

Material Safety Data Sheet

according to Regulation (EC) No. 1907/2006 as amended by Regulation (EC) No. 2015/830

Created on: 26.06.2018
Revision date: 25.04.2022
Valid from: 25.04.2022
Version: df_V.22.1_en

Print date: 26.04.2022
Replaces version: df_V.21.1_en

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1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Substance name/trade name: **durgol® forte**
Unique Formula Identifier (UFI) (CH) HUPH-A02S-M203-WS03
(EU) YUPH-W0CA-320A-U2DC

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

Relevant identified uses: Strong decalcifier
Uses advised against: The product (mixture) should not be used in combination with other cleaning / descaling products.

1.3 Details of the supplier of the safety data sheet

Manufacturer: düring ag
Street/PO Box: Brunnenwiesenstrasse 14
Country code/postal code/city: CH-8108 Dällikon
Contact for technical information: +41 44 847 27 47
Telephone: +41 44 847 27 47 Fax: +41 44 844 38 90 E-Mail: info@dueringag.ch
Distributor/importer (EU): düring trade gmbh
Street/PO Box: Bösendorferstrasse 7
Country code/postal code/city: AT-1010 Wien

1.4 Emergency telephone number

National: Swiss Toxicological Information Centre, Zürich 145 or +41 44 251 51 51

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008, Annex VII:
Eye Irrit. 2, H319 / Skin Irrit. 2, H315 / STOT SE 3, H335

2.2 Label elements

Labelling elements in accordance with Regulation (EC) No. 1272/2008, Annex VII:



Hazard symbol: GHS07 Signal word: **Warning**

Hazard-determining components of labelling:

Contains: **Hydrochloric acid**

Hazard warnings according to CLP/GHS Regulation (EC) No. 1272/2008 (H-phrases):

Health Hazards:

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Safety precautions according to CLP/GHS Regulation (EC) No. 1272/2008 (P-phrases):

Prävention

P264 Wash hands thoroughly after handling.
P280 Wear protective gloves/eye protection.

Reaction

P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.

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2.3 Other hazards

No

2.4 Other notes

In addition, on the label following voluntary safety instructions with A.I.S.E. pictured symbols:

- (1) Keep out of reach of children.
- (2) Avoid eye contact. If the product gets in the eyes, rinse thoroughly with water.
- (3) Do not swallow. If the product has been swallowed, seek medical attention.

3. Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

The product is an aqueous mixture with the following hazardous ingredients.

Name of substance: **Hydrochloric acid**

EG-No.: 213-595-7

CAS-No.: 7647-01-0


Index-No.: 017-002-01-X

REACH-Reg.-No.: 01-2120066883-46

Content: ≤ 10%

Classification according to Regulation (EC) No. 1272/2008:

According to the concentration classification of Regulation (EC) No 1272/2008, the product should be labeled as follows.

 Skin Irrit. 2, H315

 Eye Irrit. 2, H319

STOT SE 3, H335

[The wording of not in section 2. referred hazard statements are described in section 16.]

4. First aid measures

4.1 Description of first aid measures

Remove contaminated clothing immediately. If you feel unwell, consult a doctor/medical service. Show this data sheet or the product label.

After inhalation

If vapour or mist was inhaled, breathe fresh air. In case of irritation of the respiratory system seek medical attention.

After skin contact

Wash affected skin with soap and plenty of water.

After eye contact

Remove any contact lenses. Rinse opened eye for several minutes with plenty of water. If necessary, consult an ophthalmologist.

After ingestion

Rinse mouth thoroughly with water and drink plenty of water in small sips. Do not induce vomiting. In case of indisposition, seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Direct contact may cause irritation of skin and mucous membranes. Toxicological effects on humans are currently unknown.

4.3 Indication of any immediate medical attention and special treatment needed

Depending on the contact, the measures specified in Section 4.1 must be respected.

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5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray, foam, carbon dioxide and powder

Unsuitable extinguishing media: Water spray jet

5.2 Special hazards arising from the substance or mixture

The product is not flammable. Upon contact with metals may evolve hydrogen gas (Risk of explosion).

