for THF solvent).

1.6.5. *Injection and solvent delivery system*

A defined volume of the sample solution is loaded onto the column either using an auto-sampler or manually in a sharply defined zone. Withdrawing or depressing the plunger of the syringe too quickly, if done manually, can cause changes in the observed molecular weight distribution. The solvent-delivery system should, as far as possible, be pulsation-free ideally incorporating a pulse dampener. The flow rate is of the order of 1 ml/min.

1.6.6. *Column*

Depending on the sample, the polymer is characterised using either a simple column or several columns connected in sequence. A number of porous column materials with defined properties (e.g. pore size, exclusion limits) are commercially available. Selection of the separation gel or the length of the column is dependent on both the properties of the sample (hydrodynamic volumes, molecular weight distribution) and the specific conditions for separation such as solvent, temperature and flow rate (1) (2) (3).

1.6.7. *Theoretical plates*

The column or the combination of columns used for separation must be characterised by the number of theoretical plates. This involves, in the case of THF as elution solvent, loading a solution of ethyl benzene or other suitable non-polar solute onto a column of known length. The number of theoretical plates is given by the following equation:

$$N = 5,54 \left(\frac{V_e}{W_{1/2}} \right)^2 \quad \text{or} \quad N = 16 \left(\frac{V_e}{W} \right)^2$$

where

N is the number of theoretical plates

V_e is the elution volume at the peak maximum

W is the baseline peak width

$W_{1/2}$ is the peak width at half height

1.6.8. *Separation efficiency*

In addition to the number of theoretical plates, which is a quantity determining the bandwidth, a part is also played by the separation efficiency, this being determined by the steepness of the calibration curve. The separation efficiency of a column is obtained from the following relationship:

$$\frac{V_{e,M_x} - V_{e,(10M_x)}}{\text{cross sectional area of the column}} \geq 6,0 \left[\frac{\text{cm}^3}{\text{cm}^2} \right]$$

where

V_{e,M_x} is the elution volume for polystyrene with the molecular weight M_x

$V_{e,(10 M_x)}$ is the elution volume for polystyrene with a 10 times greater molecular weight.

The resolution of the system is commonly defined as follows:

$$R_{1,2} = 2 \times \frac{V_{e1} - V_{e2}}{W_1 + W_2} \times \frac{1}{\log_{10}(M_2/M_1)}$$

where

V_{e1} , V_{e2} are the elution volumes of the two polystyrene standards at the peak maximum

W_1 , W_2 are the peak widths at the baseline

M_1 , M_2 are the molecular weights at the peak maximum (should differ by a factor of 10).

The R-value for the column system should be greater than 1,7 (4).

1.6.9. *Solvents*

All solvents must be of high purity (for THF purity of 99,5 % is used). The solvent reservoir (if necessary in an inert gas atmosphere) must be sufficiently large for the calibration of the column and several sample analyses. The solvent must be degassed before it is transported to the column via the pump.

1.6.10. *Temperature control*

The temperature of the critical internal components (injection loop, columns, detector and tubing) should be constant and consistent with the choice of solvent.

1.6.11. *Detector*

The purpose of the detector is to record quantitatively the concentration sample eluted from the column. In order to avoid unnecessary broadening of peaks the cuvette volume of the detector cell must be kept as small as possible. It should not be larger than 10 μl except for light scattering and viscosity detectors. Differential refractometry is usually used for detection. However, if required by the specific properties of the sample or the elution solvent, other types of detectors can be used, e.g. UV/VIS, IR, viscosity detectors, etc.

2. DATA AND REPORTING

2.1. Data

The DIN Standard (1) should be referred to for the detailed evaluation criteria as well as for the requirements relating to the collecting and processing of data.

For each sample, two independent experiments must be carried out. They have to be analysed individually. In all cases it is essential to determine also data from blanks, treated under the same conditions as the sample.

It is necessary to indicate explicitly that the measured values are relative values equivalent to the molecular weights of the standard used.

After determination of the retention volumes or the retention times (possibly corrected using an internal standard), $\log M_p$ values (M_p being the peak maxima of the calibration standard) are plotted against one of those quantities. At least two calibration points are necessary per molecular weight decade, and at least five measurement points are required for the total curve, which should cover the estimated molecular weight of the sample. The low molecular weight end-point of the calibration curve is defined by n-hexyl benzene or another suitable non-polar solute. The portion of the curve corresponding to molecular weights below 1 000 is determined and corrected as necessary for impurities and additives. The elution curves are generally evaluated by means of electronic data processing. In case manual digitisation is used, ASTM D 3536-91 can be consulted (3).

If any insoluble polymer is retained on the column, its molecular weight is likely to be higher than that of the soluble fraction, and if not considered would result in an overestimation of the low molecular weight content. Guidance for correcting the low molecular weight content for insoluble polymer is provided in the Annex.

The distribution curve must be provided in the form of a table or as a figure (differential frequency or sum percentages against $\log M$). In the graphic representation, one molecular weight decade should be normally about 4 cm in width and the peak maximum should be about 8 cm in height. In the case of integral distribution curves the difference in the ordinate between 0 and 100 % should be about 10 cm.

2.2. Test report

The test report must include the following information:

2.2.1. *Test substance*

- available information about test substance (identity, additives, impurities),
- description of the treatment of the sample, observations, problems.

2.2.2. Instrumentation

- reservoir of eluent, inert gas, degassing of the eluent, composition of the eluent, impurities,
- pump, pulse dampener, injection system,
- separation columns (manufacturer, all information about the characteristics of the columns, such as pore size, kind of separation material, etc., number, length and order of the columns used),
- number of the theoretical plates of the column (or combination), separation efficiency (resolution of the system),
- information on symmetry of the peaks,
- column temperature, kind of temperature control,
- detector (measurement principle, type, cuvette volume),
- flowmeter if used (manufacturer, measurement principle),
- system to record and process data (hardware and software).

2.2.3. Calibration of the system

- detailed description of the method used to construct the calibration curve,
- information about quality criteria for this method (e.g. correlation coefficient, error sum of squares, etc.),
- information about all extrapolations, assumptions and approximations made during the experimental procedure and the evaluation and processing of data,
- all measurements used for constructing the calibration curve have to be documented in a table which includes the following information for each calibration point:
 - name of the sample,
 - manufacturer of the sample,
 - characteristic values of the standards M_p , M_n , M_w , M_w/M_n , as provided by the manufacturer or derived by subsequent measurements, together with details about the method of determination,
 - injection volume and injection concentration,
 - M_p value used for calibration,
 - elution volume or corrected retention time measured at the peak maxima,
 - M_p calculated at the peak maximum,
 - percentage error of the calculated M_p and the calibration value.

2.2.4. Information on the low molecular weight polymer content

- description of the methods used in the analysis and the way in which the experiments were conducted,
- information about the percentage of the low molecular weight species content (w/w) related to the total sample,
- information about impurities, additives and other non-polymer species in percentage by weight related to the total sample.

2.2.5. Evaluation

- evaluation on a time basis: all methods to ensure the required reproducibility (method of correction, internal standard, etc.),
- information about whether the evaluation was effected on the basis of the elution volume or the retention time,
- information about the limits of the evaluation if a peak is not completely analysed,
- description of smoothing methods, if used,

- preparation and pre-treatment procedures of the sample,
- the presence of undissolved particles, if any,
- injection volume (μl) and injection concentration (mg/ml),
- observations indicating effects which lead to deviations from the ideal GPC profile,
- detailed description of all modifications in the testing procedures,
- details of the error ranges,
- any other information and observations relevant for the interpretation of the results.

