SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH), amended with 2015/830 / EC

Greinox P Pickling Paste

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

Information on the product / trade name: **Greinox P Pickling Paste**

only for industrial use, Metal production and processing, including alloys, metal surface treatment products, including electroplating and electroplating products, stainless steel

REACH Registration Number:
A registration number for this substance is not available as the substance or its use is exempted from registration under Article 2 of REACh Regulation (EC) No 1907/2006, which does not require registration or is planned for a later date.

Information on the manufacturer / supplier:
Kai Greising e. K. Clean Marker
Industriestraße 29/2
73340 Amstetten
Germany
phone: 0049-7331-3058-0
fax: 0049-7331-981722

Emergency phone number
Poison emergency center Freiburg
phone: 0049-761-19240

SECTION 2: Hazards identification:

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

CLP/GHS Classification (1272/2008):
Metal Corrosion Category 1
Acute Toxicity Category 3
Acute Toxicity Category 2
Acute Toxicity Category 3
Skin Corrosion Category 1A
Eye Damage Category 1

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms

Contains: Nitric Acid, Hydrofluoric Acid

Signal word
Danger

Hazard Phrases:
H290 May be corrosive to metals.
H301 Toxic if swallowed
H310 Fatal in contact with skin
H314 Causes severe skin burns and eye damage.
H331 Toxic if inhaled.

Precautionary statements

Precautionary statements - prevention
P234 Keep only in original packaging.
P260 Do not breathe vapor, mists or spray.
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P284 In case of inadequate ventilation, wear respiratory protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P330 Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with soap and water.
P363 Wash contaminated clothing before reuse.
P310 Immediately call a POISON CENTER or doctor.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment is urgent (see first aid instruction on this label).
P390 Absorb spillage to prevent material damage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P406 Store in corrosive resistant container with a corrosive resistant inner liner.
P501 Dispose of contents and container in accordance with local and national regulations.

2.3 Other hazards
During the for Surface treatment electrolyte vapors may form

SECTION 3: Composition/information on ingredients

3.2 Mixture
Description of the mixture
Composition/information on ingredients.

Name of substance	Identifier	wt%	Classification acc. to 1272/2008/EC	Pictograms	Specific Conc. Limits
Nitric acid	CAS No 7697-37-2 EC No 231-714-2 Index No 007-004-00-1 REACH Reg. No. 01-2119487297-23-xxxx	< 25	Ox. Liq. 2 / H272 Met. Corr. 1 / H290 Skin Corr. 1A / H314 EUH071		Ox. Liq. 2; H272: C ≥99 % Ox. Liq. 3; H272: 65% ≤ C < 99 % Skin Corr. 1A; H314: C ≥ 20 % Skin Corr. 1B; H314: 5 % ≤ C < 20 % Skin Irrit. 2; H315: 1 % ≤ C < 5 % Eye Dam. 1; H318: C ≥ 3 % Eye Irrit. 2; H319: 1 % ≤ C < 3 %

Hydrogen-fluoride	CAS No 7664-39-3 EC No 231-634-8 Index No 009-002-00-6 REACH Reg. No 01-2119458860-33-xxxx	< 8%	Acute Tox. 1 H310 Acute Tox. 2 H300 Acute Tox. 2 H330 Skin Corr. 1A H314		

Remarks
For full text of Hazard- and EU Hazard-statements: see SECTION 16.
PBT/vPvB: Not applicable for inorganic substances

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes
Take off immediately all contaminated clothing. Self-protection of the first aider.

