

EG-Safety Data Sheet

In accordance with 1907/2006/EG

Greinox P

Last Update: October 2009

Page 1/6

1. Identification of the substance/preparation and company

Product / Trade name:

Greinox P

Manufacturer/Supplier:

Kai Greising e.K. Clean Marker

Industriestraße 29/2

73340 Amstetten

Telefon: ++49 (0) 7331/3058-0

Telefax: ++49 (0) 7331/981722

Emergency telephone number:

Poisons centre in Freiburg

Telephone: ++49 (0) 761-19240

2. Hazards Identification

Specific hazard notes for persons and environment:

- Hazards descriptions: T+ (very toxic), C (corrosive)
- Specific hazard phrases for persons and environment:
 - R 26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.
 - R 35: Causes severe burns
 - R 37: Irritating to respiratory system.

3. Composition/information on ingredients

Chemical Charakterisation:

(n.d.a. = no data available, n.a. = not applicable)

Description: Mixture of nitric acid and hydrofluoric acid.

Dangerous components:

CAS-No.	EINECS-No.	Name	Concentration	Hazard symbol	Risk phrases
7697-37-2	231-714-2	Nitric acid	<25 %	O, C	8, 35
7664-39-3	231-634-8	Hydrofluoric acid	<20 %	T+, C	26/27/28-35

Additional information:

For the wording of the listed risk phrases refer to section 16.

4. First aid measures

General information:

Call a medical doctor immediately. Remove from exposure area. Ensure the protection of the First Aid person. A unconsciousness storage and transport in stable lateral position. Even when a poisoning is suspected medical evaluation is required. Symptoms of poisoning can only occur after several hours, so medical surveillance at least until 48 hours after the accident.

- After skin contact:

Remove soiled, soaked clothes (including underwear and shoes) immediately.
Rinse affected skin (including nasal and mouth cavities) with water immediately.
Apply calcium gluconate gel to affected area, rub in until area is free from pain, then continue for another 15 minutes. If necessary bandage with dressing soaked in a 2,5% solution of calcium gluconate. If the cauterised area is larger than your hand (ca 150 cm²) make affected person drink of 6 calcium effervescent tablets (400mg Calcium per tablet) solved in water. Repeat every two hours until person is admitted to hospital.
If the cauterisations are extensive give affected person a full bath in a solution containing 1% of calcium gluconate.

- After eye contact:

In case of contact with eyes rinse open eyes with water for a sufficiently long period of time (ca 15 min). Then consult a doctor/ ophthalmologist without any further delay. Protect unharmed eye.

- After inhalation:

After inhalation take calcium tablets as described under Contact with Skin. When affected person has difficulties by breathing, make sure they do not move unless absolutely necessary. Treatment by doctors is required as quickly as possible because inhalation of nitric acid can cause heavy double-sided pneumonia even up to 48 hours after the actual inhalation.

- After ingestion:

Rinse mouth thoroughly with lots of water, if necessary drink solution containing 1% of calcium gluconate in small sips. Make sure affected person does not move unless absolutely necessary, protect against loss of heat. Do not induce vomiting. Obtain medical assistance immediately.
Information for doctor: Medical treatment as by chemical burn by hydrofluoric acid and nitric acid.
Treatment agent after contact with hydrofluoric acid - calcium gluconate gel.
To avoid pulmonary oedema: dexamethasin (aerosol can).

EG-Safety Data Sheet

In accordance with 1907/2006/EG

Greinox P

Last Update: October 2009

Page 2/6

5. Fire-fighting measures

Danger of fire/explosion: Reaction with burnable substances without outside fire and heat exposure possible. The pickling liquid is not combustible and explosive. By contact with metals the hydrogen gas in small quantities is liberated, which together with air can lead to explosion.

Glass/glass containers should be removed from fire neighborhood.

Suitable extinguishers: Aqueous mist spray, carbon dioxide, extinguishing powder.

Extinguishers that are unsuitable due to safety: Full jet of water.

Containers on fire should be cooled with spray water. The leaked-out product must be neutralized with lime water.

Special exposure hazards due to the substance/preparation: Release of hydrogen fluoride gas

Its combustion products or any gases: Release of nitrous gases possible

Danger chemical risks: Danger risks through the product itself: Pickling liquid causes corrosive damages after skin contact.

Danger chemical risks through liberated fumes: Pickling liquid sets free toxic fumes and nitric fumes, while heated or on fire.

Protective equipment for fire fighters: Use self-contained breathing apparatus. Wear chemical protection dresses.

Mouth respiratory protection: Gas mask with filter type E (yellow) und dust filter P3.

Cleaning or damaging the soily firefighting equipment: Wash thoroughly with water.

Additional information: Product itself does not burn. Contaminated collected firewater should not be come in the drains.

6. Accidental Release Measures

Precautions referring to persons: Wear protective equipment. Keep unprotected persons away. Ensure good air ventilation.

