

**SAFETY DATA SHEET (EC 1907/2006)****ELATUR® CH**

|               |               |              |
|---------------|---------------|--------------|
| Material no.  | Version       | 1.0 / REG_EU |
| Specification | Revision date | 23.08.2013   |
| VA-Nr         | Print Date    | 20.09.2013   |
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**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****Product information**

|                                     |                                                                                                                                                                                                                 |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trade name                          | ELATUR® CH<br>CYCLOHEXANE-1,2-DICARBOXYLIC ACID, DIISONONYL ESTER                                                                                                                                               |
| Company                             | Evonik Industries AG<br>Performance Intermediates<br>Product Stewardship<br>Postfach<br>D-45764 Marl                                                                                                            |
| Telephone                           | +49 (0)2365/49-6172                                                                                                                                                                                             |
| Telefax                             | +49 (0)2365/49-2670                                                                                                                                                                                             |
| Email address                       | msds-performance-intermediates@evonik.com                                                                                                                                                                       |
| Emergency telephone number          | +49 (0)2365/49-2232                                                                                                                                                                                             |
| Emergency telephone number(Telefax) | +49 (0)2365/49-4423<br><br>(Werkfeuerwehr, Infracor GmbH)                                                                                                                                                       |
| Use of the Substance / Preparation  | Plasticiser for Polymers<br>Phlegmatiser (to dilute organic peroxides)<br>Construction Chemicals<br>Manufacture of Coatings, Inks and Artist's Colours<br>Preparation of Lubricants<br>Preparation of Adhesives |
| REACH-No.                           | 01-0000017810-74                                                                                                                                                                                                |

**2. HAZARDS IDENTIFICATION****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Labelling not required according to EU-CLP Ordinance (1272/2008).

**Classification as per Directive 67/548/EC or Directive 1999/45/EC**

No labelling required

**GHS-Labelling**

Statutory basis                      Labelling not required according to EU-CLP Ordinance (1272/2008).

**Other Hazards**

No specific hazards are known.

Not a PBT, vPvB substance as per the criteria of the REACH Regulation.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Information on ingredients / Hazardous components as per EU-CLP Regulation (EC) No. 1272/2008****• Cyclohexane-1,2-dicarboxylic acid, diisononyl ester**

|         |             |        |           |           |                  |
|---------|-------------|--------|-----------|-----------|------------------|
| CAS-No. | 166412-78-8 | EC-No. | 431-890-2 | REACH-No. | 01-0000017810-74 |
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### Information on ingredients / Hazardous components as per Directive 67/548/EC or Directive 1999/45/EC

#### • Cyclohexane-1,2-dicarboxylic acid, diisononyl ester

|         |             |        |           |           |                  |
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Texts of H phrases, see in Chapter 16

See chapter 16 for text of risk phrases

## 4. FIRST AID MEASURES

### Description of first aid measures

Take care of your own personal safety.

Take off all contaminated clothing immediately.

### Inhalation

Bring affected person outside and ensure that he/she is comfortable.

If symptoms persist, call a physician.

### Skin contact

Wash off with plenty of water and soap immediately.

If symptoms persist, call a physician.

### Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Remove contact lenses if this can be easily done.

Protect unharmed eye.

Seek medical advice.

### Ingestion

If swallowed, rinse mouth with water (only if the person is conscious).

Seek medical advice immediately.

### Most important symptoms and effects, both acute and delayed

### Hazards

None known

### Indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

No specific antidote known.

## 5. FIRE-FIGHTING MEASURES

### Suitable extinguishing media

Water spray, foam, CO<sub>2</sub>, dry powder.

### Unsuitable extinguishing media

high volume water jet

### Special hazards arising from the substance or mixture

In case of fire cool endangered containers with water.

Product is flammable.

May be released in case of fire: carbon monoxide, carbon dioxide.

### Special protective equipment for fire-fighters

Respiratory protective equipment independent of surrounding air, chemical protective suit

### Advice for firefighters

Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment; see section 8.

Avoid contact with skin and eyes.

Ensure adequate ventilation.

