

## Safety data sheet according to 1907/2006/EC, Article 31

Printing date 09.02.2024

Version number 27 (replaces version 26)

Revision: 09.02.2024

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

- **1.1 Product identifier**
- **Trade name** **BRAWO RR - Komponente A**
- **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** Epoxy sealing
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:** BRAWO SYSTEMS GmbH  
Blechhammerweg 13-17  
67659 Kaiserslautern  
Deutschland/Germany
- Tel: +49(0)631-205 61 100
- **Informing department:** Technische Abteilung  
msds@brawoliner.de
- **1.4 Emergency telephone number:** +49 (0) 61 31 - 19 240 (Giftnotruf Mainz)

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
  - Skin Irrit. 2 H315 Causes skin irritation.
  - Eye Irrit. 2 H319 Causes serious eye irritation.
  - Skin Sens. 1 H317 May cause an allergic skin reaction.
  - Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008** The product is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms**




GHS07 GHS09
- **Signal word** Warning
- **Hazard-determining components of labelling:**
  - epoxide derivates
  - Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)] dioxirane and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl} oxirane and 2,2'-[methylenebis(2,1-phenyleneoxymethylene)] dioxirane
  - Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2)
  - maleic anhydride
  - methyl toluene-4-sulphonate
  - oxirane, mono[(C12-14-alkyloxy)methyl] derivs

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- **Hazard statements**
  - H315 Causes skin irritation.
  - H319 Causes serious eye irritation.
  - H317 May cause an allergic skin reaction.
  - H411 Toxic 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 carefully and follow all instructions.
  - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
  - P273 Avoid release to the environment.
  - P280 Wear protective gloves / eye protection / face protection.
  - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Additional information:**
  - EUH401 To avoid risks to human health and the environment, comply with the instructions for use.
  - EUH205 Contains epoxy constituents. May produce an allergic reaction.
- **2.3 Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### SECTION 3: Composition/information on ingredients

- **3.2 Mixtures**
- **Description:** Mixture consisting of the following components.

· **Dangerous components:**

CAS: 1675-54-3 EINECS: 216-823-5	epoxide derivates Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317, EUH205	50-70%
CAS: 9003-36-5 EC number: 701-263-0	Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Skin Sens. 1, H317	≥10-<25%
CAS: 933999-84-9	Reaction products of hexane-1,6-diol with 2-(chloromethyl)oxirane (1:2) Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; Aquatic Chronic 3, H412	≥2.5-<10%

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CAS: 100-51-6	Benzyl alcohol Acute Tox. 4, H302; Acute Tox. 4, H332; Eye Irrit. 2, H319	<5%
CAS: 80-48-8 EINECS: 201-283-5	methyl toluene-4-sulphonate Skin Corr. 1C, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Sens. 1, H317	≥0.1-<1%
CAS: 68609-97-2 EINECS: 271-846-8	oxirane, mono[(C12-14-alkyloxy)methyl] derivs Skin Irrit. 2, H315; Skin Sens. 1, H317, EUH205	≥0.1-<0.5%
CAS: 108-31-6 EINECS: 203-571-6	maleic anhydride Resp. Sens. 1, H334; STOT RE 1, H372; Skin Corr. 1B, H314; Eye Dam. 1, H318; Acute Tox. 4, H302; Skin Sens. 1A, H317, EUH071 Specific concentration limit: Skin Sens. 1A; H317: C ≥ 0.001 %	<0.001%

· **Additional information** For the wording of the listed hazard phrases refer to section 16.

### SECTION 4: First aid measures

#### · 4.1 Description of first aid measures

- **After inhalation** Supply fresh air and call for doctor for safety reasons.  
In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact** Instantly wash with water and soap and rinse thoroughly.  
Instantly rinse with water.
- **After eye contact** Seek medical treatment.  
Rinse opened eye for several minutes under running water. If symptoms persist, consult doctor.
- **After swallowing** Rinse out mouth and then drink plenty of water.  
Seek medical treatment.

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents** Use fire fighting measures that suit the environment.
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** No special measures required.

### SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
- **6.2 Environmental precautions:** Inform respective authorities in case product reaches water or sewage system.

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- **6.3 Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
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 information on disposal.

### SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Store in cool, dry place in tightly closed containers.  
Open and handle container with care.
- **Information about protection against explosions and fires:** No special measures required.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep container tightly sealed.
- **Storage class** 10

### SECTION 8: Exposure controls/personal protection

#### · 8.1 Control parameters

#### · Components with critical values that require monitoring at the workplace:

**CAS: 108-31-6 maleic anhydride**

WEL	Short-term value: 3 mg/m <sup>3</sup>
	Long-term value: 1 mg/m <sup>3</sup>
	Sen

#### · DNELs

**CAS: 100-51-6 Benzyl alcohol**

Oral	DNEL	4 mg/kg bw/Tag (ArL)
		20 mg/kg bw/Tag (Ark)
Dermal	DNEL	8 mg/kg bw/day (ArL)
		40 mg/kg bw/day (Ark)
Inhalative	DNEL	22 mg/m <sup>3</sup> (ArL)
		110 mg/m <sup>3</sup> (Ark)

**CAS: 68609-97-2 oxirane, mono[(C12-14-alkyloxy)methyl] derivs**

Oral	DNEL	1 mg/kg bw/Tag (ArL)
Dermal	DNEL	1.7 mg/kg bw/day (ArL)
Inhalative	DNEL	0.98 mg/m <sup>3</sup> (ArL)

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· **PNECs**

**CAS: 100-51-6 Benzyl alcohol**

PNEC 0.527 mg/l (Marine water sediment)  
0.1 mg/l (Mew)  
1 mg/l (Fresh water sediment)

PNEC 0.456 mg/kg dwt (Bod)  
5.27 mg/kg dwt (Fresh water sediment)

**CAS: 68609-97-2 oxirane, mono[(C12-14-alkyloxy)methyl] derivs**

PNEC 0.00072 mg/l (Mew)  
0.0072 mg/l (Freshwater)

PNEC 80.12 mg/kg dwt (Bod)  
6.677 mg/kg dwt (Sediment)  
66.77 mg/kg dwt (Fresh water sediment)

· **Additional information:** The lists that were valid during the compilation were used as basis.

· **8.2 Exposure controls**

· **Appropriate engineering controls**

No further data; see section 7.

· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures**

Keep away from foodstuffs, beverages and food.  
Instantly remove any soiled and impregnated garments.  
Wash hands during breaks and at the end of the work.  
Do not inhale gases / fumes / aerosols.  
Avoid contact with the eyes and skin.

· **Hand protection**

Protective gloves.  
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation  
After use of gloves apply skin-cleaning agents and skin cosmetics.

· **Material of gloves**

Nitrile rubber, NBR  
Recommended thickness of the material:  $\geq 0.4$  mm  
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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact breakthrough time must be obtained from the protective glove manufacturer and must be observed.

· **Eye/face protection**

Not required.

· **Body protection:**

Protective work clothing.

### SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Colour:**

Green

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· <b>Smell:</b>	Characteristic
· <b>Melting point/freezing point:</b>	Not determined
· <b>Boiling point or initial boiling point and boiling range</b>	>200 °C (CAS: 25068-38-6 Propyl -2,2-diphenyl-4,4'dipropyloxirane polymers and homologues molecular weight < 700)
· <b>Flash point:</b>	>93 °C
· <b>Auto-ignition temperature:</b>	184 °C (CAS: 25068-38-6 Propyl -2,2-diphenyl-4,4'dipropyloxirane polymers and homologues molecular weight < 700)
· <b>pH</b>	Not applicable. Not determined.
· <b>Viscosity:</b>	
· <b>Kinematic viscosity</b>	Not determined.
· <b>dynamic:</b>	Not determined.
· <b>Solubility</b>	
· <b>Water:</b>	Not miscible or difficult to mix
· <b>Steam pressure at 20 °C:</b>	<0.1 hPa (CAS: 25068-38-6 Propyl -2,2-diphenyl-4,4'dipropyloxirane polymers and homologues molecular weight < 700)
· <b>Density and/or relative density</b>	
· <b>Density at 20 °C</b>	1.1 g/cm <sup>3</sup>

### 9.2 Other information

· <b>Appearance:</b>	
· <b>Form:</b>	Fluid
· <b>Important information on protection of health and environment, and on safety.</b>	
· <b>Self-inflammability:</b>	Product is not selfigniting.
· <b>Explosive properties:</b>	Product is not explosive.