Following inhalation
Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Following skin contact
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cold water may be used. Material is absorbed through the skin. Get medical attention immediately. While waiting for medical attention, it has been shown that flushing the affected area with water for one minute and then massaging HF Antidote Gel into the wound until there is a cessation of pain is a most effective first aid treatment. HF Antidote Gel contains Calcium Gluconate which combines with HF for insoluble Calcium Fluoride, thus preventing the extraction of calcium from the body tissue and bones. Another alternative first aid treatment, after thorough washing of the burned area, is to immerse the burned area in a solution of 0.2% iced aqueous Hyamine 1622 or 0.13% iced aqueous Zephiran Chloride. If immersion is impractical, towels could be soaked with one of the above solutions and used as compresses for the burn area. Hyamine 1622 is a trade name for Tetracaine Benzethonium Chloride. Zephiran is a trade name for Benzalkonium Chloride. In case of over-sized skin burns (approx. 150 cm^2), additionally let 6 calcium effervescent tablets (400 mg calcium per tablet) be dissolved in water.
This is to be repeated every 2 hours until reaching the hospital.

Following eye contact
In case of eye contact, rinse with plenty of water for at least 15 minutes and seek medical attention immediately. Cold water may be used. Keep the eyelids apart and away from the eyeballs during irrigation. Do not use oily drops or ointment or HF skin burn treatments on the eyes. Get medical attention immediately, preferably an eye specialist. Place ice pack on eyes until reaching emergency room.

Following ingestion
Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed
Causes severe irritation and burns to eyes and skin. Skin damage can occur without noticeable pain. Can be absorbed through the skin in fatal amounts. Inhalation may cause severe respiratory irritation or burns with coughing or labored breathing. May cause lung damage. May be toxic if swallowed. May cause severe burn to the mouth, throat or stomach. Symptoms may be delayed.

4.3 Indication of any immediate medical attention and special treatment needed
Medical treatment is required for all incidents of contact or exposure.
Contact your Poison Center for the latest advice on treatment. For eye contact: Carefully evaluate for eye damage, exposure to dilute solutions may result in delayed symptoms of ocular damage. For skin contact: Decontamination of the contact area is of primary importance. Symptoms may be delayed for several hours. Specific treatment is controversial with no single treatment clearly superior. Hexafluorine®, topical calcium gluconate gel or magnesium oxide paste have been successful. Hexafluorine® applied immediately to the skin may remove excess chemical from the surface of the tissue before it has a chance to penetrate. Calcium gluconate infiltration may be considered in some cases. Systemic absorption may occur and may require treatment with parenteral calcium salts. For ingestion: Administer fluoride binding substance. Consider nasogastric or soft orogastric suction and lavage with 10% calcium gluconate if the ingestion is recent and spontaneous emesis has not occurred. Monitor and treat hypocalcemia and hypomagnesemia, parenterally as needed. Observe and evaluate patient for oral and GI burns. For inhalation: Monitor for respiratory distress. Respiratory symptoms may be delayed up to 24 hours.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media
Co-ordinate fire-fighting measures to the fire surroundings water spray, foam, dry extinguishing powder, carbon dioxide (CO_2)

Unsuitable extinguishing media
water jet

5.2 Special hazards arising from the substance or mixture
Not combustible.

Hazardous combustion products
In case of fire may be liberated: nitrogen oxides (NOx), May produce toxic fumes of carbon monoxide and hydrogen fluoride if burning.

5.3 Advice for firefighters
Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus. Wear full chemical protective clothing. Contact with alkalies and metals may evolve flammable hydrogen gas..
Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Wash thoroughly after handling.
Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions
Avoid release into the environment. Report spill as required by local and national regulations.

6.3 Methods and materials for containment and cleaning up
Evacuate spill area. Wear appropriate protective clothing and equipment to prevent contact. For small spills, neutralize with Neutralization paste (Greinox N). Dike spill with an absorbent materials and prevent spill from entering sewers and waterways. Collect into appropriate containers for disposal. Wash spill area with water.

Advices on how to clean up a spill
Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases
Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections
Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Prevent eye and skin contact. Do not breathe vapors or mists. Do not eat, drink or smoke when using this product. Use only with adequate ventilation and appropriate protective clothing. Immediately remove contaminated clothing and other items for disposal. Wash thoroughly after handling. This product can cause severe burns, tissue damage and absorption of potentially fatal amounts without pain. Immediately decontaminate all contact areas and get medical attention.
Empty containers retain product residues. Follow all SDS precautions in handling empty containers.

