SAFETY DATA SHEET

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

Elektrolyte Greinox RP

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

Information on the product / trade name: **Elektrolyte Greinox RP**
for Surface treatment
only for industrial use

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)

Classification acc. to GHS

Section	Hazard class	Hazard class and category	Hazard statement
2.16	substance or mixture corrosive to metals	(Met. Corr. 1)	H290
3.2	skin corrosion/irritation	(Skin Corr. 1A)	H314
3.3	serious eye damage/eye irritation	(Eye Dam. 1)	H318

Supplemental hazard information

Code	Supplemental hazard information
EUH071	corrosive to the respiratory tract

2.2 Label elements

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

Signal word
Danger

Hazard statements

H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage

Supplemental hazard information

EUH071	Corrosive to the respiratory tract

Precautionary statements

Precautionary statements - prevention

P260 Do not breathe mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements - response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary statements - response

P390 Absorb spillage to prevent material damage.

Precautionary statements - storage

P406 Store in corrosive resistant container with a resistant inner liner

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	>5 – < 26	Ox. Liq. 2 / H272 Met. Corr. 1 / H290 Acute toxicity, Category 4, H332 Skin Corr. 1A / H314		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 %

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
Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact
After contact with skin, wash immediately with plenty of water. Immediate medical treatment required because corrosive injuries that are not treated are hard to cure.

Following eye contact
In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Protect uninjured eye.

Following ingestion
Rinse mouth immediately and drink plenty of water. If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects). Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed
Corrosion, Risk of blindness, Gastric perforation, Risk of serious damage to eyes

4.3 Indication of any immediate medical attention and special treatment needed
none

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 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
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.

Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions
Keep away from drains, surface and ground water. The product is an acid. Before discharge into sewage plants the product normally needs to be neutralised.

6.3 Methods and materials for containment and cleaning up
Covering of drains.

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
No special measures are necessary.

Advice on general occupational hygiene
Wash hands before breaks and after work. Keep away from food, drink and animal feeding stuffs.

7.2 Conditions for safe storage, including any incompatibilities
Storage conditions
Tightly closed.

• Corrosive conditions
Store in corrosive resistant container with a resistant inner liner.

Incompatible substances or mixtures
Observe hints for combined storage.

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)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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	2,6	2006/15/EC
GB	nitric acid	7697-37-2		WEL			1	2,6	EH40/2005

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

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

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
NBR (Nitrile rubber)

• material thickness
>0,6 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
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	liquid
Colour	colorless
Odour	characteristic
Odour Threshold	Not applicable

Other physical and chemical parameters

pH	<1
Melting point	0°C at 1.013 hPa
Boiling point	100°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	~ 1,065 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
corrosive to metals

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
Violent reaction with: Ammonia (NH_3)

10.4 Conditions to avoid
There are no specific conditions known which have to be avoided

10.5 Incompatible materials
Aluminium, iron/iron-containing compounds, Mild steel

10.6 Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Classification according to GHS (1272/2008/EC, CLP)
Acute toxicity
Shall not be classified as acutely toxic.
Skin corrosion/irritation
Causes severe burns.
Serious eye damage/eye irritation
Causes serious eye damage.
Respiratory or skin sensitization
Shall not be classified as a respiratory or skin sensitizer.
Summary of evaluation of the CMR properties
Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant
• **Specific target organ toxicity - single exposure**
Shall not be classified as a specific target organ toxicant (single exposure).
• **Specific target organ toxicity - repeated exposure**
Shall not be classified as a specific target organ toxicant (repeated exposure).
Aspiration hazard
Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• **If swallowed**
If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects)
• **If in eyes**
causes burns, Causes serious eye damage, risk of blindness
• **If inhaled**
corrosive to the respiratory tract
• **If on skin**
causes severe burns, causes poorly healing wounds

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

12.3 Bioaccumulative potential
Data are not available.

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

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SECTION 14: Transport information

14.1	UN number	**2031**
14.2	UN proper shipping name	**NITRIC ACID**
	Hazardous ingredients	Nitric acid
14.3	Transport hazard class(es)	
	Class	8 (corrosive substances)
14.4	Packing group	II (substance presenting medium danger)
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user
yes

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
The cargo is not intended to be carried in bulk.

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	2031
Proper shipping name	NITRIC ACID
Particulars in the transport document	UN2031, NITRIC ACID, 8, II, (E)
Class	8
Classification code	C1
Packing group	II
Danger label(s)	8

Excepted quantities (EQ)	E2
Limited quantities (LQ)	1 L
Transport category (TC)	2
Tunnel restriction code (TRC)	E
Hazard identification No	80
Emergency Action Code	**2P**

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

UN number	2031
Proper shipping name	NITRIC ACID solution
Particulars in the transport document	UN2031, NITRIC ACID, 8, II
Class	8
Packing group	II
Danger label(s)	8

Excepted quantities (EQ)	E0

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

UN number	2031
Proper shipping name	NITRIC ACID solution
Particulars in the shipper's declaration	UN2031, NITRIC ACID, 8, II
Class	8
Marine pollutant	-
Packing group	II
Danger label(s)	8

Special provisions (SP)	--
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)

• Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)
None of the ingredients are listed.
• Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)
None of the ingredients are listed.
• Regulation 850/2004/EC on persistent organic pollutants (POP)
None of the ingredients are listed.
• Restrictions according to REACH, Annex XVII

Name of substance	CAS No	Wt%	Type of registration	No
Nitric acid		100	1907/2006/EC annex XVII	3
Nitric acid		25	1907/2006/EC annex XVII	3

• List of substances subject to authorization (REACH, Annex XIV)
None of the ingredients are listed.

• Seveso Directive

2012/18/EU (Seveso III)			
No	**Dangerous substance/hazard categories**	**Qualifying quantity (tonnes) for the application of lower and uppertier requirements**	**Notes**
	not assigned		

• 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 %

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II
None of the ingredients are listed.
Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)
None of the ingredients are listed.

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)
None of the ingredients are listed.

National inventories

Country	National inventories	Statu
AU	AIC	all ingredients are listed

CA	DS	all ingredients are listed
CN	IECS	all ingredients are listed
EU	EC	all ingredients are listed
EU	REACH	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

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

SECTION 16: Other information

16.1 Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.1	Remarks: For full text of Hazard- and EU Hazard-statements: see SECTION 16.		yes
2.2		Pictograms: change in the listing (table)	yes
2.2		Hazard statements: change in the listing (table)	yes
2.2		Precautionary statements - prevention: change in the listing (table)	yes

2.2		Precautionary statements - response: change in the listing (table)	yes
2.2	Precautionary statements - storage		yes
2.2		Precautionary statements - storage: change in the listing (table)	yes
3.2		Description of the mixture: change in the listing (table)	yes
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)	yes
14.3	Transport hazard class(es)	Transport hazard class(es): class 8 hazard - corrosive substances	yes
14.8		Marine pollutant: -	yes
14.8		• International Civil Aviation Organization (ICAO- IATA/DGR)	yes
14.8		UN number: 2031	yes
14.8		Proper shipping name: Nitric acid	yes
14.8		Particulars in the shipper's declaration: UN2031, Nitric acid, 8, II	yes
14.8		Class: 8	yes
14.8		Packing group: II	yes
14.8		Danger label(s): 8	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8		Excepted quantities (EQ): E0	yes

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
H314	causes severe skin burns and eye damage
H318	causes serious eye damage
H332	harmful if inhaled
EUH071	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

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