

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 04.09.2017

Version number 5

Revision: 04.09.2017

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name:	Thinner S
Article number:	11901, 11902, 11904
CAS Number:	100-42-5
EC number:	202-851-5
Index number:	601-026-00-0
Registration number	01-2119457861-32

1.2 Relevant identified uses of the substance or mixture and uses advised against

No further relevant information available.

Application of the substance / the mixture

Thinner, Diluent

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:	AKEMI chemisch technische Spezialfabrik GmbH Lechstrasse 28 D 90451 Nürnberg	Tel. +49(0)911-642960 Fax. +49(0)911-644456 e-mail info@akemi.de
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Further information obtainable from:

Laboratory

1.4 Emergency telephone number:

Product Safety Department AKEMI chemisch technische Spezialfabrik GmbH
Tel. +49(0)911-64296-59
Reachable during the following office hours:
Monday – Thursday from 07:30 a.m. to 16:30 p.m.
Friday from 07:30 a.m. to 13:30 p.m.
+44 (171) 635 91 91
National Poison Inform. Centre
Medical Toxicology Unit
Avalonley Road
London SE14 5ER

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.



GHS08 health hazard

Repr. 2 H361d Suspected of damaging the unborn child.
STOT RE 1 H372 Causes damage to the hearing organs through prolonged or repeated exposure.
Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

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Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

2.2 Label elements

- Labelling according to Regulation (EC) No 1272/2008
- Hazard pictograms

The substance is classified and labelled according to the CLP regulation.



GHS02 GHS07 GHS08

· Signal word

Danger

- Hazard-determining components of labelling:
- Hazard statements

styrene

H226 Flammable liquid and vapour.

H332 Harmful if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H361d Suspected of damaging the unborn child.

H335 May cause respiratory irritation.

H372 Causes damage to the hearing organs through prolonged or repeated exposure.

H304 May be fatal if swallowed and enters airways.

H412 Harmful to aquatic life with long lasting effects.

· Precautionary statements

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read label before use.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe vapours.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312 Call a POISON CENTER/doctor if you feel unwell.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

- Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

SECTION 3: Composition/information on ingredients**3.1 Chemical characterisation: Substances**· CAS No. Description 100-42-5 styrene· Identification number(s)· EC number: 202-851-5

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SECTION 4: First aid measures**4.1 Description of first aid measures**

- General information: Take affected persons out into the fresh air.
Position and transport stably in side position.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation: Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: If skin irritation continues, consult a doctor.
Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: If symptoms persist consult doctor.

4.2 Most important symptoms and effects, both acute and delayed

Breathing difficulty
Headache
Dizziness
Dizziness
Nausea

- Information for doctor: With reference to section 2 the formulation contains styrene in the indicated mass concentration range. Styrene fumes will preferably be incorporated by inhalation via respiratory tract, skin resorption is currently considered as an inferior way of incorporation. In case of inhalation styrene is absorbed in a 60-90% range. Distribution in organism occurs rapidly, the maximum blood concentration can be analyzed after one hour after incorporation. Styrene exposition affects skin, mucous membranes, and central nervous system (CNS).
Acute damages / risks to health:
In case of styrene poisoning mainly damages to and interactions with central nervous system (CNS) arise. In concentration ranges above 200 ml/m3 symptoms such as fatigue, nausea, imbalance and prolonged response times are observed.
Chronical health risks:
Effects at central and peripheral nervous system and respiratory tract are evident in literature.
Main health risks are:
 - prolonged response times
 - reduced cognitive performance, partial amnesia
 - retardation of nervous impulse transition speed
 - disturbances of pulmonary function
 Danger of impaired breathing.
- Hazards

4.3 Indication of any immediate medical attention and special treatment needed

If swallowed, gastric irrigation with added, activated carbon.

SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- Suitable extinguishing agents: CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- For safety reasons unsuitable extinguishing agents: Water with full jet

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· **5.2 Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Carbon monoxide (CO)
Under certain fire conditions, traces of other toxic gases cannot be excluded.

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.
Do not inhale explosion gases or combustion gases.
Wear fully protective suit.
Mount respiratory protective device.

· **Additional information**

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

* **SECTION 6: Accidental release measures**

· **6.1 Personal precautions, protective equipment and emergency procedures**

Ensure adequate ventilation
Keep away from ignition sources.
Use respiratory protective device against the effects of fumes/dust/aerosol.
Wear protective equipment. Keep unprotected persons away.