7.2 Conditions for safe storage, including any incompatibilities
Protect containers from physical damage. Store in a cool, well-ventilated area away from alkalies and acids. Do not store in metal containers. Keep in original containers.

Consideration of other advice
• Ventilation requirements
Use local and general ventilation.

• Specific designs for storage rooms or vessels
Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)
Industrial uses: Surface Treatment for Welded Surfaces for Stainless Steel and Nickel Alloys
Professional uses: Surface Treatment for Welded Surfaces for Stainless Steel and Nickel Alloys

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values
Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
EU	nitric acid	7697-37-2		IOELV			1		2006/15/EC
GB	nitric acid	7697-37-2		WEL			1		EH40/2005
EU	Hydrofluoric acid	7664-39-3				2.5			
GB	Hydrofluoric acid	7664-39-3				2.5		4	

Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

IOELV Indicative Occupational Exposure Limit Values – An exposure limit established by the European Union under Article 3 of the Chemical Agents Directive (98/24/EC). Member states are required to consider IOELVs when establishing national occupational exposure limits.

Relevant DNELs/DMELs/PNECs and other threshold levels

• relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Nitric acid	7697-37-2	DNEL	1,3 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Nitric acid	7697-37-2	DNEL	1,3 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Nitric acid	7697-37-2	DNEL	2,6 mg/m³	human, inhalatory	worker (industry)	acute - local effects

8.2 Exposure controls

Recommended Monitoring Procedures: Collect on silica gel tubes and analyze by IC. Refer to professional industrial or occupational hygienist for sampling and analytical methods. Certain regulations require periodic monitoring.

Appropriate Engineering Controls: Use with adequate general or local exhaust ventilation to minimize exposure levels. Refer to ANSI Z49.1 and other applicable regulations for additional information

Individual protection measures (personal protective equipment)

Eye/face protection

Use safety goggle with side protection. Wear face protection.

Skin protection
• hand protection
Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material
Chloropren
• material thickness
>0,65 mm

• breakthrough times of the glove material
>480 minutes (permeation: level 6)

• other protection measures
Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection
If exposures limits are exceeded, wear an approved full facepiece particulate respirator, supplied air respirator (with escape bottle if required) or self-contained breathing apparatus may be required. Selection of respiratory protection depends on the contaminant type, form and concentration. Select in accordance with applicable regulations and good Industrial Hygiene practice.
Respiratory protection necessary at: Aerosol or mist formation. Type: NO-P3 (against nitrous gases and particles, colour code: Blue/White).

Environmental exposure controls
Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Form	gel like fluid
Colour	colorless
Odour	characteristic (pungent)
Odour Threshold	0,036 ppm Hydrofluric acid)

Other physical and chemical parameters

pH	~1,2
Melting point	0°C at 1.013 hPa
Boiling point	~110°C
Flash point	not determined
Evaporation rate	No information available.
Flammability (solid, gas)	not relevant (fluid)
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	~ 1,3 g/cm³
Relative density	No information available.
Water solubility	soluble in any proportion
Partition coefficient: n-octanol/water	No information available.

Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Corrosion	May be corrosive to metals.

SECTION 10: Stability and reactivity

10.1 Reactivity

Contact with light-metals liberates hydrogen

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Reacts with metals to form flammable hydrogen gas. Reacts with bases to produce heat.

10.4 Conditions to avoid

Heating or direct sunlight.