### Information with regard to physical hazard classes

· <b>Explosives</b>	Void
· <b>Flammable gases</b>	Void
· <b>Aerosols</b>	Void
· <b>Oxidising gases</b>	Void
· <b>Gases under pressure</b>	Void
· <b>Flammable liquids</b>	Void
· <b>Flammable solids</b>	Void
· <b>Self-reactive substances and mixtures</b>	Void
· <b>Pyrophoric liquids</b>	Void
· <b>Pyrophoric solids</b>	Void
· <b>Self-heating substances and mixtures</b>	Void
· <b>Substances and mixtures, which emit flammable gases in contact with water</b>	Void
· <b>Oxidising liquids</b>	Void
· <b>Oxidising solids</b>	Void
· <b>Organic peroxides</b>	Void
· <b>Corrosive to metals</b>	Void

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· **Desensitised explosives**

Void

### 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 according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known
- **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 hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**

**CAS: 1675-54-3 epoxide derivates**

Dermal	LD50	23000 mg/kg (rabbit)
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**CAS: 9003-36-5 Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane and 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane**

Oral	LD50	>2000 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rabbit)

**CAS: 100-51-6 Benzyl alcohol**

Oral	LD50	1230 mg/kg (rat)
	NOAEL 2nd year study	200 mg/kg (mouse)
		200 mg/kg (rat)
Dermal	LD50	2000 mg/kg (rabbit)
Inhalative	LC50/4 h	>4178 mg/l (rat)

**CAS: 80-48-8 methyl toluene-4-sulphonate**

Oral	LD50	341 mg/kg (rat)
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**CAS: 68609-97-2 oxirane, mono[(C12-14-alkyloxy)methyl] derivs**

Oral	LD50	17100 mg/kg (rat)
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**CAS: 108-31-6 maleic anhydride**

Oral	LD50	1090 mg/kg (rat)
Dermal	LD50	2620 mg/kg (rat)

- **Skin corrosion/irritation** Causes skin irritation.
- **Serious eye damage/irritation** Causes serious eye irritation.
- **Respiratory or skin sensitisation** May cause an allergic skin reaction.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.

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- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.
- **11.2 Information on other hazards**

· **Endocrine disrupting properties**

CAS: 128-37-0 | 2,6-Di-tert-butyl-p-cresol

List II

### SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

**CAS: 1675-54-3 epoxide derivates**

IC50	>42.6 mg/l (Bak)
LC50/96h	2 mg/l (Oncorhynchus mykiss)
EC50/48h	1.8 mg/l (Daphnia magna)
ErC50/72h	11 mg/l (Selenastrum capricornutum)

**CAS: 9003-36-5 Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane**

LC50/96h	>100 mg/l (Daphnia magna)
EC50/96h	>100 mg/l (Leucidus idus)

**CAS: 100-51-6 Benzyl alcohol**

IC50/72h	700 mg/l (algae)
LC50/96h	460 mg/l (Pimephales promelas) 10 mg/l (Lepomis macrochirus)

**CAS: 68609-97-2 oxirane, mono[(C12-14-alkyloxy)methyl] derivs**

EbC50/72h	843 mg/l (Pseudokirchneriella subcapitata)
LC50/96h	>5000 mg/l (Oncorhynchus mykiss) 1800 mg/l (Lepomis macrochirus)
EC50	>100 mg/l (BEL)
NOEC	500 mg/l (Pseudokirchneriella subcapitata)

· **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.

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

· **PBT:**

Not applicable.

· **vPvB:**

Not applicable.

· **12.6 Endocrine disrupting properties**

For information on endocrine disrupting properties see section 11.