5.3 Advice for firefighters

Staying in hazard area only with protective clothing and a self-contained breathing apparatus. Cool endangered packagings and containers with sprayed water and, if possible, remove them out of the danger zone. Prevent the penetration of extinguishing water into surface water or groundwater.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Do not breathe vapour or mist. Ensure adequate ventilation. Avoid skin and eye contact.

6.2 Environmental precautions

Prevent the penetration of the product (mixture) in water, sewer and soil. Confine with sand or similar material. Collect product mechanically and fill it in marked container. Cover drains to prevent the entering of product into the sewerage, if necessary.

6.3 Methods and material for containment and cleaning up

Pump off large quantities of product. Take up residues with absorbent materials (sand, sawdust etc.), collect it in suitable containers and dispose it in accordance to official regulations. Dilute small spilled quantities (up to approx. 1 Liter) with much water and dispose it in the drains.

6.4 Reference to other sections

Observe protective measures in sections 7., 8. and 13.

7. Handling and storage

7.1 Precautions for safe handling

Do not leave containers open. Avoid contact with eyes and skin. Use only in well ventilated areas.

Measures to protect against fire and explosions

The product is not flammable and not explosive.

Measures to prevent dusts and aerosols

Use the product according to the application description and do not spray.

Measures to protect the environment

The product should not used undiluted to enter the environment.

General hygiene measures

Observe the usual precautions as when handling chemicals (At work do not eat, drink or smoke).

Wash hands after use.

7.2 Conditions for safe storage, including any incompatibilities

Information about storage conditions

Store product in original container tightly closed in a cool, well ventilated place. Do not store together with medicines, foods, beverages or feedstuffs.

Requirements for storage rooms and containers

Recommended storage conditions: The product should be stored at temperatures between 5 °C to 30 °C.

Note: Increased temperatures, e.g. during transport, do not affect the product properties.

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Storage class: Not applicable, as the product does not fall within the scope of the Technical Guideline for Hazardous Substances (TRGS 510, BG RCI data sheet M 062).

Durability: At least 3 years

7.3 Specific end use(s)

Strong decalcifier for the removal of particularly stubborn lime deposits, efflorescence and cement veils in the sanitary and construction sector. Additional information, please refer to the label, or our website: www.dueringag.ch

8. Exposure controls/personal protection

8.1 Control parameters

Name of substance: **Hydrochloric acid**

EG-No.: 213-595-7

CAS-No.: 7647-01-0

Index-No.: 017-002-01-X

Specification:

TRGS 900 - AGW (Air limit values at the work place; Status 02/02/2015)

AGW: 2 ml/m³ (ppm) 3 mg/m³

Peak limitation category: 2(I)

Remarks: DFG, EU, Y

Y = These are substances for which a risk of foetal damages under the AGW (air limit values at the work place) and BGW (biological limit values) need not be feared.

Specification: 2000/39/EG

STEL (Short-term value): 10 ml/m³ (ppm) 15 mg/m³

In a period of 15 minutes the threshold concentration shall not be exceeded.

8h TWA (Long-term value): 5 ml/m³ (ppm) 8 mg/m³

8.2 Exposure controls

Name of substance: **Hydrochloric acid**

EG-No.: 213-595-7

CAS-No.: 7647-01-0

Index-No.: 017-002-01-X

DNEL (Derived No Effect Level)

15 mg/m³ Worker; Short-term exposure; inhalation

8 mg/m³ Worker; Long-term exposure; inhalation

PNEC (Predicted No Effect Concentration)

36 µg/l Freshwater

36 µg/l Seawater

36 µg/l Sewage treatment plants

45 µg/l Sporadic release

NOAEL (No Observed Adverse Effect Level)

20 mg/kg/day Consumer, oral, based on body weight

ADI (Acceptable Daily Intake)

0.2 mg/kg/day Consumer, oral, based on body weight

Notes and comments

None

8.2.1 Appropriate engineering controls

Technical measures are not required for the application of the product.