### Environmental precautions

Do not allow entrance in sewage water, drainage systems, stretches of water, soil.

Issue an immediate alarm report to the company environmental protection department if the product unintentionally leaves the production area.

### Methods and material for containment and cleaning up

Take up mechanically or with an absorbent material.

Fill into marked, sealable containers.

To be disposed of in compliance with existing regulations.

Suitable binder: universal absorbent, diatomaceous earth, oil absorbent

## 7. HANDLING AND STORAGE

### Handling

#### Precautions for safe handling

Wear personal protective equipment; see section 8.

Avoid contact with skin, eyes and clothing.

If possible, use material transfer/filling, metering and blending plants that are closed, or provide for local suction devices.

Provide adequate ventilation.

#### Advice on protection against fire and explosion

Normal measures for preventive fire protection.

#### Temperature class

T 2

### Storage

#### Conditions for safe storage, including any incompatibilities

Store in the original receptacle, keeping this tightly sealed, under cool and dry conditions.

#### Advice on common storage

Observe prohibition against storing together!

Incompatible with strong oxidizing agents.

#### German storage class

10 - Combustible liquids neither in Storage Class 3A nor 3B

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### DNEL/DMEL values

Remarks

not necessary (see chapter 15)

#### PNEC values

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Remarks not necessary (see chapter 15)

### Engineering measures

If possible, use material transfer/filling, metering and blending plants that are closed.

### Exposure controls

Further information

ACGIH (American Conference of Governmental Industry Hygienists)

### Personal protective equipment

#### Respiratory protection

In case of dusts/vapours/aerosols being formed or if the limit values like TLV are exceeded: use respiratory equipment with suitable filter (filter type A) or wear a self contained respiratory apparatus

#### Hand protection

Chemical-resistant protective gloves (EN 374)

Glove material suitable protective gloves, e.g. nitrile-butadiene rubber (NBR) gloves

Selection of protective gloves to meet the requirements of specific workplaces.

Suitability for specific workplaces should be clarified with protective glove manufacturers.

The information is based on our own tests, references from the literature and information from glove manufacturers, or derived by analogy with similar materials.

Remember that the useful time per day of a chemical protection glove may be much shorter than the permeation time determined according to EN 374 due to the many different influential factors involved (e.g. temperature).

#### Eye protection

Safety glasses with side-shields

#### Skin and body protection

Select materials and equipment for physical protection depending on the concentration and volume of hazardous substances and the workplace involved.

### Hygiene measures

Remove contaminated or saturated clothing.

Avoid contact with skin and eyes.

Do not inhale vapours / aerosols.

Wash hands before breaks and at the end of workday.

Smoking, eating and drinking should be prohibited in the application area.

Handle in accordance with good industrial hygiene and safety practices.

### Protective measures

Wear suitable protective clothing.

### Environmental exposure controls

Emissions from venting and processing equipment should be checked in order to ensure that the requirements of the Environmental Protection Law are satisfied.

In some cases, exhaust air scrubbers, filters or technical changes to the processing plant will be required in order to decrease emissions to acceptable values.

See sections 6 and 7.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

|                  |                   |
|------------------|-------------------|
| Form             | liquid            |
| Colour           | colourless        |
| Odour            | almost odourless  |
| Smell threshold: | No data available |

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**Information on basic physical and chemical properties**