10.5 Incompatible materials

Aluminium, iron/iron-containing compounds, Mild steel, bases

10.6 Hazardous decomposition products

Decomposition may produce hydrogen fluoride and oxides of carbon and nitrogen.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification according to GHS (1272/2008/EC, CLP)
Chronic Toxicity: Prolonged or repeated exposure to fluorides may cause mottling of teeth, damage to bones and fluorosis with symptoms including brittle bones, weight loss, anemia, calcified ligaments and joint stiffness.,
Acute toxicity: No acute toxicity data available for the product. Calculated Acute Toxicity Estimate: Oral 86 mg/kg, Dermal 86 mg/kg, Inhalation: 0.83 mg/L/4 hr

Ingredient Toxicity Values

Nitric Acid: Inhalation rat LC50 >2.65 mg/kg/4 hr
Hydrofluoric Acid: Inhalation rat LC50 > 1300 ppm/30 minutes

Skin corrosion/irritation: Nitric acid and hydrofluoric acid are corrosive to rabbit skin. This product is corrosive to the skin.
Eye damage/ irritation: Nitric acid and hydrofluoric acid are corrosive to rabbit eyes. This product is corrosive to the eyes.
Respiratory Irritation: No data available. This product is expected to cause respiratory irritation or corrosion to the lungs.
Respiratory Sensitization: None of the components are respiratory sensitizers.
Skin Sensitization: None of the components have been shown to cause skin sensitization in animals or humans.
Germ Cell Mutagenicity: None of the components have been shown to cause mutagenic activity.

Carcinogenicity: None of the components are listed as a carcinogen or suspected carcinogen by EU CLP.
Reproductive Toxicity: None of the components have been shown to cause reproductive or developmental toxicity.
Specific Target Organ Toxicity:
Single Exposure: No data available.
Repeat Exposure: No data available
Aspiration Toxicity: This product does not meet the criteria for aspiration toxicity.

• If swallowed
Corrosive to the mucous membranes of the mouth, throat and stomach. May cause fluoride poisoning with symptoms including weakness, tremors, shallow breathing, spasms of the hands and feet, convulsions and coma. May cause central nervous system, kidney and cardiovascular (heart rhythm) effects. Respiratory paralysis may cause death.
• If in eyes
Causes severe irritation or burns with redness, tearing and pain. Permanent damage including blindness may occur.
• If inhaled
Mist and vapors may cause burns to the respiratory with coughing and labored breathing. May cause fluoride poisoning with effects similar to those listed under “ingestion”. Symptoms may be delayed. Harmful if inhaled. Medical treatment is required for all incidents of contact or exposure.
• If on skin
Contact may cause severe irritation or burns to the skin. Burns may not be immediately painful or visible. Diluted solutions can also produce severe burns, but without causing immediate pain. Sometimes pain may be felt several hours later when hydrofluoric acid has penetrated into underlying tissues.May be fatal absorbed through the skin with symptoms similar to those listed under ingestion.

11.2 Further information
None

SECTION 12: Ecological information

12.1 Toxicity
acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Ingredient Aquatic Toxicity Values
Nitric Acid: 96 hr LC50 chinook 4,400 mg/L, 48 hr EC50 Ceriodaphnia dubia 4.4 mg/L
Hydrofluoric Acid: 96 hr LC50 fish 51 mg/L, 48 hr EC50 daphnia magna 97 mg/L
During use, the pickling paste will absorbed oxidized metals and contaminents from the welding process which may include Chromium VI, nickel, manganese and other toxic metals. It is the responsibility of the user to determine the chemical content of the waste generated and to ensure proper disposal in accordance with all local and national regulations.

12.2 Process of degradability
The methods for determining the biological degradability are not applicable to inorganic substances

12.3 Bioaccumulative potential
The fluorides from this product is expected to accumulate predominately in the exoskeleton of crustacea and in the skeleton of fish. Test show there was no accumulation in the edible tissues.

12.4 Mobility in soil
Data are not available

12.5 Results of PBT and vPvB assessment
Data are not available.

12.6 Other adverse effects
Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information
Do not empty into drains.

Waste treatment of containers/packaging
It is a dangerous waste; only packaging which are approved (e.g. acc. to ADR) may be used.

Sewage disposal-relevant information
Do not empty into drains.