3. **REFERENCES**

- (1) DIN 55672 (1995). Gelpermeationschromatographie (GPC) mit Tetrahydrofuran (THF) als Elutionsmittel, Teil 1.
 - (2) Yau, W. W., Kirkland, J. J., and Bly, D. D. eds. (1979). *Modern Size Exclusion Liquid Chromatography*, J. Wiley and Sons.
 - (3) ASTM D 3536-91, (1991). Standard Test method for Molecular Weight Averages and Molecular Weight Distribution by Liquid Exclusion Chromatography (Gel Permeation Chromatography-GPC). American Society for Testing and Materials, Philadelphia, Pennsylvania.
 - (4) ASTM D 5296-92, (1992). Standard Test method for Molecular Weight Averages and Molecular Weight Distribution of Polystyrene by High Performance Size-Exclusion Chromatography. American Society for Testing and Materials, Philadelphia, Pennsylvania.
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*Annex***Guidance for correcting low molecular content for the presence of insoluble polymer**

When insoluble polymer is present in a sample, it results in mass loss during the GPC analysis. The insoluble polymer is irreversibly retained on the column or sample filter while the soluble portion of the sample passes through the column. In the case where the refractive index increment (dn/dc) of the polymer can be estimated or measured, one can estimate the sample mass lost on the column. In that case, one makes a correction using an external calibration with standard materials of known concentration and dn/dc to calibrate the response of the refractometer. In the example hereafter a poly(methyl methacrylate) (pMMA) standard is used.

In the external calibration for analysis of acrylic polymers, a pMMA standard of known concentration in tetrahydrofuran, is analysed by GPC and the resulting data are used to find the refractometer constant according to the equation:

$$K = R/(C \times V \times dn/dc)$$

where

K is the refractometer constant (in microvoltsecond/ml)

R is the response of the pMMA standard (in microvoltsecond)

C is the concentration of the pMMA standard (in mg/ml)

V is the injection volume (in ml) and

dn/dc is the refractive index increment for pMMA in tetrahydrofuran (in ml/mg).

The following data are typical for a pMMA standard:

$$R = 2\,937\,891$$

$$C = 1,07 \text{ mg/ml}$$

$$V = 0,1 \text{ ml}$$

$$dn/dc = 9 \times 10^{-5} \text{ ml/mg.}$$

The resulting K value, $3,05 \times 10^{11}$ is then used to calculate the theoretical detector response if 100 % of the polymer injected had eluted through the detector.

ANNEX III C

A.20. SOLUTION/EXTRACTION BEHAVIOUR OF POLYMERS IN WATER

1. **METHOD**

The method described is a replicate of the revised version of OECD TG 120 (1997). Further technical information is given in reference (1).

1.1. **Introduction**

For certain polymers, such as emulsion polymers, initial preparatory work may be necessary before the method set out hereafter can be used. The method is not applicable to liquid polymers and to polymers that react with water under the test conditions.

When the method is not practical or not possible, the solution/extraction behaviour may be investigated by means of other methods. In such cases, full details and justification should be given for the method used.

1.2. **Reference substances**

None.

1.3. **Principle of the test method**

The solution/extraction behaviour of polymers in an aqueous medium is determined using the flask method (see A.6 water solubility, flask method) with the modifications described below.

1.4. **Quality criteria**

None.

1.5. **Description of the test method**1.5.1. *Equipment*

The following equipment is required for the method:

- crushing device, e.g. grinder for the production of particles of known size,
- apparatus for shaking with possibility of temperature control,
- membrane filter system,
- appropriate analytical equipment,
- standardised sieves.

1.5.2. *Sample preparation*

A representative sample has first to be reduced to a particle size between 0,125 and 0,25 mm using appropriate sieves. Cooling may be required for the stability of the sample or for the grinding process. Materials of a rubbery nature can be crushed at liquid nitrogen temperature (1).

If the required particle size fraction is not attainable, action should be taken to reduce the particle size as much as possible, and the result reported. In the report, it is necessary to indicate the way in which the crushed sample was stored prior to the test.

1.5.3. *Procedure*

Three samples of 10 g of the test substance are weighed into each of three vessels fitted with glass stoppers and 1 000 ml of water is added to each vessel. If handling an amount of 10 g polymer proves impracticable, the next highest amount which can be handled should be used and the volume of water adjusted accordingly.

The vessels are tightly stoppered and then agitated at 20 °C. A shaking or stirring device capable of operating at constant temperature should be used. After a period of 24 hours, the content of each vessel is centrifuged or filtered and the concentration of polymer in the clear aqueous phase is determined by a suitable analytical method. If suitable analytical methods for the aqueous phase are not available, the total solubility/extractivity can be estimated from the dry weight of the filter residue or centrifuged precipitate.

It is usually necessary to differentiate quantitatively between the impurities and additives on the one hand and the low molecular weight species on the other hand. In the case of gravimetric determination, it is also important to perform a blank run using no test substance in order to account for residues arising from the experimental procedure.

The solution/extraction behaviour of polymers in water at 37 °C at pH 2 and pH 9 may be determined in the same way as described for the conduct of the experiment at 20 °C. The pH values can be achieved by the addition of either suitable buffers or appropriate acids or bases such as hydrochloric acid, acetic acid, analytical grade sodium or potassium hydroxide or NH₃.

Depending on the method of analysis used, one or two tests should be performed. When sufficiently specific methods are available for direct analysis of the aqueous phase for the polymer component, one test as described above should suffice. However, when such methods are not available and determination of the solution/extraction behaviour of the polymer is limited to indirect analysis by determining only the total organic carbon content (TOC) of the aqueous extract, an additional test should be conducted. This additional test should also be done in triplicate, using 10 times smaller polymer samples and the same amounts of water as those used in the first test.

1.5.4. *Analysis*

1.5.4.1. Test conducted with one sample size

Methods may be available for direct analysis of polymer components in the aqueous phase. Alternatively, indirect analysis of dissolved/extracted polymer components, by determining the total content of soluble parts and correcting for non polymer-specific components, could also be considered.

Analysis of the aqueous phase for the total polymeric species is possible:

either by a sufficiently sensitive method, e.g.

- TOC using persulphate or dichromate digestion to yield CO₂ followed by estimation by IR or chemical analysis,
- atomic absorption spectrometry (AAS) or its inductively coupled plasma (ICP) emission equivalent for silicon or metal containing polymers,
- UV absorption or spectrofluorimetry for aryl polymers,
- LC-MS for low molecular weight samples,

or by vacuum evaporation to dryness of the aqueous extract and spectroscopic (IR, UV, etc.) or AAS/ICP analysis of the residue.

If analysis of the aqueous phase as such is not practicable, the aqueous extract should be extracted with a water-immiscible organic solvent, e.g. a chlorinated hydrocarbon. The solvent is then evaporated and the residue analysed as above for the notified polymer content. Any components in this residue which are identified as being impurities or additives are to be subtracted for the purpose of determining the degree of solution/extraction of the polymer itself.

When relatively large quantities of such materials are present, it may be necessary to subject the residue to, for example, HPLC or GC analysis to differentiate the impurities from the monomer and monomer-derived species present so that the true content of the latter can be determined.

In some cases, simple evaporation of the organic solvent to dryness and weighing the dry residue may be sufficient.

1.5.4.2. Test conducted with two different sample sizes

All aqueous extracts are analysed for TOC.

A gravimetric determination is performed on the undissolved/not extracted part of the sample. If, after centrifugation or filtering of the content of each vessel, polymer residues remain attached to the wall of the vessel, the vessel should be rinsed with the filtrate until the vessel is cleared from all visible residues. Following which, the filtrate is again centrifuged or filtered. The residues remaining on the filter or in the centrifuge tube are dried at 40 °C under vacuum and weighed. Drying is continued until a constant weight is reached.