Measures for the environment: The product must not come into bodies of water without pretreatment (neutralisation, biological sewage plant). Inform respective authorities in case of seepage into water course or sewage system.

Methods for cleaning up/taking up: Pick up small amounts with absorbent material (e.g. sand, kieselgur, universal binder, sawdust). If larger amounts are poured out take up ground and give to waste disposal and clean the accident place with plenty of water and neutralization agent (e.g. lime water).

Dispose contaminated material as waste according to item 13.

Additional information: Ensure sufficient air ventilation.

7. Handling and storage:

Information for safe handling: store product in approved (HF-resistant) containers in (properly ventilated) storage room for chemicals. Open and handle container carefully. Do not inhale fumes. All work procedures must be so organized, that breathing, skin and eye contacts are excluded.

Danger zones should be isolated and marked-out with appropriate warn and safety signs.

Ensure good air ventilation. Avoid skin and eye contact.

The eye wash appliance and a safety shower must stay at disposal on workplace in case of emergency.

Fire and explosion protection: No special measures necessary.

Storage:

Requirements to be met by store rooms and receptacles: Prevent any seepage into the ground.

Unsuitable material for receptacle: glass or ceramic.

Retention container provide, e.g.. bottom tank without drainage. Provide HF-resistant flooring.

Information on combined storage: Do not store with large amounts of alkalines or highly inflammable substances.

Further information to storage conditions: „TRGS 514 „Storage very toxic and toxic substances in packagings and movable containers“, threshold values acc. to BimSchV 12 (hazardous incidence ordinance). Avoid frost.

Storage class: n.d.a.

Further information on design of technical equipment: Use covered or closed apparatus, acid resistant fittings and equipment.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits that have to be monitored:

CAS-No.	Name	Type of limit	Value	Unit
7697-37-2	Nitric acid	MAK	2,6	mg/m ³
7664-39-3	Hydrofluoric acid	MAK	0,83	mg/m ³
16984-48-8	Fluoride (as fluorine calculated)	MAK	2,5 (short time value)	mg/m ³

EG-Safety Data Sheet

In accordance with 1907/2006/EG

Greinox P

Last Update: October 2009

Page 3/6

Limit and Exposure Control:

Technical measures and application of suitable working procedures, as in chapter 7 performed, have priority before application of the personal protection.

Recommended analyse methods for workplace measurements: See publication series (in german) of the Federal Institute for Work Protection and Work Medicine, „Dangerous work substances (GA 13)“.

Personal Protection Equipment (EN 374):

Respiratory protection: Ensure adequate ventilation. This can be achieved by local exhaustion or by general exhaust air. When technical or extraction ventilation is not possible or are inadequate, respiratory protection must be worn. If vapours or an aerosol appear in small amounts, the filter type E-P3 code colour yellow shall be used. The carrying time limits in connection with the rules governing the regulation of hazardous substance of respiratory protective devices (in Germany GefStoffV - BGR 190) shall be observed.

Hand protection: The choice of a suitable protective glove is not only determined by the material itself, but depends on further quality characteristics and differs from manufacturer to manufacturer. The exact penetration time has to be asked from the manufacturer and is to be abided.

Hand protection: protective gloves (e.g. out of polychloroprene/butyl rubber $\geq 0,7\text{mm}$). Penetration time: $\geq 8\text{h}$
Rubber gloves, acid resistant gloves made of natural rubber or nitrile rubber.

It is recommended that the chemical resistance of the protective gloves is clarified for specific applications with the glove manufacturer. BGR 195 is to note.

Eye protection: Tightly fitting basket glasses / face shield / protection shield. BGR 192 is to note.

Body protection: Full protective acid resistant clothes, boots.

Protection and hygiene measures: While the work do not eat, drink or smoke. Soiled, soaked clothing immediately. Before breaks and after work wash your hands. Skin protection plan.

Avoid contact with skin and eyes. Do not inhale the gases/fumes/aerosols.

9. Physical and Chemical Properties

Appearance:

Form: paste colour: colourless odour: pungent

Data relevant for Health, Safety and Environment

pH-value: at 20° C (10 g/l)	1,4 ± 0,2
Melting point/Area of melting temperatures:	<0 ° C
Boiling Point/Boiling Range:	not determinated
Flash Point:	n.a.
Flammability (solid/gas):	n.a.
Ignition Temperature:	n.a.
Oxidising Properties:	n.a.
viscosity:	not determinated
Danger of Explosion:	n.a.
Explosion limits:	n.a.
Vapour Pressure:	not determinated
Density (g/cm ³):	1,28 ± 0,05
Solubility:	fully dispersible with water
Solubility in other solvents:	n.d.a.
Partition Coefficient n-Octanol/Wasser (log pOW):	n.d.a.
Additional information:	n.d.a.

10. Stability and reactivity

Conditions to avoid:

Higher temperatures and direct sunlight.

