Agency technical report on the classification and labelling of

1-isopropyl-4-methylbenzene; p-cymene

EC Number: 202-796-7
CAS Number: 99-87-6

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Contents

Brief summary

The conclusion of the Agency technical report is that p-cymene meets the classification criteria for:

Flam. Liq. 3; H226 (Flammable liquid and vapour)

Acute Tox. 3; H331 (Toxic if inhaled) with an ATE value of 3 mg/L)

Asp. Tox. 1; H304 (May be fatal if swallowed and enters the airways)

Aquatic Chronic 2; H411 (Toxic to aquatic life with long lasting effects)

Is this in agreement with the RAC opinion? YES

At the time of publication, this mandatory classification and labelling has not been agreed and/or adopted in Great Britain.

Introduction

Under Article 37 of the GB CLP Regulation[1], the Agency[2] is required to produce a technical report for each substance on which the Committee for Risk Assessment (RAC) of the European Chemicals Agency produces an opinion[3].

This technical report documents an independent scientific assessment, conducted by HSE technical specialists with support from the Environment Agency for the environmental hazard classification, of the classification and labelling of p-cymene.

Table 1. Information taken into account in the scientific assessment

Document	**Included in assessment**
EU CLH report	**Yes**
Annexes to the EU CLH report	**Yes**
RAC opinion	**Yes**
Background document	**Yes**
Information submitted during the EU public consultation process (RCOM table, including attachments)	**Yes**
RAC minority opinion(s)	**Not applicable**
Other information:	**No**

This information has been evaluated against the classification and labelling criteria set out in the GB CLP Regulation.

[1]The retained CLP Regulation (EU) No. 1272/2008 as amended for Great Britain
[2] HSE acting in its capacity as the GB CLP Agency
[3] Under Article 37(4) of Regulation (EU) No 1272/2008 on classification, labelling and packaging of substances and mixtures

Overview of current and proposed classification and labelling

Table 2. Current and proposed classification and labelling

	Index No.	International Chemical Identification	EC No.	CAS No.	Classification		Labelling			Specific Concentration Limits, M-factors	Notes
					Hazard Class and Category Code(s)	Hazard Statement Code(s)	Pictogram, Signal Word Code(s)	Hazard Statement Code(s)	Suppl. Hazard Statement Code(s)		
GB MCL List entry	No current entry										
EU dossier submitter's proposal	TBD	1-isopropyl-4-methylbenzene; p-cymene	202-796-7	99-87-6	Flam. Liq. 3 Acute Tox. 3 Asp. Tox. 1 Aquatic Acute 1 Aquatic Chronic 3	H226 H331 H304 H400 H412	GHS02 GHS06 GHS08 GHS09 Dgr	H226 H331 H304 H410		M=1	
EU RAC opinion	TBD	1-isopropyl-4-methylbenzene; p-cymene	202-796-7	99-87-6	Flam. Liq. 3 Acute Tox. 3 Asp. Tox. 1 Aquatic Chronic 2	H226 H331 H304 H411	GHS02 GHS06 GHS08 GHS09 Dgr	H226 H331 H304 H411		inhalation: ATE = 3 mg/L (vapour)	
Agency technical report conclusion	TBD	1-isopropyl-4-methylbenzene; p-cymene	202-796-7	99-87-6	Flam. Liq. 3 Acute Tox. 3 Asp. Tox. 1 Aquatic Chronic 2	H226 H331 H304 H411	GHS02 GHS06 GHS08 GHS09 Dgr	H226 H331 H304 H411		inhalation: ATE = 3 mg/L (vapour)	

	Index No.	International Chemical Identification	EC No.	CAS No.	Classification		Labelling			Specific Concentration Limits, M-factors	Notes
					Hazard Class and Category Code(s)	Hazard Statement Code(s)	Pictogram, Signal Word Code(s)	Hazard Statement Code(s)	Suppl. Hazard Statement Code(s)		
Resulting MCL entry on GB MCL list	TBD	1-isopropyl-4-methylbenzene; p-cymene	202-796-7	99-87-6	Flam. Liq. 3 Acute Tox. 3 Asp. Tox. 1 Aquatic Chronic 2	H226 H331 H304 H411	GHS02 GHS06 GHS08 GHS09 Dgr	H226 H331 H304 H411		inhalation: ATE = 3 mg/L (vapour)	

TBD: to be determined

General substance information:

Active substance in Plant Protection Products: ☒

Active substance in Biocidal Products: ☐

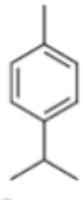
Chemical registered under REACH: ☒

Background

p-Cymene is an ingredient within Terpenoid Blend QRD 460, which is accepted as an insecticidal 'active substance' under Regulation (EC) No 1109/2009. However, Terpenoid Blend QRD 460 is a mixture and it is therefore the substances within the mixture which are subject to the GB mandatory/EU harmonised classification and labelling procedure. Harmonised classification and labelling (CLH) proposals have been submitted to ECHA for each of its three ingredients: p-cymene, d-limonene and α-terpinene. This technical report covers p-Cymene only.

p-Cymene does not have an existing entry in Annex VI of CLP or the GB mandatory classification and labelling list. The dossier submitter (DS; Netherlands) submitted a CLH report to ECHA in April 2018.

p-Cymene is also a chemical substance within the scope of Regulation (EC) No 1907/2006. It is found in foods, consumer products, personal care products and cosmetics. The structural formula of p-cymene is shown below:



Scientific assessment of the physical, human health and environmental hazard classes

Physical Hazards

Classification agreed by RAC:

p-Cymene is liquid at room temperature, therefore only physical hazards relevant to this form have been addressed.

p-Cymene does not have chemical groups associated with explosive or oxidising properties. As such, RAC agreed with the DS that the substance does not warrant classification as an explosive substance or oxidising liquid.

p-Cymene has a flash point of 47.2°C, which is within the classification criteria for category 3 (≥23°C and ≤60°C). Therefore, RAC agreed with the DS that p-cymene meets the classification criteria for flammability Cat. 3 (Flam. Liq. 3; H226).

Classification proposed by the Agency:

The Agency agrees with RAC's assessment of the data. p-Cymene **meets the classification criteria for Flam. Liq. 3; H226 (Flammable liquid and vapour).**

Health Hazards

Acute toxicity

Classification agreed by RAC:

Oral

The acute oral toxicity of p-cymene has been investigated in three studies, two in rats and one in mice. The rat studies reported LD_{50} values of 3200 mg/kg bw and 4750 mg/kg bw, both of which exceed the criteria for acute oral toxicity Cat. 4 (300 < ATE ≤ 2000 mg/kg bw). The LD_{50} in mice was reported in numerous safety data sheets as 1695 mg/kg bw, but the reliability of this value was questionable because the study on which it is based could not be found in the literature. Therefore, RAC concluded that p-cymene does not meet the classification criteria for acute oral toxicity.

Dermal

In one key rabbit study the acute dermal LD_{50} value was >5000 mg/kg bw, which exceeds the criteria for acute dermal toxicity Cat. 4 (1000 < ATE ≤ 2000mg/kg bw). In a second study, a single rabbit did not die after being exposed to 5140 mg/kg bw p-

cymene. Therefore, RAC concluded that p-cymene does not meet the classification criteria for acute dermal toxicity.

Inhalation

One study, performed on guinea pigs, rats and mice, was available to evaluate the acute inhalation toxicity of p-cymene. Test animals were exposed to 9.7 mg/L (vapour), resulting in no deaths in guinea pigs and rats, but 100% death in mice during or within 24 hours of exposure. RAC noted that all animals were exposed for 5 hours (exceeding the 4-hour procedure stated in the CLP criteria), meaning the LC_{50} value might be an over-estimate. In line with the CLP classification criteria, RAC used the murine LC_{50} value (<9.7mg/L (vapour)), which falls within the criteria for acute inhalation toxicity Cat. 3 (2.0 < ATE ≤ 10.0 mg/L), to determine classification because this was the most sensitive species and it was unknown which species was the most relevant to humans. RAC also noted that tests at lower concentrations were not available, meaning classification in category 1 or 2 could not be excluded. However, based on the data available, RAC concluded that p-cymene meets the classification criteria for acute inhalation toxicity in category 3 (H331), with an ATE value of 3 mg/L derived using the converted acute toxicity point estimate from table 3.1.2 of Annex I of CLP.