2. DATA

2.1. Test conducted with one sample size

The individual results for each of the three flasks and the average values should be given and expressed in units of mass per volume of the solution (typically mg/l) or mass per mass of polymer sample (typically mg/g). Additionally, the weight loss of the sample (calculated as the weight of the solute divided by the weight of the initial sample) should also be given. The relative standard deviations (RSD) should be calculated. Individual figures should be given for the total substance (polymer + essential additives, etc.) and for the polymer only (i.e. after subtracting the contribution from such additives).

2.2. Test conducted with two different sample sizes

The individual TOC values of the aqueous extracts of the two triplicate experiments and the average value for each experiment should be given expressed as units of mass per volume of solution (typically mgC/l), as well as in units of mass per weight of the initial sample (typically mgC/g).

If there is no difference between the results at the high and the low sample/water ratios, this may indicate that all extractable components were indeed extracted. In such a case, direct analysis would normally not be necessary.

The individual weights of the residues should be given and expressed in percentage of the initial weights of the samples. Averages should be calculated per experiment. The differences between 100 and the percentages found represent the percentages of soluble and extractable material in the original sample.

3. REPORTING

3.1. Test report

The test report must include the following information:

3.1.1. *Test substance*

— available information about test substance (identity, additives, impurities, content of low molecular weight species).

3.1.2. *Experimental conditions*

— description of the procedures used and experimental conditions,
— description of the analytical and detection methods.

3.1.3. *Results*

— results of solubility/extractivity in mg/l; individual and mean values for the extraction tests in the various solutions, broken down in polymer content and impurities, additives, etc.,
— results of solubility/extractivity in mg/g of polymer,
— TOC values of aqueous extracts, weight of the solute and calculated percentages, if measured,

- the pH of each sample,
- information about the blank values,
- where necessary, references to the chemical instability of the test substance, during both the testing process and the analytical process,
- all information which is important for the interpretation of the results.

4. **REFERENCES**

- (1) DIN 53733 (1976) Zerkleinerung von Kunststoffzeugnissen für Prüfzwecke.
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ANNEX III D

C.13 BIOCONCENTRATION: FLOW-THROUGH FISH TEST

1. METHOD

This bioconcentration method is a replicate of the OECD TG 305 (1996).

1.1. Introduction

This method describes a procedure for characterising the bioconcentration potential of substances in fish under flow-through conditions. Although flow-through test regimes are much to be preferred, semi-static regimes are permissible, provided that the validity criteria are satisfied.

The method gives sufficient details for performing the test while allowing adequate freedom for adapting the experimental design to the conditions in particular laboratories and for varying characteristics of test substances. It is most validly applied to stable organic chemicals with $\log P_{ow}$ values between 1,5 and 6,0 (1), but may still be applied to superlipophilic substances (having $\log P_{ow} > 6,0$). The pre-estimate of the bioconcentration factor (BCF), sometimes denoted as K_b , for such superlipophilic substances will presumably be higher than the steady-state bioconcentration factor (BCF_{ss}) value expected to be obtained from laboratory experiments. Pre-estimates of the bioconcentration factor for organic chemicals with $\log P_{ow}$ values up to about 9,0 can be obtained by using the equation of Bintein et al (2). The parameters which characterise the bioconcentration potential include the uptake rate constant (k_1), the depuration rate constant (k_2) and the BCF_{ss} .

Radio-labelled test substances can facilitate the analysis of water and fish samples and may be used to determine whether degradate identification and quantification should be made. If total radioactive residues are measured (for example by combustion or tissue solubilisation), the BCF is based on the parent compound, any retained metabolites and also assimilated carbon. BCFs based on total radioactive residues may not, therefore, be directly comparable to a BCF derived by specific chemical analysis of the parent compound only.

Clean-up procedures may be employed in radio-labelled studies in order to determine BCF based on the parent compound, and the major metabolites may be characterised if deemed necessary. It is also possible to combine a fish metabolism study with a bioconcentration study by analysis and identification of the residues in tissues.

1.2. Definitions and units

Bioconcentration/bioaccumulation is the increase in concentration of the test substance in or on an organism (specified tissues thereof) relative to the concentration of test substance in the surrounding medium.

The *bioconcentration factor* (BCF or K_b) at any time during the uptake phase of this accumulation test is the concentration of test substance in/on the fish or specified tissues thereof (C_i as $\mu\text{g/g}$ (ppm)) divided by the concentration of the chemical in the surrounding medium (C_w as $\mu\text{g/ml}$ (ppm)).

The *steady-state bioconcentration factor* (BCF_{ss} or K_b) does not change significantly over a prolonged period of time, the concentration of the test substance in the surrounding medium being constant during this period of time.

A *plateau* or *steady-state* is reached in the plot of test substance in fish (C_i) against time when the curve becomes parallel to the time axis and three successive analyses of C_i made on samples taken at intervals of at least two days are within $\pm 20\%$ of each other, and there are no significant differences among the three sampling periods. When pooled samples are analysed at least four successive analyses are required. For test substances which are taken up slowly the intervals would more appropriately be seven days.

Bioconcentration factors calculated directly from kinetic rate constants (k_1/k_2) are termed kinetic concentration factor, BCF_k .

The *octanol-water partition coefficient* (P_{ow}) is the ratio of a chemical's solubility in n-octanol and water at equilibrium (method A.8) also expressed as K_{ow} . The logarithm of P_{ow} is used as an indication of a chemical's potential for bioconcentration by aquatic organisms.

The *exposure or uptake phase* is the time during which the fish are exposed to the test chemical.

The *uptake rate constant* (k_1) is the numerical value defining the rate of increase in the concentration of test substance in/on test fish (or specified tissues thereof) when the fish are exposed to that chemical (k_1 is expressed in day^{-1}).

The *post-exposure or depuration (loss) phase* is the time, following the transfer of the test fish from a medium containing test substance to a medium free of that substance, during which the depuration (or the net loss) of the substance from the test fish (or specified tissue thereof) is studied.

The *depuration (loss) rate constant* (k_2) is the numerical value defining the rate of reduction in the concentration of the test substance in the test fish (or specified tissues thereof) following the transfer of the test fish from a medium containing the test substance to a medium free of that substance (k_2 is expressed in day^{-1}).

1.3. Principle of the test method

The test consists of two phases: the exposure (uptake) and post-exposure (depuration) phases. During the uptake phase, separate groups of fish of one species are exposed to at least two concentrations of the test substance. They are then transferred to a medium free of the test substance for the depuration phase. A depuration phase is always necessary unless uptake of the substance during the uptake phase has been insignificant (e.g. the BCF is less than 10). The concentration of the test substance in/on the fish (or specified tissue thereof) is followed through both phases of the test. In addition to the two test concentrations, a control group of fish is held under identical conditions except for the absence of the test substance, to relate possible adverse effects observed in the bioconcentration test to a matching control group and to obtain background concentrations of test substance.

The uptake phase is run for 28 days unless it is demonstrated that equilibrium has been reached earlier. A prediction of the length of the uptake phase and the time to steady-state can be made from the equation in Annex 3. The depuration period is then begun by transferring the fish to the same medium but without the test substance in another clean vessel. Where possible the bioconcentration factor is calculated preferably both as the ratio (BCF_{ss}) of concentration of the fish (C_f) and in the water (C_w) at apparent steady-state and as a kinetic bioconcentration factor (BCF_k) as the ratio of the rate constants of uptake (k_1) and depuration (k_2) assuming first-order kinetics. If first-order kinetics are obviously not obeyed, more complex models should be employed (Annex 5).