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8.2.2 Individual protection measures, such as personal protective equipment

Eye / face protection



Use face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin protection



Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Glove material for full contact:

Chemical protective gloves made of butyl rubber category III according to EN 374.

Layer thickness: ≥ 0.11 mm Breakthrough time: ≥ 480 Minutes

Glove material for splash contact:

Chemical protective gloves made of nitrile rubber category III according to EN 374.

Layer thickness: ≥ 0.11 mm Breakthrough time: ≥ 240 Minutes

Body protection



The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection



When used as directed, a respiratory protection is not necessary. However, make sure that the product (mixture/preparation) is used only in well ventilated areas.

8.2.3 Environmental exposure controls

The product should not be used undiluted to enter the environment.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state:

Liquid

Farbe:

Slight green

Odour:

Weak, characteristic

pH-value undiluted:

< 2.0 [20°C] DIN 19268

Acid reserve:

approx. 10.4 g NaOH/100g product J.R. Young et al.

Rating numbers:

$< -0.5 \cap < 1.0$ BZ{1} \cap BZ{2}

Labelling result:

GHS05, Danger (not valid because the CLP concentration limits in Table 3 of the ordinance are used for labeling)

Rate of corrosion - Aluminum

n.a. mm/a [55°C] potentiostatic

Rate of corrosion - Structural steel

n.a. mm/a [55°C] potentiostatic

Resulting rating:

There are restrictions on air transport (Section 14.8)

Melting Point / freezing point:

approx. 0 °C [1013 hPa] By Trottoli

Initial boiling point / boiling range:

approx. 100 °C DIN 38404 C4

Flash point:

Not applicable

Inflammability:

The product is not flammable or explosive.

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| Upper flammability / explosive limit: | Not applicable | | | |
| Lower flammability / explosive limit: | Not applicable | | | |
| Vapour pressure: | 125 | hPa | [20°C] | Calculated |
| Relative density: | 1.055 | g/cm ³ | [20°C] | ISO 2811-3 |
| Water solubility: | The product is completely soluble and miscible. | | | |
| Dynamic viscosity: | 2.20 | cP | [25°C] | DIN 53221 |
| Kinematic viscosity: | 2.12 | cSt | [25°C] | Calculated |
| VOC-Content: | Not applicable | | | |

9.2 Other information

No

10. Stability and reactivity

10.1 Reactivity

Reacts with strong oxidants and bases under generation of heat. Reacts with carbonates to form carbon dioxide.

10.2 Chemical stability

Under standard ambient conditions (room temperature), the product is chemically stable.

10.3 Possibility of hazardous reactions

When used as directed no hazardous reactions are expected.

10.4 Conditions to avoid

The product should not be used in combination with other cleaning/descaling agents.

10.5 Incompatible materials

Acid-labile resins (POM), inferior stainless steel, thin/damaged chrome plating, silver and marble are attacked.

10.6 Hazardous decomposition products

Under normal conditions, hazardous decomposition products are not expected.

11. Toxicological information

11.1 Information on toxicological effects

Name of substance: **Hydrochloric acid**

EG-No.: 213-595-7

CAS-No.: 7647-01-0

Index-No.: 017-002-01-X

Acute toxicity

LD50 (oral, rat), 700 mg/kg (IUCLID)

LD50 (oral, rabbit), 900 mg/kg (IUCLID)

LC50 (1h) (inhalation, rat), 3124 mg/l (IUCLID)

LD50 (dermal, rabbit), > 5010 mg/kg (IUCLID)

Corrosion / irritation to the skin

Skin (rabbit), 0.5 ml (1%) daily for 5 days, no skin irritation (IUCLID)

Skin (rabbit), 0.5 ml (3.3%) daily for 5 days, severe skin irritation (IUCLID)

Based on the available data, the classification criteria are not fulfilled (Conventional method).