Classification proposed by the Agency:

Oral

The Agency agrees with RAC's assessment of the data. p-Cymene **does not meet the classification criteria for acute oral toxicity.**

Dermal

The Agency agrees with RAC's assessment of the data. p-Cymene **does not meet the classification criteria for acute dermal toxicity.**

Inhalation

The Agency agrees with RAC's assessment of the data. p-Cymene **meets the classification criteria for acute inhalation toxicity in category 3 (H331; Toxic if inhaled) with an ATE value of 3 mg/L.**

Specific target organ toxicity – single exposure (STOT SE)

Classification agreed by RAC:

The acute toxicity studies, summarised above, were available to inform on the specific target organ toxicity of p-cymene following single exposure. None of these studies reported specific effects on target organs that would fulfil the criteria. Therefore, RAC concluded that p-cymene does not meet the classification criteria for STOT SE.

Classification proposed by the Agency:

The Agency agrees with RAC's assessment of the data. p-Cymene **does not meet the classification criteria for STOT SE.**

Skin corrosion/irritation

Classification agreed by RAC:

RAC assessed two acute dermal toxicity studies in rabbits.

The key study reported skin irritation (slight redness, moderate redness, slight oedema and moderate oedema) following dermal exposure to 5000 mg/kg bw of p-cymene, but the timing and duration of these effects were not reported. In the supporting study, a single rabbit was dermally exposed to 6mL undiluted p-cymene. Skin irritation in the form of slight hyperaemia, which progressed to a slight subcutaneous oedema, was observed during the exposure period. Five days after the exposure period, the skin was slightly thickened, hyperaemic and displayed fine cracks, but returned to normal within one month with hair growth.

Undiluted p-cymene has been reported to be a primary skin irritant in humans, but the CLH dossier and RAC opinion noted that there is no study data to support this statement.

Although the animal data provides some evidence for skin irritation, both studies lacked quantitative information on skin irritation scores, meaning RAC was unable to assess the observations against the classification criteria. There was also no data to support p-cymene being a skin irritant in humans. Therefore, RAC concluded that p-cymene does not meet the classification criteria for skin corrosion/irritation.

Classification proposed by the Agency:

The Agency agrees with RAC's assessment of the data. p-Cymene **does not meet the classification criteria for skin corrosion/irritation.**

Serious eye damage/irritation

Not considered in the CLH report or RAC opinion.

Respiratory sensitisation

Not considered in the CLH report or RAC opinion.

Skin sensitisation

Classification agreed by RAC:

One maximisation test on 25 human volunteers was available to evaluate the skin sensitisation potential of p-cymene (4% in petrolatum); no sensitisation reactions were reported. In a local lymph node assay, p-cymene did not induce sensitisation responses at concentrations up to 25%. In the absence of data with higher concentrations of p-cymene, RAC agreed that there was insufficient data to assess p-cymene as a skin sensitiser. Therefore, RAC concluded that no classification was warranted.

Classification proposed by the Agency:

The Agency agrees with RAC's assessment of the data. p-Cymene **does not meet the classification criteria for skin sensitisation.**

Specific target organ toxicity – repeated exposure (STOT RE)

Classification agreed by RAC:

The only relevant information on the repeated-dose toxicity of p-cymene came from a sub-acute inhalation neurotoxicity study.

In this study (non-guideline; non-GLP), male Long-Evans rats were exposed to p-cymene vapour at concentrations of 0, 0.25 and 1.23 mg/L for 6 hours/day, five days/week for four weeks (i.e., below the guidance value of ≤0.6 mg/L for STOT RE 1 and ≤ 3mg/L for STOT RE 2). There was no overt toxicity and no effect on body weight or terminal weight of the cerebellum or whole brain. However, there was a lack of data regarding the behaviour of the rats, their performance in functional, behavioural tests and effects on other internal organs. During the public consultation, the REACH lead registrant noted that an OECD TG 422 study was on-going that would provide information on repeated-dose toxicity.

RAC noted the deficiency of the reported study and concluded that no classification for STOT RE was warranted.

Classification proposed by the Agency:

The Agency agrees with RAC's assessment of the data. p-Cymene **does not meet the classification criteria for STOT RE.**

Germ cell mutagenicity

Classification agreed by RAC:

Two studies, both non-standard and non-GLP, were available to assess the mutagenicity of p-cymene: one *in vitro* bacterial reversion assay in one strain of *Escherichia coli* and one *in vivo* study in Sprague-Dawley rats.