If a steady-state is not achieved within 28 days, the uptake phase should be extended until steady-state is reached, or 60 days, whichever comes first; the depuration phase is then begun.

The uptake rate constant, the depuration (loss) rate constant (or constants, where more complex models are involved), the bioconcentration factor, and where possible, the confidence limits of each of these parameters are calculated from the model that best describes the measured concentrations of test substance in fish and water.

The BCF is expressed as a function of the total wet weight of the fish. However, for special purposes, specified tissues or organs (e.g. muscle, liver), may be used if the fish are sufficiently large or the fish may be divided into edible (fillet) and non-edible (viscera) fractions. Since, for many organic substances, there is a clear relationship between the potential for bioconcentration and lipophilicity, there is also a corresponding relationship between the lipid content of the test fish and the observed bioconcentration of such substances. Thus, to reduce this source of variability in test results for those substances with high lipophilicity (i.e. with $\log P_{ow} > 3$), bioconcentration should be expressed in relation to lipid content in addition to whole body weight.

The lipid content should be determined on the same biological material as is used to determine the concentration of the test substance, when feasible.

1.4. Information on the test substance

Before carrying out the test for bioconcentration, the following information for the test substance should be known:

- (a) solubility in water;
- (b) octanol-water partition coefficient P_{ow} (denoted also as K_{ow} , determined by an HPLC method in A.8);
- (c) hydrolysis;
- (d) phototransformation in water determined under solar or simulated solar irradiation and under the irradiation conditions of the test for bioconcentration (3);
- (e) surface tension (i.e. for substances where the $\log P_{ow}$ cannot be determined);
- (f) vapour pressure;
- (g) ready biodegradability (where appropriate).

Other information required is the toxicity to the fish species to be used in the test, preferably the asymptotic LC_{50} (i.e. time-independent). An appropriate analytical method, of known accuracy, precision and sensitivity, for the quantification of the test substance in the test solutions and in biological material must be available, together with details of sample preparation and storage. Analytical detection limit of test substance in both water and fish tissues should also be known. When ^{14}C labelled test substance is used, the percentage of radioactivity associated with impurities should be known.

1.5. Validity of the test

The following conditions should apply for a test to be valid:

- the temperature variation is less than ± 2 °C,
- the concentration of dissolved oxygen does not fall below 60 % saturation,
- the concentration of the test substance in the chambers is maintained within ± 20 % of the mean of the measured values during the uptake phase,
- the mortality or other adverse effects/disease in both control and treated fish is less than 10 % at the end of the test; where the test is extended over several weeks or months, death or other adverse effects in both sets of fish should be less than 5 % per month and not exceed 30 % in all.

1.6. Reference compounds

The use of reference compounds of known bioconcentration potential would be useful in checking the experimental procedure, when required. However, specific substances cannot yet be recommended.

1.7. Description of the test method

1.7.1. Apparatus

Care should be taken to avoid the use of materials, for all parts of the equipment, that can dissolve, sorb or leach and have an adverse effect on the fish. Standard rectangular or cylindrical tanks, made of chemically inert material and of a suitable capacity in compliance with loading rate can be used. The use of soft plastic tubing should be minimised. Teflon (R), stainless steel and/or glass tubing are preferably used. Experience has shown that for substances with high absorption coefficients, such as the synthetic pyrethroids, silanised glass may be required. In these situations the equipment will have to be discarded after use.

1.7.2. *Water*

Natural water is generally used in the test and should be obtained from an uncontaminated and uniform quality source. The dilution water must be of a quality that will allow the survival of the chosen fish species for the duration of the acclimation and test periods without them showing any abnormal appearance or behaviour. Ideally, it should be demonstrated that the test species can survive, grow and reproduce in the dilution water (e.g. in laboratory culture or a life-cycle toxicity test). The water should be characterised at least by pH, hardness, total solids, total organic carbon and, preferably also ammonium, nitrite and alkalinity and, for marine species, salinity. The parameters which are important for optimal fish well-being are fully known, but Annex 1 gives recommended maximum concentrations of a number of parameters for fresh and marine test waters.

The water should be of constant quality during the period of a test. The pH value should be within the range 6,0 to 8,5, but during a given test it should be within a range of $\pm 0,5$ pH units. In order to ensure that the dilution water will not unduly influence the test result (for example, by complexation of the test substance) or adversely affect the performance of the stock of fish, samples should be taken at intervals for analysis. Determination of heavy metals (e.g. Cu, Pb, Zn, Hg, Cd, Ni), major anions and cations (e.g. Ca, Mg, Na, K, Cl, SO_4), pesticides (e.g. total organophosphorous and total organochlorine pesticides), total organic carbon and suspended solids should be made, for example, every three months where a dilution water is known to be relatively constant in quality. If water quality has been demonstrated to be constant over at least one year, determinations can be less frequent and intervals extended (e.g. every six months).

The natural particle content as well as the total organic carbon (TOC) of the dilution water should be as low as possible to avoid absorption of the test substance to organic matter which may reduce its bioavailability (4). The maximum acceptable value is 5 mg/l for particulate matter (dry matter, not passing a 0,45 μm filter) and 2 mg/l for total organic carbon (see Annex 1). If necessary, the water should be filtered before use. The contribution to the organic carbon content in water from the test fish (excreta) and from the food residues should be as low as possible. Throughout the test, the concentration of organic carbon in the test vessel should not exceed the concentration of organic carbon originating from the test substance and, if used, the solubilising agent by more than 10 mg/l ($\pm 20\%$).

1.7.3. *Test solutions*

A stock solution of the test substance is prepared at a suitable concentration. The stock solution should preferably be prepared by simply mixing or agitating the test substance in the dilution water. The use of solvents or dispersants (solubilising agents) is not recommended; however this may occur in some cases in order to produce a suitably concentrated stock solution. Solvents which may be used are ethanol, methanol, ethylene glycol monomethyl ether, ethylene glycol dimethyl ether, dimethylformamide and triethylene glycol. Dispersants which may be used are Cremophor RH40, Tween 80, methylcellulose 0,01 % and HCO-40. Care should be taken when using readily biodegradable agents as these can cause problems with bacterial growth in flow-through tests. The test substance may be radio-labelled and should be of the highest purity (e.g. preferably $> 98\%$).

For flow-through tests, a system which continuously dispenses and dilutes a stock solution of the test substance (e.g. metering pump, proportional diluter, saturator system) is required to deliver the test concentrations to the test chambers. At least five volume replacements through each test chamber per day are preferably allowed. The flow-through mode is to be preferred, but where this is not possible (e.g. when the test organisms are adversely affected) a semi-static technique may be used provided that the validity criteria are satisfied. The flow rates of stock solutions and dilution water should be checked both 48 hours before and then at least daily during the test. In this check the determination of the flow-rate through each test chamber is included and ensured that it does not vary by more than 20 % either within or between chambers.

1.7.4. *Selection of species*

Important criteria in the selection of species are that they are readily available, can be obtained in convenient sizes and can be satisfactorily maintained in the laboratory. Other criteria for selecting fish species include recreational, commercial, ecological importance as well as comparable sensitivity, past successful use, etc.

Recommended test species are given in Annex 2. Other species may be used but the test procedure may have to be adapted to provide suitable test conditions. The rationale for the selection of the species and the experimental method should be reported in this case.

1.7.5. *Holding of fish*

Acclimate the stock population of fish for at least two weeks in water at the test temperature and feed throughout on a sufficient diet and of the same type to be used during the test.