Serious eye damage / eye irritation

Eyes (rabbit), 0.1 ml (0.33%) 48h, no eye irritation (IUCLID)

Eyes (rabbit), 0.1 ml (3.3%) 48h, slight eye irritation (IUCLID)

Sensitization of respiratory/skin

Based on the available data, the classification criteria are not fulfilled (Conventional method). So far, no sensitizing effects are known.

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Summary of the evaluation of CMR properties.

Not classified as germ cell mutagen (mutagenic), carcinogenic or reproductive toxic.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Potential health effects

Inhalation

Inhalation (aerosols) can cause irritation of the upper respiratory tract.

Ingestion

Causes gastrointestinal upset and irritation of mucous membranes. In severe cases, possible formation of coagulation necrosis.

Skin

Causes burns to skin and mucous membranes.

Eye

Direct eye contact may cause burns.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Symptoms and signs of poisoning are: burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, Nausea, vomiting. Inhalation may provoke the following symptoms: spasm, inflammation and edema of the bronchi, spasm, inflammation and edema of the larynx. Aspiration or inhalation may cause chemical pneumonitis.

11.2 Sonstige Hinweise und Informationen

The information specified in section 11.1 are valid only for pure substances and not for the product (mixture).

The product (mixture) does not contain any allergens subject to labeling according to Regulation (EC) No. 1223/2009 on cosmetic products (new version) in relation to Directive 2003/15 EC on cosmetic products [7. Changes to the former Cosmetics Directive 76/768/EC - Annex III, Section I] and Regulation (EC) No. 646/2004 on detergents - Annex VII, Section A.

12. Ecological information

12.1 Toxicity

Name of substance: **Hydrochloric acid**

EG-No.: 213-595-7

CAS-No.: 7647-01-0

Index-No.: 017-002-01-X

Acute toxicity to Fish

Leuciscus idus (Ide); LC50 (48h); 862 mg/l (IUCLID)

Gambusia affinis (Mosquitofish); LC50 (96h); 282 mg/l (IUCLID)

Acute toxicity to aquatic Invertebrates

Daphnia magna; LC80 (72h); 56 mg/l (IUCLID)

Toxicity to Aquatic Plants e.g. Algae

No data available

Toxicity to Microorganisms e.g. Bacteria

No data available

Chronic toxicity to Fish

No data available

Chronic toxicity to aquatic Invertebrates

No data available

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12.2 Persistence and degradability

The biodegradability of this product has no relevance, because the theoretical degradable organic content is below 0.1%.

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

Harmful effects by lowering the pH-value are possible.

13. Disposal considerations

13.1 Waste treatment methods

According to the Waste Catalogue Ordinance 2001/118/EC (AVV) the product and product leftovers are not classified as a hazardous waste. If recycling is not possible, waste must be removed in compliance with local regulations.

Product

Waste code according to AVV: 20 01 30 Detergents other than those mentioned in 20 01 29

Recommendation for disposal

The correct waste code number has to be determined in accordance with the local waste disposer. For small quantities a disposal into drains is possible.

Packing

Packing material: PET-Bottles
Waste code according to AVV: 15 01 02 Plastic packaging

Recommendation for disposal

Contaminated packaging: Empty, not dried out container must be disposed of as containers of harmful residues.

Cleaned packaging: Uncontaminated and cleaned packaging can be recycled.

Recommended cleaning agent

Water

Special precautions

Observe protective measures in sections 6., 7. and 8.

14. Transport information

The product (mixture) is according to ADR/RID 2021 under section 2.2.8.1.6. and especially 2.2.8.1.6.3.5 (Bridging principles) not in class 8 of corrosive substances and therefore not to be classified as dangerous goods. This also applies to IMDG/ADNR and IATA/ICAO.

14.1 UN-Number

Not applicable

14.2 UN proper shipping name

Not applicable

ADR/RID

Transport category: Not applicable

Tunnel restriction code: Not applicable

Hazard-No. (Kemler Zahl): Not applicable

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IMDG/ADNR

EmS-Code: Not applicable

IATA/ICAO

Not applicable

14.3 Transport hazard class(es)

Hazard class: Not applicable

Classification code: Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

The product (mixture) leads into waters to a reduction of the pH-value.