The *in vitro* study reported no increase in the frequency of reversion from streptomycin dependence to independence as a result of p-cymene. In the *in vivo* study, the rats were administered approximately 1706 mg/kg bw by gavage. A direct urine sample, urine-ether extract and the aqueous fraction of the urine-ether extract from the rats were tested in the Ames assay. These reported no evidence of mutagenicity either in the presence or absence of beta-glucuronidase.

RAC concluded that p-cymene does not meet the classification criteria for mutagenicity.

Classification proposed by the Agency:

The Agency agrees with RAC's assessment of the data. p-Cymene **does not meet the classification criteria for mutagenicity.**

Carcinogenicity

Not considered in the CLH report or RAC opinion.

Reproductive toxicity

Not considered in the CLH report or RAC opinion.

Aspiration toxicity

Classification agreed by RAC:

p-Cymene is a hydrocarbon with a kinematic viscosity of 7.1 mm^2/s at 40°C. This meets the aspiration toxicity Cat. 1 classification criteria (a hydrocarbon with kinematic viscosity of ≤20.5 mm^2/s at 40°C). Therefore, despite the limitations of this data (unknown method and unknown purity of p-cymene used), RAC concluded that p-cymene meets the classification criteria for aspiration toxicity Cat. 1 (H304).

Classification proposed by the Agency:

The Agency agrees with RAC's assessment of the data. p-Cymene **meets the classification criteria for aspiration toxicity Cat. 1 (H304; May be fatal if swallowed and enters airways).**

Environmental hazards

Hazardous to the aquatic environment

Classification agreed by RAC:

Rapid degradability of organic substances:
RAC agreed that p-cymene was **rapidly degradable** for the purpose of hazard classification based on the following data presented in the CLH report (ECHA, 2018):

- By day 14, 88 ± 6.2 % mineralisation based on Biological Oxygen Demand (BOD) was observed and the 10-day window was met in a ready biodegradability test (OECD 301C). Additional measures showed 88.7 ± 1.2 % degradation based on Total Organic Carbon (TOC) and 100 ± 0.0 % recovery of the test substance based on gas chromatography (GC) after 14 days.
- Experimental hydrolysis studies were not available. P-cymene was considered not susceptible to hydrolysis because it contains no hydrolysable functional groups.
- Rapid volatilisation from water was observed in a non-radiolabelled surface water simulation test (similar to OECD 309) with a dissipation DT_{50} estimate of 11.2 hours. Trapping solution showed the presence of the test substance but no degradation products. No degradants were observed in water.

Bioaccumulation:
RAC agreed that p-cymene was **bioaccumulative** for the purpose of hazard classification based on the measured log K_{OW} of 4.1 (method not specified) presented in the CLH report (ECHA, 2018). This is above the hazard classification criterion of ≥4.

RAC noted that QSAR estimated log K_{OW} values of 4.00 from KOWWIN, 3.81 from LogP, 4.02 from ACD/LogP and 4.10 from ClogP supported this value.

Fish BCF data were not available.

Aquatic Toxicity:
Experimental acute toxicity data were originally available for fish and algae as presented alongside QSAR estimated acute toxicity values for all three trophic levels in the CLH report (ECHA, 2018). During the public consultation for the CLH report, an unpublished experimental *Daphnia magna* acute toxicity study became available which was the subject of a targeted consultation (ECHA, 2018, Annex 3). Including this new study, RAC agreed that reliable acute aquatic toxicity data were available for all three trophic levels. A summary of the key data for hazard classification is presented in Table 3.

Table 3: Aquatic toxicity data used in the hazard classification of p-cymene (ECHA, 2018)

Method	Species	Test material	Results	Reference
OECD TG 203, GLP status not specified	*Oryzias latipes* (Medaka)	P-cymene	96-h LC_{50} 2.0 mg/L (mean measured)	NITE (2015)
Similar to OECD TG 210, GLP status not specified	*Oryzias latipes* (Medaka)	P-cymene	40-d NOEC 0.690 mg/L based on survival and growth of larval and juvenile fish (mean measured)	NITE (2015)
OECD TG 202, GLP	*Daphnia magna*	P-cymene (99.9% purity)	48-h EC_{50} 3.7 mg/L based on immobilisation (mean measured)	Hill (2018)
ECOSAR v.1.11 QSAR	*Daphnia magna*	P-cymene	16-day NOEC 0.117 mg/L	N/A
OECD TG 201, GLP	*Raphidocelis subcapitata,* (cited as formerly known name *Selenastrum capricornutum*)	P-cymene (99.6% purity)	72-h E_rC_{50} 4.03 mg/L 72-h NOE_rC not reported 72-h E_bC_{50} 2.04 mg/L 72-h NOE_bC 1.40 mg/L (initial measured)	Ward (2003)
OECD TG 201, GLP	*Raphidocelis subcapitata,* (cited as formerly known name *Selenastrum capricornutum*)	P-cymene	24-72-h E_rC_{50} 6.7 mg/L 24-72-h NOE_rC 2.7 mg/L 72-h E_bC_{50} 3.7 mg/L 72-h NOE_bC 0.51 mg/L (mean measured)	NITE (2015)