Following a 48-hour settling-in period, mortalities are recorded and the following criteria applied:

- mortalities of greater than 10 % of population in seven days: reject the entire batch,
- mortalities of between 5 and 10 % of population in seven days: acclimate for seven additional days,
- mortalities of less than 5 % of population in seven days: accept the batch — if more than 5 % mortality during second seven days reject the entire batch.

Ensure that fish used in tests are free from observable diseases and abnormalities. Discard any diseased fish. Fish should not receive treatment for disease in the two weeks preceding the test, or during the test.

1.8. **Performance of the test**

1.8.1. *Preliminary test*

It may be useful to conduct a preliminary experiment in order to optimise the test conditions of the definitive test, e.g. selection of test substance concentration(s), duration of the uptake and depuration phases.

1.8.2. *Conditions of exposure*

1.8.2.1. Duration of uptake phase

A prediction of the duration of the uptake phase can be obtained from practical experience (e.g. from a previous study or an accumulation related chemical) or from certain empirical relationships utilising knowledge of either the aqueous solubility or the octanol/water partition coefficient of the test substance (see Annex 3).

The uptake phase should be run for 28 days unless it can be demonstrated that equilibrium has been reached earlier. If the steady-state has not been reached by 28 days, the uptake phase should be extended, taking further measurements, until steady-state is reached or 60 days, whichever is shorter.

1.8.2.2. Duration of the depuration phase

A period of half the duration of the uptake phase is usually sufficient for an appropriate (e.g. 95 %) reduction in the body burden of the substance to occur (see Annex 3 for explanation of the estimation). If the time required to reach 95 % loss is impractically long, exceeding for example twice the normal duration of the uptake phase (i.e. more than 56 days) a shorter period may be used (i.e. until the concentration of test substance is less than 10 % of steady-state concentration). However, for substances having more complex patterns of uptake and depuration than are represented by a one-compartment fish model, yielding first order kinetics, allow longer depuration phases for determination of loss rate constants. The period may, however, be governed by the period over which the concentration of test substance in the fish remains above the analytical detection limit.

1.8.2.3. Numbers of test fish

Select the numbers of fish per test concentration such that minimum of four fish per sample are available at each sampling. If greater statistical power is required, more fish per sample will be necessary.

If adult fish are used, report whether male or female, or both are used in the experiment. If both sexes are used, differences in lipid content between sexes should be documented to be non-significant before the start of the exposure; pooling all male and all female fish may be necessary.

In any one test, fish of similar weight are selected, such that the smallest are no smaller than two-thirds of the weight of the largest. All should be of the same year-class and come from the same source. Since weight and age of a fish appear sometimes to have a significant effect on BCF values (1) these details are recorded accurately. It is recommended that a sub-sample of the stock of fish is weighed before the test in order to estimate the mean weight.

1.8.2.4. Loading

High water-to-fish ratios are used in order to minimise the reduction in C_w caused by the addition of the fish at the start of the test and also to avoid decreases in dissolved oxygen concentration. It is important that the loading rate is appropriate for the test species used. In any case, a loading rate of 0,1 to 1,0 g of fish (wet weight) per litre of water per day is normally recommended. High loading rates can be used if it is shown that the required concentration of test substance can be maintained within $\pm 20\%$ limits, and that the concentration of dissolved oxygen does not fall below 60 % saturation.

In choosing appropriate loading regimes, account of the normal habitat of the fish species is taken. For example, bottom-living fish may demand a larger bottom area of the aquarium for the same volume of water than pelagic fish species.

1.8.2.5. Feeding

During the acclimation and test periods, fish are fed with an appropriate diet of known lipid and total protein content, in an amount sufficient to keep them in a healthy condition and to maintain body weight. Fish are fed daily throughout the acclimation and test periods at a level of approximately 1 to 2 % of body weight per day; this keeps the lipid concentration in most species of fish at a relatively constant level during the test. The amount of feed should be re-calculated, for example, once per week, in order to maintain consistent body weight and lipid content. For this calculation, the weight of the fish in each test chamber can be estimated from the weight of the fish sampled most recently in that chamber. Do not weigh the fish remaining in the chamber.

Uneaten food and faeces are siphoned daily from the test chambers shortly after feeding (30 minutes to one hour). Chambers are kept as clean as possible throughout the test so that the concentration of organic matter is kept as low as possible, since the presence of organic carbon may limit the bioavailability of the test substance (1).

Since many feeds are derived from fishmeal, the feed should be analysed for the test substance. It is also desirable to analyse the feed for pesticides and heavy metals.

1.8.2.6. Light and temperature

The photoperiod is usually 12 to 16 hours and the temperature ($\pm 2\text{ }^\circ\text{C}$) should be appropriate for the test species (see Annex 2). The type and characteristics of illumination should be known. Caution should be given to the possible phototransformation of the test substance under the irradiation conditions of the study. Appropriate illumination should be used avoiding exposure of the fish to unnatural photoproducts. In some cases it may be appropriate to use a filter to screen out UV irradiation below 290 nm.

1.8.2.7. Test concentrations

Fish are exposed under flow-through conditions to at least two concentrations of the test substance in water. Normally, the higher (or highest) concentration of the test substance is selected to be about 1 % of its acute asymptotic LC_{50} and to be at least ten-fold higher than its detection limit in water by the analytical method used.

The highest test concentration can also be determined by dividing the acute 96h LC₅₀ by an appropriate acute/chronic ratio (appropriate ratios for some chemicals can be about three up to 100). If possible, choose the other concentration(s) such that it differs from the one above by a factor of 10. If this is not possible because of the 1 % of LC₅₀ criterion and the analytical limit, a lower factor than 10 can be used or the use of ¹⁴C labelled test substance should be considered. No concentration used should be above the solubility of the test substance.

Where a solubilising agent is used its concentration should not be greater than 0,1 ml/l and should be the same in all test vessels. Its contribution, together with the test substance, to the overall content of organic carbon in the test water should be known. However, every effort should be made to avoid the use of such materials.

1.8.2.8. Controls

One dilution water control or if relevant, one control containing the solubilising agent should be run in addition to the test series, provided that it has been established that the agent has no effects on the fish. If not, both controls should be set up.

1.8.3. *Frequency of water quality measurements*

During the test, dissolved oxygen, TOC, pH and temperature should be measured in all vessels. Total hardness and salinity, if relevant, should be measured in the controls and one vessel at the higher (or highest) concentration. As a minimum, dissolved oxygen and salinity, if relevant, should be measured three times — at the beginning, around the middle and end of the uptake period — and once a week in the depuration period. TOC should be measured at the beginning of the test (24 hours and 48 hours prior to test initiation of uptake phase) before addition of the fish and at least once a week, during both uptake and depuration phases. Temperature should be measured daily, pH at the beginning and end of each period and hardness once each test. Temperature should preferably be monitored continuously in at least one vessel.

1.8.4. *Sampling and analysis of fish and water*

1.8.4.1. Fish and water sampling schedule

Water from the test chambers for the determination of test substance concentration is sampled before addition of the fish and during both uptake and depuration phases. As a minimum, the water is sampled at the same time as the fish and before feeding. During the uptake phase, the concentrations of test substance are determined in order to check compliance with the validity criteria.

Fish is sampled on at least five occasions during the uptake phase and at least on four occasions during the depuration phase. Since on some occasions it will be difficult to calculate a reasonably precise estimate of the BCF value based on this number of samples, especially when other than simple first-order depuration kinetics are indicated, it may be advisable to take samples at a higher frequency in both periods (see Annex 4). The extra samples are stored and analysed only if the results of the first round of analyses prove inadequate for the calculation of the BCF with the desired precision.

An example of an acceptable sampling schedule is given in Annex 4. Other schedules can readily be calculated using other assumed values of P_{ow} to calculate the exposure time for 95 % uptake.