· **6.2 Environmental precautions:**

Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.

· **6.3 Methods and material for containment and cleaning up:**

Dispose of the material collected according to regulations.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

· **6.4 Reference to other sections**

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

* **SECTION 7: Handling and storage**

· **7.1 Precautions for safe handling**

Keep receptacles tightly sealed.
Store in cool, dry place in tightly closed receptacles.
Keep away from heat and direct sunlight.
Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
Use only in well ventilated areas.
Ensure good ventilation/exhaustion at the workplace.

· **Information about fire - and explosion protection:**

Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **7.2 Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:**

Store only in the original receptacle.
Prevent any seepage into the ground.

· **Information about storage in one common storage facility:**

Store away from oxidising agents.

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· Further information about storage conditions:

Store away from foodstuffs.

Store receptacle in a well ventilated area.
Keep container tightly sealed.

· **7.3 Specific end use(s)**

No further relevant information available.

SECTION 8: Exposure controls/personal protection

· Additional information about design of technical facilities:

No further data; see item 7.

· **8.1 Control parameters**

· Ingredients with limit values that require monitoring at the workplace:

100-42-5 styrene

WEL Short-term value: 1080 mg/m³, 250 ppm
Long-term value: 430 mg/m³, 100 ppm

· DNELs

100-42-5 styrene

Oral	DNEL (Langzeit-wiederholt)	2.1 mg/kg bw/day (BEV)
Dermal	DNEL (Langzeit-wiederholt)	406 mg/kg bw/day (ARB)
		343 mg/kg bw/day (BEV)
Inhalative	DNEL (Kurzzeit-akut)	289-306 mg/m ³ Air (ARB)
		174.25-182.75 mg/m ³ Air (BEV)
	DNEL (Langzeit-wiederholt)	85 mg/m ³ Air (ARB)
		10.2 mg/m ³ Air (BEV)

· PNECs

100-42-5 styrene

PNEC (wässrig)	5 mg/l (KA)
	0.014 mg/l (MW)
	0.028 mg/l (SW)
	0.04 mg/l (WAS)
PNEC (fest)	0.2 mg/kg Trockengew (BO)
	0.307 mg/kg Trockengew (MWS)
	0.614 mg/kg Trockengew (SWS)

· Additional information: The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· Personal protective equipment:

· General protective and hygienic measures:

Do not eat, drink, smoke or sniff while working.
Use skin protection cream for skin protection.
Clean skin thoroughly immediately after handling the product.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.

· Respiratory protection:

Filter AX

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· Protection of hands:

Preventive skin protection by use of skin-protecting agents is recommended.

After use of gloves apply skin-cleaning agents and skin cosmetics.

The protection gloves to be used have to comply with the specifications of the directive 89/686/EC and the directive derived decree EN374, respectively, e.g.

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the above listed protection glove type. The mentioned permeation times' data were generated and verified with material samples of the recommended protection glove type in the scope of laboratory analyses of the company KCL GmbH in compliance with EN374.

This recommendation refers exclusively to the material safety data sheet referenced product delivered by Akemi and the indicated field of application. In case of product dilution or in case of mixture with different substances or chemicals, and in condition of EN374 deviation the producer of CE-approved protection gloves must be contacted for detailed information (e.g., KCL GmbH, Germany, 36124 Eichenzell, internet: <http://www.kcl.de>).

**Protective gloves**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves

Fluorocarbon rubber (Viton)

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· Penetration time of glove materialValue for the permeation: Level ≤ 6 , 480 min

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· For the permanent contact gloves made of the following materials are suitable:

Fluorocarbon rubber (Viton)
Vitoject (KCL, Art_No. 890)

· As protection from splashes gloves made of the following materials are suitable:

Fluorocarbon rubber (Viton)
Vitoject (KCL, Art_No. 890)
Nitrile rubber, NBR
Camatril (KCL, 730, 731, 732, 733)
Butyl rubber, BR
Butoject (KCL, Art_No. 897, 898)

· Not suitable are gloves made of the following materials:

Natural rubber, NR
Chloroprene rubber, CR
Leather gloves
Strong material gloves

· Eye protection:**Tightly sealed goggles**· Body protection:

Protective work clothing

SECTION 9: Physical and chemical properties· **9.1 Information on basic physical and chemical properties**· General Information· Appearance:Form:

Fluid

Colour:

Colourless

· Odour:

Characteristic

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· pH-value:	Not determined.
· Change in condition	
Melting point/freezing point:	-30.7°C
Initial boiling point and boiling range:	145.2°C
· Flash point:	31 - 32°C
· Ignition temperature:	480°C
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
Lower:	1.2 Vol %
Upper:	8.9 Vol %
· Vapour pressure at 20°C:	6 hPa
· Density at 20°C:	0.91 g/cm ³
· Solubility in / Miscibility with water at 20°C:	0.24 g/l
· Viscosity:	
Dynamic at 20°C:	0.73 mPas
Kinematic:	Not determined.
Organic solvents:	99.9 %
· 9.2 Other information	No further relevant information available.

* SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions** Exothermic polymerisation.
Reacts with strong oxidising agents.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

* SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- Acute toxicity Harmful if inhaled.

· LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)

Oral	LD50	>2,002 mg/kg (rat)
Dermal	LD50	>2,002 mg/kg (rat)
Inhalative	LC50/4 h	11.8 mg/l (rat)

100-42-5 styrene

Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat) (OECD-Prüfrichtlinie 402)
Inhalative	LC50/4h	9.5 mg/m ³ (mouse)

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LC50/4 h	11.8 mg/l (rat)
NOAEC	4.34 mg/l (rat)

· <u>Primary irritant effect:</u> · <u>Skin corrosion/irritation</u> · <u>Serious eye damage/irritation</u> · <u>Respiratory or skin sensitisation</u> · <u>Experience with humans:</u> · <u>Toxicokinetics, metabolism and distribution</u> · <u>Acute effects (acute toxicity, irritation and corrosivity)</u> · <u>CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)</u> · <u>Germ cell mutagenicity</u> · <u>Carcinogenicity</u> · <u>Reproductive toxicity</u> · <u>STOT-single exposure</u> · <u>STOT-repeated exposure</u> · <u>Aspiration hazard</u>	Causes skin irritation. Causes serious eye irritation. Based on available data, the classification criteria are not met. After incorporation and inhalation styrene predominantly will be metabolized in the organism to mandelic and phenylglyoxylic acid and metabolites will pass through urine excretion. After incorporation and inhalation styrene predominantly will be metabolized in the organism to mandelic and phenylglyoxylic acid and metabolites will pass through urine excretion. Styrene: Artificial special nutrition in rat population, acute LD50 value, oral: 5000 mg/kg. Inhalation, rat population, acute LC50 value (4h): 24 mg/l. Styrene Tests for chromosome divergence: Mouse micro-nucleus test: mutagen Styrene: Tests for DNA effects: - exchange of chromatides: mutagen - DNA chain fragmentation: mutagen Based on available data, the classification criteria are not met. Based on available data, the classification criteria are not met. Suspected of damaging the unborn child. May cause respiratory irritation. Causes damage to the hearing organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways.
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* **SECTION 12: Ecological information**· **12.1 Toxicity**· Aquatic toxicity:**100-42-5 styrene**

EC50/96h	0.15-3.2 mg/l (Pseudokirchneriella subcapitata)
EC50	500 mg/l (BES) (ISO Vorschrift 8192-1986 E)
	5.5 mg/l (Photobac. phosphoreum)
IC50/72h	4.9 mg/l (green alge)
	1.4 mg/l (selenastrum capricornutum)
IC5/8d	>200 mg/l (Scenedesmus quadricauda)
EC10/16h	72 mg/l (pseudomonas putida)
EC50/16h	>72 mg/l (pseudomonas putida)
EC50/8d	>200 mg/l (Scenedesmus quadricauda)
EC50/72u	>1-<10 mg/l (green alge)
EC20/0.5h	140 mg/l (BES) (OECD 209)
NOEC/21d	1.01 mg/l (daphnia magna)
EC10	0.28 mg/l (Pseudokirchneriella subcapitata) (EPA OTS 797.1050)
EC50/48h	0.56 mg/l (green alge)

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EC50/72h	3.3-7.4 mg/l (daphnia magna)
LC50/96h	0.46-4.3 mg/l (Pseudokirchneriella subcapitata)
	>1-<10 mg/l (piscis)
	19.03-33.53 mg/l (lem)
	3.24-4.99 mg/l (pimephales promelas)
	6.75-14.5 mg/l (Pimephales promelas)
	58.75-95.32 mg/l (poecilia reticulata)
LC50/72h	4.9 mg/l (green alge)

· **12.2 Persistence and degradability**

No further relevant information available.