· **12.7 Other adverse effects**

· **Remark:**

Toxic for fish

· **Additional ecological information:**

· **General notes:**

Also poisonous for fish and plankton in water bodies.

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*Toxic for aquatic organisms  
Do not allow product to reach ground water, water bodies or sewage system.  
Danger to drinking water if even small quantities leak into soil.*

### SECTION 13: Disposal considerations

**· 13.1 Waste treatment methods**

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

**· Uncleaned packagings:**

**· Recommendation:** *Dispose of packaging according to regulations on the disposal of packagings.  
Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.*

### SECTION 14: Transport information

**· 14.1 UN number or ID number**

**· ADR, IMDG, IATA** UN3082

**· 14.2 UN proper shipping name**

**· ADR, IATA** *ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (epoxide derivatives)*  
**· IMDG** *ENVIRONMENTALLY HAZARDOUS  
SUBSTANCE, LIQUID, N.O.S. (epoxide derivatives),  
MARINE POLLUTANT*

**· 14.3 Transport hazard class(es)**

**· ADR**  
**· Class** *9 (M6) Miscellaneous dangerous substances and articles.*  
**· Label** 9

**· IMDG, IATA**

**· Class** *9 Miscellaneous dangerous substances and articles.*  
**· Label** 9

**· 14.4 Packing group**

**· ADR, IMDG, IATA** III

**· 14.5 Environmental hazards:**

**· Marine pollutant:** Yes  
*Symbol (fish and tree)*  
**· Special marking (ADR):** *Symbol (fish and tree)*  
**· Special marking (IATA):** *Symbol (fish and tree)*

**· 14.6 Special precautions for user**

**· Kemler Number:** 90  
**· EMS Number:** *Warning: Miscellaneous dangerous substances and articles.  
F-A, S-F*

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· <b>Stowage Category</b>	A
· <b>14.7 Maritime transport in bulk according to IMO instruments</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>Transport category</b>	3
· <b>Tunnel restriction code</b>	(-)
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5L
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· <b>UN "Model Regulation":</b>	UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EPOXIDE DERIVATES), 9, III

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Poisons Act**

· **Regulated explosives precursors**

None of the ingredients is listed.

· **Regulated poisons**

None of the ingredients is listed.

· **Reportable explosives precursors**

None of the ingredients is listed.

· **Reportable poisons**

None of the ingredients is listed.

· **Directive 2012/18/EU**

· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 200 t

· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 500 t

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· **15.2 Chemical safety assessment:**

*A Chemical Safety Assessment has not been carried out.*

### SECTION 16: Other information

· **Relevant phrases**

H302 Harmful if swallowed.  
 H314 Causes severe skin burns and eye damage.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H319 Causes serious eye irritation.  
 H332 Harmful if inhaled.  
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H372 Causes damage to organs through prolonged or repeated exposure.  
 H411 Toxic to aquatic life with long lasting effects.  
 H412 Harmful to aquatic life with long lasting effects.  
 EUH071 Corrosive to the respiratory tract.  
 EUH205 Contains epoxy constituents. May produce an allergic reaction.

· **Department issuing data specification sheet:**

*Environment protection department.*

· **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)  
 ICAO: International Civil Aviation Organisation  
 ADR: Accord relatif au transport international 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  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 DNEL: Derived No-Effect Level (UK REACH)  
 PNEC: Predicted No-Effect Concentration (UK REACH)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 Acute Tox. 4: Acute toxicity – Category 4  
 Skin Corr. 1B: Skin corrosion/irritation – Category 1B  
 Skin Corr. 1C: Skin corrosion/irritation – Category 1C  
 Skin Irrit. 2: Skin corrosion/irritation – Category 2  
 Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
 Eye Irrit. 2: Serious eye damage/eye irritation – Category 2  
 Resp. Sens. 1: Respiratory sensitisation – Category 1  
 Skin Sens. 1: Skin sensitisation – Category 1  
 Skin Sens. 1A: Skin sensitisation – Category 1A  
 STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1  
 Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2  
 Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3*

· **\* Data compared to the previous version altered.**