Sampling is continued during the uptake phase until a steady-state has been established or for 28 days, whichever is the shorter. If the steady-state has not been reached within 28 days sampling continues until a steady-state has been attained or for 60 days, whichever is shorter. Before beginning the depuration phase the fish are transferred to clean tanks.

1.8.4.2. Sampling and sample preparation

Water samples for analysis are obtained, for example, by siphoning through inert tubing from a central point in the test chamber. Since neither filtration nor centrifuging appear always to separate the non-bioavailable fraction of the test substance from that which is bioavailable (especially for super-lipophilic chemicals, i.e. those chemicals with a log P_{ow} > 5) (1) (5), samples may not be subjected to those treatments.

Instead, measures should be taken to keep the tanks as clean as possible and the content of total organic carbon should be monitored during both the uptake and depuration phases.

An appropriate number of fish (normally a minimum of four) are removed from the test chambers at each sampling time. The sampled fish are rinsed quickly with water, blot 'dry', killed instantly using the most appropriate and humane method, and then weighed.

It is preferable to analyse fish and water immediately after sampling in order to prevent degradation or other losses and to calculate approximate uptake and depuration rates as the test proceeds. Immediate analysis also avoids delay in determining when a plateau has been reached.

Failing immediate analysis, samples are stored by an appropriate method. Before the beginning of the study, information on the proper method of storage for the particular test substance — for example, deep-freezing, holding at 4 °C, duration of storage, extraction, etc. are obtained.

1.8.4.3. Quality of analytical method

Since the whole procedure is governed essentially by the accuracy, precision and sensitivity of the analytical method used for the test substance, check experimentally that the precision and reproducibility of the chemical analysis, as well as recovery of the test substance from both water and fish are satisfactory for the particular method. Also, check that the test substance is not detectable in the dilution water used.

If necessary, the values of C_w and C_f obtained from the test are corrected for the recoveries and background values of controls. Fish and water samples are handled throughout in such a manner as to minimise contamination and loss (e.g. resulting from adsorption by the sampling device).

1.8.4.4. Analysis of fish sample

If radiolabelled materials are used in the test, it is possible to analyse for total radio label (i.e. parent and metabolites) or, the samples may be cleaned up so that parent compound can be analysed separately. Also, the major metabolites may be characterised at steady-state or at the end of the uptake phase, whichever is the sooner. If the BCF in terms of total radiolabelled residues is $\geq 1\ 000\ %$, it may be advisable, and for certain categories of chemicals such as pesticides strongly recommended, to identify and quantify degradates representing $\geq 10\ %$ of total residues in fish tissues at steady state. If degradates representing $\geq 10\ %$ of total radiolabelled residues in the fish tissue are identified and quantified, then it is also recommended to identify and quantify degradates in the test water.

The concentration of the test substance should usually be determined for each weighed individual fish. If this is not possible, pooling of the samples on each sampling occasion may be done but pooling does restrict the statistical procedures which can be applied to the data. If a specific statistical procedure and power are important considerations, then an adequate number of fish to accommodate the desired pooling procedure and power should be included in the test (6) (7).

BCF should be expressed both as a function of total wet weight and, for high lipophilic substances, as a function of the lipid content. Lipid content of the fish is determined on each sampling occasion if possible. Suitable methods should be used for determination of lipid content (references 8 and 2 of Annex 3). Chloroform/methanol extraction technique may be recommended as standard method (9). The various methods do not give identical values (10), so it is important to give details of the method used. When possible, the analysis for lipid should be made on the same extract as that produced for analysis for the test substance, since the lipids often have to be removed from the extract before it can be analysed chromatographically. The lipid content of the fish (as mg/kg wet weight) at the end of the experiment should not differ from that at the start by more than $\pm 25\ %$. The tissue percent solids should also be reported to allow conversion of lipid concentration from a wet to a dry basis.

2. DATA

2.1. Treatment of results

The uptake curve of the test substance is obtained by plotting its concentration in/on fish (or specified tissues) in the uptake phase against time on arithmetic scales. If the curve has reached a plateau, that is, becomes approximately asymptotic to the time axis, the steady-state BCF_{ss} is calculated from:

$$\frac{C_f \text{ as steady-state (mean)}}{C_w \text{ as steady-state (mean)}}$$

When no steady-state is reached, it may be possible to calculate a BCF_{ss} of sufficient precision for hazard assessment from a 'steady-state' at 80 % ($1,6/k_2$) or 95 % ($3,0/k_2$) of equilibrium.

Also the concentration factor (BCF_k) is determined, as the ratio k_1/k_2 , the two first-order kinetic constants. The depuration rate constant (k_2) is usually determined from the depuration curve (i.e. a plot of the decrease in test substance concentration in the fish with time). The uptake rate constant (k_1) is then calculated given k_2 and a value of C_f which is derived from the uptake curve (see also Annex 5). The preferred method for obtaining BCF_k and the rate constants, k_1 and k_2 , is to use non-linear parameter estimation methods on a computer (11). Otherwise, graphical methods may be used to calculate k_1 and k_2 . If the depuration curve is obviously not first-order, then more complex models should be employed (see references in Annex 3) and advice from a biostatistician sought.

2.2. Interpretation of results

The results should be interpreted with caution where measured concentrations of test solutions occur at levels near the detection limit of the analytical method.

Clearly defined uptake and loss curves are an indication of good quality bioconcentration data. The variation in uptake/depuration constants between the two test concentrations should be less than 20 %. Observed significant differences in uptake/depuration rates between the two applied test concentrations should be recorded and possible explanations given. Generally the confidence limit of $BCFs$ from well-designed studies approach ± 20 %.

3. REPORTING

The test report must include the following information:

3.1. Test substance

- physical nature and, where relevant, physicochemical properties,
- chemical identification data (including the organic carbon content, if appropriate),
- if radio labelled, the precise position of the labelled atom(s) and the percentage of radioactivity associated with impurities.

3.2. Test species

- scientific name, strain, source, any pre-treatment, acclimation, age, size-range, etc.

3.3. Test conditions

- test procedure used (e.g. flow-through or semi-static),
- type and characteristics of illumination used and photoperiod(s),
- test design (e.g. number and size of test chambers, water volume replacement rate, number of replicates, number of fish per replicate, number of test concentrations, length of uptake and depuration phases, sampling frequency for fish and water samples),

- method of preparation of stock solutions and frequency of renewal (the solubilising agent, its concentration and its contribution to the organic carbon content of test water must be given, when used),
- the nominal test concentrations, the means of the measured values and their standard deviations in the test vessels and the method by which these were attained,
- source of the dilution water, description of any pre-treatment, results of any demonstration of the ability of test fish to live in the water, and water characteristics: pH, hardness, temperature, dissolved oxygen concentration, residual chlorine levels (if measured), total organic carbon, suspended solids, salinity of the test medium (if appropriate) and any other measurements made,
- water quality within test vessels, pH, hardness, TOC, temperature and dissolved oxygen concentration,
- detailed information on feeding (for example, type of food, source, composition — at least lipid and protein content if possible, amount given and frequency),
- information on the treatment of fish and water samples, including details of preparation, storage, extraction and analytical procedures (and precision) for the test substance and lipid content (if measured).