· **12.3 Bioaccumulative potential**

No further relevant information available.

· **12.4 Mobility in soil**

No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.
Water hazard class 2 (German Regulation) (Assessment by list): hazardous for water

· **12.5 Results of PBT and vPvB assessment**

· **PBT:**

Not applicable.

· **vPvB:**

Not applicable.

· **12.6 Other adverse effects**

No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

20 00 00	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01 00	separately collected fractions (except 15 01)
20 01 13*	solvents

· **Uncleaned packaging:**

· **Recommendation:**

Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

· **Recommended cleansing agents:**

Alcohol

SECTION 14: Transport information

· **14.1 UN-Number**

· **ADR, IMDG, IATA**

UN2055

· **14.2 UN proper shipping name**

· **ADR**

2055 STYRENE MONOMER, STABILIZED solution

· **IMDG, IATA**

STYRENE MONOMER, STABILIZED solution

· **14.3 Transport hazard class(es)**

· **ADR**



· **Class**

3 (F1) Flammable liquids.

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· <u>Label</u>	3
· <u>IMDG, IATA</u>	
	
· <u>Class</u> · <u>Label</u>	3 Flammable liquids. 3
· 14.4 Packing group · <u>ADR, IMDG, IATA</u>	III
· 14.5 Environmental hazards: · <u>Marine pollutant:</u>	No
· 14.6 Special precautions for user · <u>Danger code (Kemler):</u> · <u>EMS Number:</u> · <u>Stowage Category</u>	Warning: Flammable liquids. 39 F-E,S-D A
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· <u>Transport/Additional information:</u>	
· <u>ADR</u> · <u>Limited quantities (LQ)</u> · <u>Excepted quantities (EQ)</u>	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <u>Transport category</u> · <u>Tunnel restriction code</u>	3 D/E
· <u>IMDG</u> · <u>Limited quantities (LQ)</u> · <u>Excepted quantities (EQ)</u>	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <u>UN "Model Regulation":</u>	UN 2055 STYRENE MONOMER, STABILIZED SOLUTION, 3, III

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

- Directive 2012/18/EU
- Named dangerous substances - ANNEX I Substance is not listed.
- Seveso category P5c FLAMMABLE LIQUIDS
- Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t
- Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t
- REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

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- National regulations:
- Information about limitation of use: Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.
- Waterhazard class: Water hazard class 2 (Assessment by list): hazardous for water.
- VOC EU 906.1 g/l
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Recommended restriction of use refer to Technical Data Sheet (TDS)
- Department issuing SDS: Laboratory
- Contact: Dieter Zimmermann
Elke Hake
Fon ++49 (0)911 64296-59
@mail E.Hake@akemi.de
- Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
 IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
 ICAO: International Civil Aviation Organisation
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
 ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 IMDG: International Maritime Code for Dangerous Goods
 IATA: International Air Transport Association
 GHS: Globally Harmonised System of Classification and Labelling of Chemicals
 EINECS: European Inventory of Existing Commercial Chemical Substances
 CAS: Chemical Abstracts Service (division of the American Chemical Society)
 DNEL: Derived No-Effect Level (REACH)
 PNEC: Predicted No-Effect Concentration (REACH)
 LC50: Lethal concentration, 50 percent
 LD50: Lethal dose, 50 percent
 PBT: Persistent, Bioaccumulative and Toxic
 vPvB: very Persistent and very Bioaccumulative
 Flam. Liq. 3: Flammable liquids – Category 3
 Acute Tox. 4: Acute toxicity – Category 4
 Skin Irrit. 2: Skin corrosion/irritation – Category 2
 Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
 Repr. 2: Reproductive toxicity – Category 2
 STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
 STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
 Asp. Tox. 1: Aspiration hazard – Category 1
 Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3
 REACH directive 1907/2006/EC
- Sources
- * Data compared to the previous version altered. Adaptation in accordance with REACH directive 1907/2006/EC