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pH                           | No data available<br>Cannot be determined due to low level of solubility in water.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Pour point                   | -54 °C<br>Method: DIN / ISO 3016                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Boiling point/range          | ca. 394 °C (1013 hPa)<br>Method: EEC method 92/69/EEC, A 2<br>At normal pressure, the substance decomposes when distilled.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Flash point                  | 224 °C (closed cup)<br>Method: EEC method 92/69/EEC, A 9<br>Prolonged thermal exposure might result in the release of outgassing combustible cleavage products.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Evaporation rate             | no data available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Flammability (solid, gas)    | not applicable<br>liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| formation of flammable gases | Does not produce highly inflammable gases in combination with water.<br>Not to be expected in view of the structure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Ignition temperature         | 330 °C (998 hPa)<br>Method: EEC method 92/69/EEC, A.15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Autoinflammability           | Not to be expected in view of the structure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Self heating                 | Note:<br>The substance or mixture is not classified as self heating.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Thermal decomposition        | > 278 °C (1013 hPa)<br><br>Prolonged thermal exposure might result in the release of outgassing combustible cleavage products.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Oxidizing properties         | not oxidizing<br>Not to be expected in view of the structure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Explosiveness                | Not to be expected in view of the structure<br>Not explosive as defined by EU hazardous substance law.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Lower explosion limit        | The thermal decomposition behavior (cf. "Thermal Decomposition") does not allow for the determination of meaningful values of the lower explosion limit.<br>theoretical consideration<br>It must be assumed that the vapors and degradation products released by this liquid will form explosive mixtures when a concentration of $\geq 40$ g/Nm <sup>3</sup> (20°C mixture temperature ) or $\geq 33$ g/Nm <sup>3</sup> (200°C mixture temperature is mixed with air.<br><br>Method: DIN EN 15794<br>lower explosion point<br>approx. 170°C at approx. 1013kPa<br>Due to the thermal decomposition behavior (cf. "Thermal Decomposition") the determined lower explosion point is only of limited significance. |
| Upper explosion limit        | Due to the thermal decomposition behavior (cf. "Thermal Decomposition")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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the lower explosion limit cannot be determined.

|                                         |                                                                                          |
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| Vapour pressure                         | < 0,000001 hPa (20 °C)<br>Method: EEC method 92/69/EEC, A 4                              |
| Density                                 | 0,95 g/cm <sup>3</sup> (20 °C)<br>Method: DIN 51757                                      |
| Relative density                        | 0,95 (20 °C)<br>Method: OECD Test Guideline 109                                          |
| Metal corrosion                         | Does not corrode metal.                                                                  |
| Solubility/qualitative                  | Soluble in organic solvents                                                              |
| Water solubility                        | < 0,02 mg/l (25 °C)<br>Method: Directive 92/69/EEC A.6                                   |
| Partition coefficient (n-octanol/water) | log Pow: 10 (25 °C)<br>Method: EEC method 92/69/EEC, A 8                                 |
| Viscosity, dynamic                      | 52,24 mPa.s(20 °C)<br>Method: DIN 51 562<br><br>19,33 mPa.s(40 °C)<br>Method: DIN 51 562 |
| Viscosity, kinematic                    | no data available                                                                        |
| SADT                                    | Method: Not to be expected in view of the structure                                      |
| Vapour density                          | No data available                                                                        |
| Molecular Weight                        | 424,66 g/Mol                                                                             |

**Further information**

Surface tension 30,7 mN/m (20 °C)

**10. STABILITY AND REACTIVITY**

|                                    |                                                                                                                                                                                  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reactivity                         | no data available                                                                                                                                                                |
| Chemical stability                 | Under normal conditions: stable.                                                                                                                                                 |
| Possibility of hazardous reactions | Reaction with strong oxidants.<br><br>No hazardous reactions are known if properly handled and stored.                                                                           |
| Conditions to avoid                | Keep away from heat and sources of ignition.<br>To avoid thermal decomposition, do not overheat.                                                                                 |
| Incompatible materials             | strong oxidizing agents                                                                                                                                                          |
| Hazardous decomposition products   | In case of fire or thermal decomposition production of, for example, carbon monoxide, carbon dioxide<br><br>Prolonged thermal exposure might result in the release of outgassing |

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combustible cleavage products., see item 9