Marine Pollutant: No

14.6 Special precautions for user

Observe protective measures in sections 6., 7. and 8.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable

14.8 Other notes and information

Limited Quantity (LQ): Not applicable

Excepted Quantity (EQ)

Code: Not applicable

Maximum net quantity per inner packaging: Not applicable

Maximum net quantity per outer packaging: Not applicable

UN model regulations: Not applicable

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation

Regulation (EC) No. 2037/2000 (Substances that deplete the ozone layer)

Not applicable

Regulation (EC) No. 850/2004 (Persistent organic pollutants)

Not applicable

Regulation (EC) No 689/2008 (Export and import of dangerous chemicals):

Not applicable

Regulation (EG) No. 648/2004 (Detergent)

The product (mixture) meets the criteria laid down in Regulation (EC) No 648/2004.

Restrictions under Title VIII of the Regulation (EC) 1907/2006

No

Restrictions according to Article 57 on substances of very high concern (SVHC):

No

National regulations

Water hazard class according AwSV, Annex 1 (Germany)

WGK: 1 weakly water polluting

Solvent regulation (31. BImSchV) (Germany)

VOC-content: Not applicable

Hazardous Incident Ordinance (12. BImSchV) (Germany)

Not applicable

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Technical instructions on air quality (TA-Luft) (Germany)
Not applicable

Reference to technical rules for hazardous substances (TRGS) (Germany)
TRGS 900 - AGW (Air limit values at the work place; Status 02/02/2015), see section 8.1

15.2 Chemical safety assessment

Until now, the product (mixture) was not subjected to a human-toxicological safety assessment. In analogy to the individual components, the product (mixture) was evaluated in terms of human toxicology for the intended use as safe.

16. Other information

16.1 Changes since the last version

[V.22.1] Corrections of a general nature without affecting labeling.

In Section 15.1 [Safety, health and environmental regulations/legislation specific for the substance or mixture], the water hazard class was newly determined in accordance with the Ordinance on Facilities for Handling Substances Hazardous to Water (AwSV).

Author of the material safety data sheet

Dr. H. Hopfstock, Duering AG, Division F&E/QS, herbert.hopfstock@dueringag.ch

16.2 Literature and data sources

REACH Regulation (EC) No. 1907/2006, as last amended by Regulation (EC) No. 2015/830

CLP Regulation (EC) No. 1272/2008, as last amended by Regulation (EG) No. 286/2011

J.R. Young, M.J. How, A.P. Walker, W.M.H. Worth, Classification as Corrosive or Irritant to Skin of Preparations Containing Acidic or Alkaline Substances without Testing on Animals, Toxic. In Vitro, Bd. 2, No. 1, 1988, S. 19-26

Internet

<http://echa.europa.eu/>

<http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances>

<http://chem.sis.nlm.nih.gov/chemidplus/>

<http://www.bag.admin.ch/themen/chemikalien/>

<http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-Stoffdatenbank/index.jsp>

<http://www.reach-info.de/verordnungstext.htm>

<http://www.baua.de/de/Startseite.html>

16.3 Hazard warnings which are referred in section 2. and 3.

Accordance with the CLP Regulation (EC) No. 1272/2008

Skin Irrit. 2, H315; Skin corrosion; Category 2; Causes skin irritation.

Eye Irrit. 2, H319; Serious eye damage/eye irritation; Category 2; Causes severe eye irritation.

STOT SE 3, H335; Specific target organ toxicity - single exposure - Category 3; May cause respiratory irritation.

16.4 Methods according to Article 9 of the Regulation (EC) No 1272/2008 of the evaluation of data for classification purposes

Classification in accordance with Regulation (EC) No 1272/2008, Annex VII (Conversion table).