RAC agreed the lowest acute toxicity endpoint was a **96-hour LC_{50} of 2.0 mg/L** (mean measured) for *Oryzias latipes*. As this endpoint is above 1 mg/L, RAC concluded that **no classification for aquatic acute hazards is required.**

Chronic aquatic toxicity data were available for fish and algae. A summary is also presented in Table 3. The lowest experimental long-term toxicity endpoint was a 72-hour NOE_bC of 0.51 mg/L (mean measured) for *Raphidocelis subcapitata.* Standard growth rate results were not available. RAC noted that the NOE_bC would result in an

Aquatic Chronic 3 classification for a rapidly degradable substance since this endpoint falls in the 0.1 < NOEC ≤ 1 mg/L range.

RAC considered that no reliable experimental chronic toxicity data were available for invertebrates. The experimental acute *Daphnia magna* toxicity endpoint from the targeted consultation was considered preferential for the purpose of hazard classification to the QSAR derived long-term toxicity value for *Daphnia magna*. On this basis, RAC agreed that the surrogate approach with the ***Daphnia magna* 48-h EC_{50} of 3.7 mg/L** (mean measured) based on immobilisation was applicable for this bioaccumulative substance. As this endpoint falls in the 1 < EC_{50} ≤ 10 mg/L range, RAC agreed that this results in the most stringent classification as **Aquatic Chronic 2**.

RAC Opinion:
RAC agreed to classify p-cymene as:

- **Aquatic Chronic 2 (H411)** based on the surrogate approach using the *Daphnia magna* acute 48-h EC_{50} of 3.7 mg/L for a bioaccumulative substance.

Classification proposed by the Agency:

The Agency agrees that p-cymene is rapidly degradable on the basis of the ready biodegradation test where ultimate degradation exceeded the hazard classification criterion of 60% within 28 days (whilst meeting the 10-day window) for OECD 301C tests based on BOD. Rapid volatilisation from water was observed in the surface water simulation study with a dissipation DT_{50} below the hazard classification criterion of 16 days. No degradants were detected.

The Agency agrees that p-cymene is bioaccumulative for the purpose of hazard classification on the basis of the experimental log Kow ≥4 supported by QSAR estimated values.

The Agency agrees that the lowest acute toxicity endpoint is a mean measured 96-hour LC_{50} of 2.0 mg/L for *Oryzias latipes*. On this basis, the Agency agrees with the RAC assessment that p-cymene **does not meet the classification criteria for aquatic acute hazards.**

The Agency agrees that the lowest long-term endpoint is a mean measured 72-hour NOE_bC of 0.51 mg/L (mean measured) for *Raphidocelis subcapitata*. It is recognised that growth rate endpoints are preferred over biomass endpoints for the purpose of hazard classification (ECHA, 2017). However, the Agency notes that the *Oryzias latipes* 40-day NOEC of 0.690 mg/L (mean measured) is in the same concentration range from 0.1 < NOEC ≤ 1 mg/L. The Agency considers that these endpoints would support an Aquatic Chronic 3 classification for the rapidly degradable substance.

The Agency notes that an experimental chronic toxicity endpoint for *Daphnia magna* was included in the CLH report (ECHA, 2018). However, the Agency agrees that this endpoint is not reliable because the RCOM clarified that there were insufficient details to calculate mean measured concentrations (and this matters with such a

rapidly degradable as well as volatile substance) (ECHA, 2019). Given that p-cymene is considered to have a high bioaccumulation potential, the Agency agrees that the surrogate approach with the 48-hour EC_{50} of 3.7 mg/L for *Daphnia magna* (mean measured) based on immobilisation should be used. This leads to the most stringent classification as Aquatic Chronic 2.