**11. TOXICOLOGICAL INFORMATION**

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute oral toxicity                | LD50 rat(male/female): > 5000 mg/kg<br>Method: OECD TG 423                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Acute inhalation toxicity          | No test results available.<br><br>Effects of breathing high concentrations of vapour may include:<br>possibly irritating                                                                                                                                                                                                                                                                                                                                                                                   |
| Acute dermal toxicity              | LD50 rat(male/female): > 2000 mg/kg<br>Method: OECD Guide-line 402                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Skin irritation                    | Rabbit / 4 h / Labelling not required according to EU-CLP Ordinance (1272/2008).<br>Slight irritation possible.<br>Method: OECD Test Guideline 404                                                                                                                                                                                                                                                                                                                                                         |
| Eye irritation                     | Rabbit / 24 h / No labelling obligation as per UN-GHS.<br>not irritating<br>Method: OECD Guide-line 405                                                                                                                                                                                                                                                                                                                                                                                                    |
| Sensitization                      | Magnusson & Kligman guinea pig: not sensitizing<br>Method: Maximisation Test<br>OECD Test Guideline 406                                                                                                                                                                                                                                                                                                                                                                                                    |
| Assessment of STOT single exposure | Based on the information available, organ-specific toxicity is not to be expected after one single exposure.                                                                                                                                                                                                                                                                                                                                                                                               |
| Assessment of STOT repeat exposure | Assessment: Caused kidney effects in male rats which are not considered relevant to humans.                                                                                                                                                                                                                                                                                                                                                                                                                |
| Risk of aspiration toxicity        | No evidence of aspiration toxicity                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Gentoxicity in vitro               | Ames test Salmonella typhimurium<br>no evidence of mutagenic effects<br>Metabolic activation: S-9 rat liver mix<br>Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)<br><br>Bacterial reverse mutation assay S. typhimurium / E. coli<br>negative<br>Metabolic activation: with or without<br>Method: OECD TG 471<br><br>chromosomal aberration Chinese hamster (V 79 -cells)<br>none mutagenic / genotoxic effects<br>Metabolic activation: S-9 rat liver mix<br>Method: OECD TG 473 |
| Gentoxicity in vivo                | chromosomal aberration mouse intraperitoneal<br>negative<br>Method: Mutagenicity (micronucleus test)                                                                                                                                                                                                                                                                                                                                                                                                       |
| Carcinogenicity                    | No cancerogenous effects were detected when high concentrations were given to experimental animals with the feed over a long period of time.                                                                                                                                                                                                                                                                                                                                                               |

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Toxicity to reproduction no evidence of reproductiontoxic properties

Teratogenicity no evidence of teratogenic properties

Human experience No data available

**Toxicology Assessment**

Acute effects Non-toxic after one-time oral intake.  
Non-toxic in case of one-time contact with skin.  
May cause slight irritant effects on skin.  
Does not irritate eyes.

Sensitization No sensitizing effects.

Repeated dose toxicity Not relevant for humans due to animal-specific mechanisms of action.  
(see Toxicity in case of repeated exposure)

**CMR assessment**

Carcinogenicity No cancerogenous effects were detected when high concentrations were given to experimental animals with the feed over a long period of time.

Mutagenicity No mutagenic effects were determined in various investigations of microorganisms, cell cultures and in vivo data.  
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Teratogenicity Did not show teratogenic effects in animal experiments.

Toxicity to reproduction Animal model trials have produced no evidence of fertility damage.

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**12. ECOLOGICAL INFORMATION****Elimination information (persistence and degradability)**

Biodegradability aerobic  
inoculum: Community sewage sludge  
Exposure time: 28 d  
Result: 40 - 50 %  
Method: (CO<sub>2</sub>; Sturm test / OECD 301 B)

aerobic  
inoculum: Community sewage sludge  
Exposure time: 60 d  
Result: 90 - 100 % biodegradable  
Method: (CO<sub>2</sub>; Sturm test / OECD 301 B)

**Behaviour in environmental compartments**

Bioaccumulation Species: Brachydanio rerio (zebra fish)  
Exposure time: 30 d  
Bioconcentration factor (BCF): 189  
Method: OECD 305  
Not to be expected.