16.5 Other product-related information:

No

16.6 Legend of abbreviations used

ADI Acceptable Daily Intake

ADR European Agreement concerning the International Carriage of Dangerous Goods by Road

AF Overall Assessment Factor

AGS Committee on Hazardous Substances

AGW Occupational Exposure Limits

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| AVV | Wastes Ordinance |
| AwSV | Ordinance on Facilities for Handling Substances Hazardous to Water (Germany) |
| BAT | Biological workplace concentration |
| BGW | biological tolerance for work |
| BImSchV | Regulation on the implementation of the Federal Pollution Control Act (Germany) |
| BZ | Acid reserve rating numbers {1} and {2} for labelling classification |
| CAS | Chemical Abstracts Service |
| CLP | Classification, Labelling and Packaging (Regulation) |
| DFG | Senate Commission for the investigation of health hazards of substances. MAK Commission of the Deutsche Forschungsgemeinschaft (DFG) |
| DIN | Norms of the German Institute for Standardization |
| DNEL | Derived No Effect Level |
| DOC | Dissolved Organic Carbon |
| EC | Effective Concentration |
| EC/EEC | European Community / European Economic Community |
| ECHA | European Chemicals Agency |
| EN | Europäische Norm |
| EQ | Excepted Quantity (Freigestellte Menge) |
| EU | European Union |
| GHS | Globally Harmonized System of Classification and Labelling of Chemicals |
| GWP | Global Warming Potential |
| HD-PE | High density polyethylene, thermoplastic |
| IARC | International Agency for Research on Cancer |
| IATA-DGR | International Air Transport Association - Dangerous Goods Regulations |
| IBC-Code | International Building Code |
| ICAO-TI | International Civil Aviation Organization - Technical Instructions |
| IMDG | International Maritime Dangerous Goods |
| ISO | Norms of the International Standards Organization |
| INCI | International Nomenclature of Cosmetic Ingredients |
| IUCLID | International Uniform Chemical Information Database |
| LC | Lethal Concentration |
| LD | Lethal Dose |
| LQ | Limited Quantity |
| MAK | Occupational Exposure Limit |
| MARPOL | Maritime Pollution Convention |
| NIOSH | National Institut of Occupational Safety & Health |
| NOAEL/NOAEC | No Observed Adverse Effect Level/Concentration |
| ODP | Ozone Depleting Potential (Ozonabbaupotential) |
| OECD | Organization for Economic Cooperation and Development |
| PBT | Persistent, bioaccumulative, toxic |
| PET | Polyethylene terephthalate, thermoplastic |
| PNEC | Predicted No Effect Concentration |
| POM | Polyoxymethylene (polyacetal) thermoplastic |
| REACH | Registration, Evaluation and Authorisation of Chemicals (Regulation) |
| RID | Rules for international carriage of dangerous goods by rail |
| RTECS | Registry of Toxic Effects of Chemical Substances |
| STEL | Short-Term Exposure Limit (Grenzwert für Kurzzeitexposition) |
| TRGS | Technical Rules for Hazardous Substances |
| STOT | Specific Target Organ Toxicity |
| STP | Sewage Treatment Plant |
| SVHC | Substances of Very High Concern |
| TRbF | Technical Regulations of flammable liquids |
| UFI | Unique Formula Identifier (ECHA) |
| UN | United Nations |

Material Safety Data Sheet

according to Regulation (EC) No. 1907/2006 as amended by Regulation (EC) No. 2015/830

Created on: 26.06.2018
Revision date: 25.04.2022
Valid from: 25.04.2022
Version: df_V.22.1_en

Print date: 26.04.2022
Replaces version: df_V.21.1_en

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| VbF | Regulations for flammable liquids (Germany) |
| VCI | German Chemical Industry Association |
| VOC | Volatile Organic Compounds |
| vPvB | Very persistent and very bioaccumulative |
| VwVwS | Administrative Regulation on substances hazardous to water (Germany) |
| WGK | Water hazard class |

This safety data sheet corresponds to Article 31 and Annex II of the REACH Regulation (EC) No. 1907/2006, as amended by Regulation (EU) No. 2015/830. The above information is based on our present knowledge and describes the safety requirements of the substances or the product (mixture), however they are no assurance of product properties and do not justify a contractual legal relationship.