3.4. Results

- results from any preliminary study performed,
- mortality of the control fish and fish in each exposure chamber and any observed abnormal behaviour,
- the lipid content of the fish (if determination on testing occasion),
- curves (including all measured data) showing the uptake and depuration of the test chemical in the fish, the time to steady-state,
- C_t and C_w (with standard deviation and range, if appropriate) for all sampling times (C_t expressed in $\mu\text{g/g}$ wet weight (ppm) of whole body or specified tissues thereof, e.g. lipid, and C_w in $\mu\text{g/ml}$ (ppm). C_w values for the control series (background should also be reported),
- the steady-state bioconcentration factor (BCF_{ss}) and/or kinetic concentration factor (BCF_k) and if applicable, 95 % confidence limits for the uptake and depuration (loss) rate constants (all expressed in relation to the whole body and the total lipid content, if measured, of the animal or specified tissues thereof), confidence limits and standard deviation (as available) and methods of computation/data analysis for each concentration of test substance used,
- where radio-labelled substances are used, and if it is required, the accumulation of any detected metabolites may be presented,
- anything unusual about the test, any deviation from these procedures, and any other relevant information.

Minimise results as 'not detected at the limit of detection' by pre-test method development and experimental design, since such results cannot be used for rate constant calculations.

4. REFERENCES

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*Annex 1***Chemical characteristics of an acceptable dilution water**

	Substance	Limit concentration
1	Particulate matter	5 mg/l
2	Total organic carbon	2 mg/l
3	Un-ionised ammonia	1 µg/l
4	Residual chlorine	10 µg/l
5	Total organophosphorous pesticides	50 ng/l
6	Total organochlorine pesticides plus polychlorinated biphenyls	50 ng/l
7	Total organic chlorine	25 ng/l
8	Aluminium	1 µg/l
9	Arsenic	1 µg/l
10	Chromium	1 µg/l
11	Cobalt	1 µg/l
12	Copper	1 µg/l
13	Iron	1 µg/l
14	Lead	1 µg/l
15	Nickel	1 µg/l
16	Zinc	1 µg/l
17	Cadmium	100 ng/l
18	Mercury	100 ng/l
19	Silver	100 ng/l

Annex 2

Fish species recommended for testing

	Recommended species	Recommended range of test temperature (°C)	Recommended total length of test animal (cm)
1	<i>Danio rerio</i> ⁽¹⁾ (Teleostei, Cyprinidae) (Hamilton-Buchanan) Zebra-fish	20 — 25	3,0 ± 0,5
2	<i>Pimephales promelas</i> (Teleostei, Cyprinidae) (Rafinesque) Fathead minnow	20 — 25	5,0 ± 2,0
3	<i>Cyprinus carpio</i> (Teleostei, Cyprinidae) (Linnaeus) Common Carp	20 — 25	5,0 ± 3,0
4	<i>Oryzias latipes</i> (Teleostei, Poeciliidae) (Temminck and Schlegel) Ricefish	20 — 25	4,0 ± 1,0
5	<i>Pocilia reticulata</i> (Teleostei, Poeciliidae) (Peters) Guppy	20 — 25	3,0 ± 1,0
6	<i>Lepomis macrochirus</i> (Teleostei, Centrarchidae) (Rafinesque) Bluegill	20 — 25	5,0 ± 2,0
7	<i>Oncorhynchus mykiss</i> (Teleostei, Salmonidae) (Walbaum) Rainbow trout	13 — 17	8,0 ± 4,0
8	<i>Gasterosteus aculeatus</i> (Teleostei, Gasterosteidae) (Linnaeus) Three-spined stickleback	18 — 20	3,0 ± 1,0

⁽¹⁾ Meyer A., Orti G. (1993) Proc. Royal Society of London, Series B., Vol. 252, p. 231.

Various estuarine and marine species have been used in different countries, for example:

Spot	<i>Leiostomus xanthurus</i>
Sheepshead minnow	<i>Cyprinodon variegatus</i>
Silverside	<i>Menidia beryllina</i>
Shiner perch	<i>Cymatogaster aggregata</i>
English sole	<i>Parophrys vertulus</i>
Staghorn sculpin	<i>Leptocottus armatus</i>
Three-spined stickleback	<i>Gasterosteus aculeatus</i>
Sea bass	<i>Dicentracus labrax</i>
Bleak	<i>Alburnus alburnus</i>

Collection

The fresh water fish listed in the table are easy to rear and/or are widely available throughout the year, whereas the availability of marine and estuarine species is partially confined to the respective countries. They are capable of being bred and cultivated either in fish farms or in the laboratory, under disease- and parasite-controlled conditions, so that the test animal will be healthy and of known parentage. These fish are available in many parts of the world.

Annex 3

Prediction of the duration of the uptake and depuration phases1. *Prediction of the duration of the uptake phase*

Before performing the test, an estimate of k_2 and hence some percentage of the time needed to reach steady-state may be obtained from empirical relationships between k_2 and the n-octanol/water partition coefficient (P_{ow}) or k_2 and the aqueous solubility (s).

An estimate of k_2 (day^{-1}) may be obtained, for example from the following empirical relationship (1):

$$\log_{10} k_2 = -0,414 \log_{10}(P_{ow}) + 1,47 \quad (r^2=0,95) \quad (\text{equation 1})$$

For other relationships see reference 2.

If the partition coefficient (P_{ow}) is not known, an estimate can be made (3) from a knowledge of the aqueous solubility (s) of the substance using:

$$\log_{10}(P_{ow}) = 0,862 \log_{10}(s) + 0,710 \quad (r^2=0,994) \quad (\text{equation 2})$$

where s = solubility (moles/l): (n = 36).

These relationships apply only to chemicals with $\log P_{ow}$ values between 2 and 6,5 (4).

The time to reach some percentage of steady-state may be obtained, by applying the k_2 -estimate, from the general kinetic equation describing uptake and depuration (first-order kinetics):

$$\frac{dC_f}{dt} = k_1 \cdot C_w - k_2 \cdot C_f$$

or if C_w is constant:

$$C_f = \frac{k_1}{k_2} \cdot C_w (1 - e^{-k_2 t}) \quad (\text{equation 3})$$

When steady-state is approached ($t \rightarrow \infty$), equation 3 may be reduced (5) (6) to:

$$C_f = \frac{k_1}{k_2} \cdot C_w \quad \text{or} \quad C_f/C_w = k_1/k_2 = \text{BCF}$$

Then $k_1/k_2 \cdot C_w$ is an approach to the concentration in the fish at 'steady-state' (C_{fs}).

Equation 3 may be transcribed to:

$$C_f = C_{fs} (1 - e^{-k_2 t}) \quad \text{or} \quad \frac{C_f}{C_{fs}} = 1 - e^{-k_2 t} \quad (\text{equation 4})$$

Applying equation 4, the time to reach some percentage of steady-state may be predicted when k_2 is pre-estimated using equation 1 or 2.

As a guideline, the statistically optimal duration of the uptake phase for the production of statistically acceptable data (BCF_1) is that period which is required for the curve of the logarithm of the concentration of the test substance in fish plotted against linear time to reach its mid-point, or $1,6/k_2$, or 80 % of steady-state but not more than $3,0/k_2$ or 95 % of steady-state (7).