Mobility logKOC: 6,59 (Soil)  
Adsorption on the floor occurs  
Method: OECD TG 121  
HPLC screening method

**Ecotoxicity effects**



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|                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish                             | LC50 static test Brachydanio rerio: > 100 mg/l / 96 h<br>Analytical monitoring: no<br>Method: OECD TG 203<br>In the range of water solubility not toxic under test conditions.<br>The reported toxic effects relate to the nominal concentration.                                                                                                                                                                                                                                                                                                                                  |
| Toxicity in aquatic invertebrates            | EC50 static test Daphnia magna: > 100 mg/l / 48 h<br>Analytical monitoring: no<br>Method: OECD 202 part 1<br>The reported toxic effects relate to the nominal concentration.<br>The test product is slightly soluble in the test medium.<br>An eluate was tested.                                                                                                                                                                                                                                                                                                                  |
| Toxicity to algae                            | ErC50 static test scenedesmus subspicatus: > 100 mg/l / 72 h<br>End point: growth rate<br>Analytical monitoring: no<br>Method: OECD TG 201<br>The reported toxic effects relate to the nominal concentration.<br>The test product is slightly soluble in the test medium.<br>An eluate was tested.<br><br>NOEC static test scenedesmus subspicatus: >= 100 mg/l / 72 h<br>Analytical monitoring: no<br>Method: OECD TG 201<br>The reported toxic effects relate to the nominal concentration.<br>The test product is slightly soluble in the test medium.<br>An eluate was tested. |
| Toxicity to bacteria                         | EC 20 Respiration inhibition Community sewage sludge: > 1000 mg/l / 3 h<br>Analytical monitoring: no<br>Method: OECD TG 209<br>aerobic<br>(limit test)                                                                                                                                                                                                                                                                                                                                                                                                                             |
| chronic toxicity in fish                     | No test results available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| chronic toxicity in daphnia                  | NOEC semi-static test Daphnia magna: >= 0,021 mg/l / 21 d<br>End point: Reproduction Test<br>Analytical monitoring: yes<br>Method: OECD 211<br>The test product is slightly soluble in the test medium.<br>tested in the presence of emulsifiers<br>Limit Test<br>In the range of water solubility not toxic under test conditions.                                                                                                                                                                                                                                                |
| Toxicity in organisms which live in the soil | LC50 artificial soil Eisenia foetida: > 1000 mg/kg / 14 d<br>End point: mortality<br>Method: OECD 207<br>The reported toxic effects relate to the nominal concentration.                                                                                                                                                                                                                                                                                                                                                                                                           |
| Toxicity in terrestrial plants               | NOEC Avena sativa (Gramineae): >= 1000 mg/kg / 20 d<br>Method: OECD 208<br><br>NOEC Brassica napus (Brassicaceae): >= 1000 mg/kg / 20 d<br>Method: OECD 208<br><br>NOEC Vicia sativa: >= 1000 mg/kg / 20 d<br>Method: OECD 208                                                                                                                                                                                                                                                                                                                                                     |

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### Further information on ecology

Further Information Do not allow entrance in sewage water, soil stretches of water, groundwater, drainage systems.

### Ecotoxicology Assessment

|                                        |                                                                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Acute aquatic toxicity                 | The substance does not show acute toxicity in aquatic organisms.                                                                            |
| Chronic aquatic toxicity               | Not to be expected.                                                                                                                         |
|                                        | The substance does not have any chronic effects on water solubility.                                                                        |
| Toxicity Data on Soil                  | The substance does not show any effects on terrestrial organisms.                                                                           |
| Other Environmental Relevant Organisms | No test results available.                                                                                                                  |
| Impact on Sewage Treatment             | Properly treated effluents containing low concentrations of the product are not expected to inhibit the activated sludge in a sewage plant. |

### Results of PBT assessment

Not a PBT, vPvB substance as per the criteria of the REACH Regulation.

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## 13. DISPOSAL CONSIDERATIONS

### Product

With respect to local regulations, e.g. dispose of to waste incineration plant  
No waste key number as per the European Waste Types List can be assigned to this product, since such classification is based on the (as yet undetermined) use to which the product is put by the consumer.  
The waste key number must be determined as per the European Waste Types List (decision on EU Waste Types List 2000/532/EC) in cooperation with the disposal firm / producing firm / official authority.

### Uncleaned packaging

Contaminated packaging should ideally be emptied; it can then be recycled after having been decontaminated. Packaging which cannot be decontaminated should be disposed of like the material.