The QSAR predicted *Daphnia magna* 16-day NOEC of 0.117 mg/L supports the Aquatic Chronic 2 classification for a rapidly degradable substance. The training set of the chronic *Daphnia* QSAR model contained 23 substances including structurally related substances, benzene, toluene, xylene, ethylbenzene and an alkylbenzene, and so is considered appropriate (ECHA, 2019).

Noting the preference for growth rate algal endpoints as explained above, the Agency considers that the surrogate approach using the initial measured 72-h ErC50 of 4.03 mg/L for *Raphidocelis subcapitata* further supports the Aquatic Chronic 2 classification.

Overall, the Agency agrees with the RAC assessment that p-cymene meets the classification criteria as **Aquatic Chronic 2; H411 (Toxic to aquatic with long lasting effects).**

Other hazards

Hazardous to the ozone layer

Not assessed in the CLH proposal or RAC opinion.

Overall conclusion

The Agency has evaluated the RAC Opinion, its rationale and any additional scientific evidence that may have been made available to HSE against the criteria for classification and labelling in the GB CLP Regulation and technical guidance.

The Agency technical report **agrees** with the classification proposed by RAC for the following hazards:

Flam. Liq. 3; H226 (Flammable liquid and vapour)

Acute Tox. 3; H331 (Toxic if inhaled) with an ATE value of 3 mg/L)

Asp. Tox. 1; H304 (May be fatal if swallowed and enters the airways)

Aquatic Chronic 2; H411 (Toxic to aquatic life with long lasting effects)

The Agency technical report **disagrees** with the classification proposed by RAC for the following hazards:

Not applicable

Overall, the conclusion is to **agree** with the RAC opinion.

References

For references, please see the EU CLH report and the EU RAC opinion (available at: https://echa.europa.eu/registry-of-clh-intentions-until-outcome)

ECHA (2018) CLH report (including Annexes): Proposal for Harmonised Classification and Labelling Based on Regulation (EC) No 1272/2008 (CLP Regulation), Annex VI, Part 2. Substance Name: 1-isopropyl-4-methylbenzene; ρ-cymene; Date: 2018; Accessed date: 05/2021

ECHA (2019) Committee for Risk Assessment (RAC) Opinion (including Annexes) proposing harmonised classification and labelling at EU level of 1-isopropyl-4-methylbenzene; p-cymene; Reference CLH-O-0000001412-86-273/F; Date: 15/03/2019, Accessed date: 05/2021

Documents published as part of the EU CLH process: Source: European Chemicals Agency, http://echa.europa.eu/

Glossary

Agency, the	HSE, acting in its capacity as the GB CLP Agency
AR	Applied radiation
ATE	Acute toxicity estimate
BCF	Bioconcentration factor
BOD	Biological Oxygen Demand
bw	Body weight
CAR	Competent Authority Report
CAS	Chemical Abstracts Service
CI	Confidence interval
CL	Confidence limits
CLH	Harmonised Classification and Labelling
CLP	Classification, labelling and packaging (of substances and mixtures)
CO_2	Carbon dioxide
COD	Chemical Oxygen Demand
CV	Coefficient of Variation
d	Day
DAR	Draft Assessment Report
DOC	Dissolved Organic Carbon
DS	Dossier Submitter
DT	Dissipation time OR degradation time (also DissT or DegT where apparent)
DT_{50}	Dissipation half-life OR degradation half-life (hours or days), see also above
dw	Dry weight
ECHA	European Chemicals Agency
ECx	x% effect concentration
EFSA	European Food Safety Authority
E_rCx	x% effect concentration based on growth rate
EU	European Union
GLP	Good Laboratory Practice
h	Hours
K_{OC}	Organic carbon-water partition coefficient
K_{OW}	Octanol-water partition coefficient
LC_x	x% lethal effect concentration
MCL	Mandatory Classification and Labelling
M-factor	Multiplying factor
MW	Molecular weight
NOEC	No-observed effect concentration
OECD	Organisation for Economic Co-operation and Development
QSAR	Quantitative structure-activity relationship
RAC	Risk Assessment Committee
RAR	Renewal Assessment Report
RCOM	Response to comments document

REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals regulation
STOT-RE	Specific target organ toxicity – repeated exposure
STOT-SE	Specific target organ toxicity – single exposure
TG	Test Guideline
US EPA	United States Environmental Protection Agency
wt	Weight
wwt	Wet weight