The time to reach 80 % of steady-state is (equation 4):

$$0,80 = 1 - e^{-k_2 t_{80}} \quad \text{or} \quad t_{80} = \frac{1,6}{k_2} \quad (\text{equation 5})$$

Similarly 95 % of steady-state is:

$$t_{95} = \frac{3,0}{k_2} \quad (\text{equation 6})$$

For example, the duration of the uptake phase (up) for a test substance with $\log P_{ow} = 4$ would be (using equations 1, 5 and 6):

$$\begin{aligned} \log_{10} k_2 &= -0,414 \cdot (4) + 1,47 & k_2 &= 0,652 \text{ days}^{-1} \\ \text{up (80 \%)} &= 1,6/0,652, \text{ i.e. } 2,45 \text{ days (59 hours)} \\ \text{or up (95 \%)} &= 3,0/0,652, \text{ i.e. } 4,60 \text{ days (110 hours)} \end{aligned}$$

Similarly, for a test substance with $s = 10^{-5} \text{ mol/l}$ ($\log(s) = 5,0$), the duration of up would be (using equations 1, 2, 5 and 6):

$$\begin{aligned} \log_{10} (P_{ow}) &= -0,862 (-5,0) + 0,710 = 5,02 \\ \log_{10} k_2 &= -0,414 (5,02) + 1,47 \\ k_2 &= 0,246 \text{ days}^{-1} \\ \text{up (80 \%)} &= 1,6/0,246, \text{ i.e. } 6,5 \text{ days (156 hours)} \\ \text{or up (95 \%)} &= 3,0/0,246, \text{ i.e. } 12,2 \text{ days (293 hours)} \end{aligned}$$

Alternatively, the expression:

$$t_{eq} = 6,54 \times 10^{-3} P_{ow} + 55,31 \text{ (hours)}$$

may be used to calculate the time for effective steady-state to be reached (4).

2. Prediction of the duration of the depuration phase

A prediction of the time needed to reduce the body burden to some percentage of the initial concentration may also be obtained from the general equation describing uptake and depuration (first order kinetics) (1) (8).

For the depuration phase, C_w is assumed to be zero. The equation may be reduced to:

$$\frac{dC_f}{dt} = -k_2 C_f \quad \text{or} \quad C_f = C_{f_0} \cdot e^{-k_2 t}$$

where C_{f_0} is the concentration at the start of the depuration period. 50 % depuration will then be reached at the time (t_{50}):

$$\frac{C_f}{C_{f_0}} = \frac{1}{2} = e^{-k_2 t_{50}} \quad \text{or} \quad t_{50} = \frac{0,693}{k_2}$$

Similarly 95 % depuration will be reached at:

$$t_{95} = \frac{3,0}{k_2}$$

If 80 % uptake is used for the first period ($1,6/k_2$) and 95 % loss in the depuration phase ($3,0/k_2$), then the depuration phase is approximately twice the duration of the uptake phase.

It is important to note, however, that the estimations are based on the assumption that uptake and depuration patterns will follow first order kinetics. If first order kinetics are obviously not obeyed, more complex models should be employed (e.g. reference (1)).

Literature (of Annex 3)

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 - (3) Chiou C. T. and Schmedding D. W. (1982). *Partitioning of organic compounds in octanol-water systems*. Environ. Sci. Technol. 16 (1), pp. 4-10.
 - (4) Hawker D. W. and Connell D. W. (1988). *Influence of partition coefficient of lipophilic compounds on bioconcentration kinetics with fish*. Wat. Res. 22 (6), pp. 701-707.
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 - (7) Reilly P. M., Bajramovic R., Blau G. E., Branson D. R. and Sauerhoff M. W. (1977). *Guidelines for the optimal design of experiments to estimate parameters in first order kinetic models*, Can. J. Chem. Eng. 55, pp. 614-622.
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Annex 4

Theoretical example of sampling schedule for bioconcentration tests of substances with log
 $P_{ow} = 4$

Fish sampling	Sample time schedule		Number of water samples	Number of fish per sample
	Minimal required frequency (days)	Additional sampling		
Uptake phase	- 1 0		2 (*) 2	Add 45 to 80 fish
1st	0,3	0,4	2 (2)	4 (4)
2nd	0,6	0,9	2 (2)	4 (4)
3rd	1,2	1,7	2 (2)	4 (4)
4th	2,4	3,3	2 (2)	4 (4)
5th	4,7		2	6
Depuration phase				Transfer fish to water free of test chemical
6th	5,0	5,3		4 (4)
7th	5,9	7,0		4 (4)
8th	9,3	11,2		4 (4)
9th	14,0	17,5		6 (4)

(*) Sample water after minimum of three 'chamber-volume' have been delivered.

Values in brackets are numbers of samples (water, fish) to be taken if additional sampling is carried out.

NB: Pre-test estimate of k_2 for log P_{ow} of 4,0 is 0,652 days⁻¹. The total duration of the experiment is set to $3 \times \text{up} = 3 \times 4,6$ days, i.e. 14 days. For the estimation of 'up' refer to Annex 3.

Annex 5

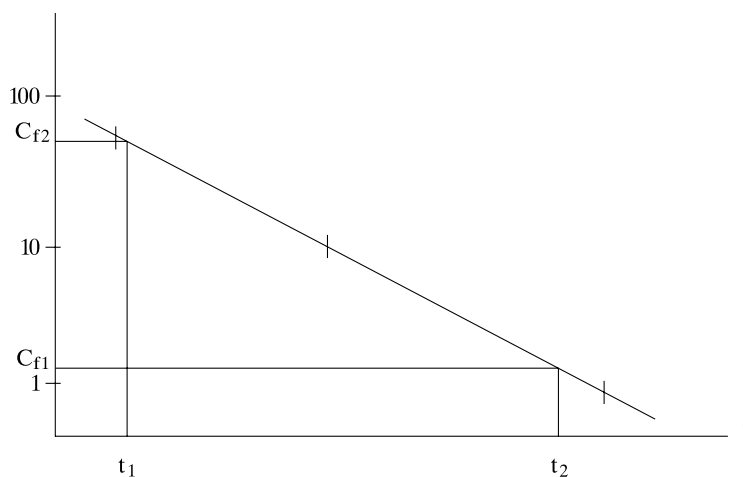
Model discrimination

Most bioconcentration data have been assumed to be 'reasonably' well described by a simple two-compartment/two-parameter model, as indicated by the rectilinear curve which approximates to the points for concentrations in fish, during the depuration phase, when these are plotted on semi-log paper. (Where these points cannot be described by a rectilinear curve then more complex models should be employed, see, for example, Spacie and Hamelink, reference 1 in Annex 3).

Graphical method for determination of depuration (loss) rate constant k_2

Plot the concentration of the test substance found in each sample of fish against sampling time on semi-log paper. The slope of that line is k_2 .

$$k_2 = \frac{\ln(C_{f1} / C_{f2})}{t_2 - t_1}$$



Note that deviations from straight line may indicate a more complex depuration pattern than first order kinetics. A graphical method may be applied for resolving types of depuration deviating from first order kinetics.

Graphical method for determination of uptake rate constant k_1

Given k_2 , calculate k_1 as follows:

$$k_1 = \frac{C_f k_2}{C_w \times (1 - e^{-k_2 t})} \quad \text{(equation 1)}$$

The value of C_f is read from the midpoint of the smooth uptake curve produced by the data when log concentration is plotted versus time (on an arithmetical scale).

Computer method for calculation of uptake and depuration (loss) rate constants

The preferred means for obtaining the bioconcentration factor and k_1 and k_2 rate constants is to use non-linear parameter estimation methods on a computer. These programs find values for k_1 and k_2 given a set of sequential time concentration data and the model:

$$C_t = C_w \cdot \frac{k_1}{k_2} \times (1 - e^{-k_2 t}) \quad 0 < t < t_c \quad (\text{equation 2})$$

$$C_t = C_w \cdot \frac{k_1}{k_2} \times (e^{-k_2(t-t_c)} - e^{-k_2 t}) \quad t < t_c \quad (\text{equation 3})$$

where t_c = time at the end of the uptake phase.

This approach provides standard deviation estimates of k_1 and k_2 .

As k_2 in most cases can be estimated from the depuration curve with relatively high precision, and because a strong correlation exists between the two parameters k_1 and k_2 if estimated simultaneously, it may be advisable first to calculate k_2 from the depuration data only, and subsequently calculate k_1 from the uptake data using non-linear regression.