13.2 Relevant provisions relating to waste
The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks
Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions

---

SECTION 14: Transport information

14.1	UN number	**2922**
14.2	UN proper shipping name	Corrosive liquid, toxic, n.o.s.
	Hazardous ingredients	(nitric acid, hydrofluoric acid,)
14.3	Transport hazard class(es)	
	Class	8 + 6.1
14.4	Packing group	II
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user
Attention: Toxic, strongly corrosive

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
Not applicable – product is transported only in packaged form.

14.8 Information for each of the UN Model Regulations

- **Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)**
  UN number 2922

Proper shipping name	Corrosive liquid, toxic, n.o.s.
Particulars in the transport document	UN2922, (hydrofluoric acid, nitric acid) 8 + 6.1, II, (E)
Class	8
Classification code	CT1
Special provisions	274
Packing group	II
Danger label(s)	8 + 6.1

Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	86
Emergency Action Code	**2X**

- **Transport of dangerous goods by air transport ICAO-TI und IATA-DGR:**

UN number	2922
Proper shipping name	Corrosive liquid, toxic, n.o.s
Particulars in the transport document	UN2922, (hydrofluoric acid, nitric acid) 8 + 6.1, II, (E)
Class	8
Packing group	II
Danger label(s)	8 + 6.1

Special provisions	A3 A803
Limited quantities (LQ)	0,5 L
Passenger LQ:	Y840
Excepted quantities (EQ)	E2
IATA-packing instructions - Passenger:	851
IATA- maximum quantities (LQ)- Passenger:	1 L
IATA-packing instructions - Cargo:	855
IATA- maximum quantities - Cargo:	30 L

- **International Maritime Dangerous Goods Code (IMDG)**

UN number	2922
Proper shipping name	Corrosive liquid, toxic, n.o.s
Particulars in the shipper's declaration	UN2922, (hydrofluoric acid, nitric acid) 8 + 6.1, II, (E)
Class	8
Marine pollutant	-
Packing group	II
Danger label(s)	8 + 6.1

Special provisions (SP)	274
Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
EmS	F-A, S-B
Stowage category	D
Segregation group	1 - Acids

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)
Restrictions on use (REACH, Annex XVII):
Entry 3: nitric acid; Hydrofluoric acid
Information on the SEVESO III Directive H2 ACUTE TOXIC
2012/18 / EU:

National regulations
Employment restrictions: Observe employment restrictions for young people
Observe employment restrictions for expectant and nursing mothers

Incident Ordinance:	Toxic
Cat. gem. IncidentVO:	2
Volume thresholds:	50 t / 200 t
Water hazard class:	2 - hazardous for water

Status: Mixing rule according to VwVwS Annex 4, No. 3

Skin resorption / Sensitization:	Easily penetrates the outer skin and causes poisoning.
Storage class	6.1B

• Limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (2004/42/EC, Deco-Paint Directive)

VOC content 0 %

• Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content 0 %

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2017/2398/EU	Directive of the European Parliament and of the Council amending Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)

ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE	Acute Toxicity Estimate
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	DGR Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits, Table 1: List of approved workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	seriously damaging to the eye
Eye Irrit.	irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant)
Met. Corr.	corrosive to metals
NLP	No-Longer Polymer
Ox. Liq.	oxidising liquid
ppm	parts per million
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	corrosive to skin
Skin Irrit.	irritant to skin
STEL	short-term exposure limit
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative
WEL	workplace exposure limit

Key literature references and sources for data
- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H272	may intensify fire; oxidiser
H290	may be corrosive to metals
H301	Toxic if swallowed
H310	Fatal in contact with skin
H331	Toxic if inhaled
H314	causes severe skin burns and eye damage
H318	causes serious eye damage
H330	Fatal if inhaled
EU071	corrosive to the respiratory tract

Training advice
Provide adequate information, instruction and training for operators.

Disclaimer
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The in- formation cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. It does not represent a guarantee of any properties of the product