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## 14. TRANSPORT INFORMATION

### Transport/further information

Not dangerous according to transport regulations.

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## 15. REGULATORY INFORMATION

Chemical safety assessment : No substance safety assessment is required for this product.

### National legislation

|                        |                                                                                                                                                            |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| employment restriction | The employment limitations under the protection of young persons act, the laws on pregnant women and young mothers and work at home is/are to be observed. |
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Prohibited Chemicals Ordinance    Comply with restrictions according to Annex XVII of the REACH Directive (1907/2006).

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**16. OTHER INFORMATION****Risk phrase (R phrase) texts****Texts of the H-phrases****Further information**

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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## Legend

|           |                                                                                                                    |
|-----------|--------------------------------------------------------------------------------------------------------------------|
| ADR       | European Agreement concerning the International Carriage of Dangerous Goods by Road                                |
| ADN       | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways                    |
| ADNR      | European agreement concerning the international carriage of dangerous goods by inland waterways (ADN)              |
| ASTM      | American Society for Testing and Materials                                                                         |
| ATP       | Adaptation to Technical Progress                                                                                   |
| BCF       | Bioconcentration Factor                                                                                            |
| BetrSichV | German Ordinance on Industrial Safety and Health                                                                   |
| c. c.     | closed cup                                                                                                         |
| CAS       | Chemical Abstract Services                                                                                         |
| CESIO     | European Committee of Organic Surfactants and their Intermediates                                                  |
| ChemG     | German Chemicals Act                                                                                               |
| CMR       | Carcinogenic-Mutagenic-toxic for Reproduction                                                                      |
| DIN       | German Institute for Standardization                                                                               |
| DNEL      | Derived No Effect Level                                                                                            |
| EINECS    | European Inventory of Existing Commercial Chemical Substances                                                      |
| GefStoffV | German Ordinance on Hazardous Substances                                                                           |
| GGVSEB    | German ordinance for road, rail and inland waterway transportation of dangerous goods                              |
| GGVSee    | German ordinance for sea transportation of dangerous goods                                                         |
| GLP       | Good Laboratory Practice.                                                                                          |
| GMO       | Genetic Modified Organism                                                                                          |
| IATA DGR  | International Air Transport Association – Dangerous Goods Regulations                                              |
| ICAO-TI   | International Civil Aviation Organisation - Technical Instructions                                                 |
| IMDG Code | International Maritime Dangerous Goods Code                                                                        |
| ISO       | International Organization For Standardization                                                                     |
| LOAEL     | Lowest Observed Adverse Effect Level                                                                               |
| LOEL      | Lowest Observed Effect Level                                                                                       |
| NOAEL     | No Observed Adverse Effect Level                                                                                   |
| NOEC      | No Observed Effect Concentration                                                                                   |
| NOEL      | No Observed Effect Level                                                                                           |
| o. c.     | open cup                                                                                                           |
| OECD      | Organisation for Economic Cooperation and Development                                                              |
| OEL       | Occupational Exposure Limit                                                                                        |
| PBT       | Persistent, Bioaccumulative, Toxic                                                                                 |
| PEC       | Predicted Environmental Concentration                                                                              |
| PNEC      | Predicted No Effect Concentration                                                                                  |
| RID       | Regulations concerning the International Carriage of Dangerous Goods by Rail                                       |
| TA        | Technical Instructions (German Ordinance)                                                                          |
| TPR       | Third Party Representative (Art. 4)                                                                                |
| TRGS      | Technical Rules for Hazardous Substances (German Regulations)                                                      |
| VCI       | German "Verband der Chemischen Industrie e. V."                                                                    |
| vPvB      | Very Persistent, Very Bioaccumulative                                                                              |
| VOC       | Volatile Organic Compounds                                                                                         |
| VwVwS     | German Administrative Regulation on the Classification of Substances Hazardous to Waters into Water Hazard Classes |
| WGK       | German Water Hazard Class                                                                                          |
| WHO       | World Health Organization                                                                                          |