Materials to avoid:

Alkalines, organic oxidizing materials.

Hazardous decomposition products:

No decomposition if used and stored as intended.

Cauterising gases, hydrogen fluoride gas und nitrous gases.

Additional Information:

Strong reaction possible under influence of alkalines. Strong reaction with Al, Zn, Mg and other metals possible. Forming of hydrogen and nitrous gases.

Under influence of heat product can react quickly with easily oxidised substances (e.g., wood cuttings, organic solvents).

EG-Safety Data Sheet

In accordance with 1907/2006/EG

Greinox P

Last Update: October 2009

Page 4/6

11. Toxicological Information

Acute toxicity:

Irritation / corrosive effect: causes heavy cauterisations of skin and stomach, with deep effects and poor healing tendencies, toxic. At inhalation, ingestion and contact with skin (conventional classification method). Onset of action is immediate, but delay possible.

Primary irritant effect:

On the skin: strong corrosive effect on skin and mucous membranes.

Danger through skin resorption. Hydrofluoric acid penetrates through the skin and damages deep tissue layers.

Skin injuries can occur with 1 – 2 days delay.

On the eye: strong corrosive effect.

Sensitization: No sensitizing effects known.

Further Information:

LD 50-values:

Nitric acid: LD₅₀ (oral, human) 430 mg/kg

Hydrofluoric acid: LD 50 (oral, rat) 1276 mg/kg

Specific symptoms when tested on animals: n.d.a.

Effect after repeated or long-term exposition (sub-acute to chronic toxicity): n.d.a.

Effects that cause cancer, genetic mutations or endanger procreation: n.d.a.

Other information:

Inhalation of fumes causes choking sensation (danger of pulmonary oedema).

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version: Very Toxic, Corrosive

12. Environment specific informations (*)

Ecotoxicological effects:

LC 50-values:

Nitric acid: LC 50 (4h, fish) 67 mg/l.

Hydrofluoric acid: LC 50 (inhalativ) 1610 ppm/1 h

Water Hazard Classification: 2 (hazard) voluntary classification

Behaviour in environmental compartments:

Water:

Warn drinking-, cooling- and process water user. Retain contaminated water for firefighting.

Ground:

Take small amounts with absorption materials, if bigger amounts are poured out, the ground must be taken away and given to a waste disposal.

Mobility and (bio)-accumulative potential:

n.d.a.

Behaviour in purification plants:

n.d.a.

Inhibition of breathing in communal active sludge:

n.d.a.

Data on elimination (persistence and degradability):

Product does not contain surfactants.

Further ecological information:

Regard Water Management Act (WHG) and local water regulations.

Treat according to state of the art before release into the sewer system.

Product must not enter drinking water or biological wastewater treatment facilities.

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even small quantities leak into the ground.

Do not allow to reach unthinned or unneutralized product in sewage or water course. Must be specially treated adhering to official regulations.

Additional information on ecology: n.d.a

Result of the evaluation of PBT-characteristics:

n.d.a.

EG-Safety Data Sheet

In accordance with 1907/2006/EG

Greinox P

Last Update: October 2009

Page 5/6

13. Disposal considerations

Product: Recommendation:

If recycling is not possible (talk to manufacturer/supplier), must be specially treated adhering to official regulations. Do not allow product to reach sewage system.

Waste Disposal Key:

The mentioned waste codes are recommendations based on the product application as suggested by the manufacturer. Special applications and special disposal conditions at the applicer's place may however require another waste code.

Contaminated packing material: Packing material can be used repeatedly or recycled after cleaning.

Recommended cleaning agent: water.

* Tunnel restriction code: (E)

14. Transport information

Road transport and inland navigation (acc. European regulations for transportation)

ADR/RID/ADNR/GGVSEB: class 8+6.1

Packing group: II

UN-No.: 2922

Name: CORROSIVE LIQUID, TOXIC N.O.S. (HYDROFLUORIC ACID, NITRIC ACID)

* Limited quantity: LQ 22

SeeTransport

IMDG/GGVSee : class 8+6.1

Packing group: II

UN-No.: 2922

Proper technical name: CORROSIVE LIQUID, TOXIC N.O.S. (HYDROFLUORIC ACID, NITRIC ACID)

EmS: F-A, S-B

Marine pollutant: no

Air Transport

ICAO-TI and IATA-DGR:

class: 8+6.1

UN/ID-Number: 2922

Packing group: II

Proper technical name: CORROSIVE LIQUID, TOXIC N.O.S. (HYDROFLUORIC ACID, NITRIC ACID)

15. Legal rules (*)

The product has been classified and marked in accordance with appendix 1 of EU guideline / Ordinance on Hazardous Materials: T+ (very toxic), C: (corrosive)

R – Phrases

R 26/27/28: Very toxic by inhalation, in contact with skin and if swallowed

R 35: Causes severe burns

R 37: Irritating to respiratory system

S – Phrases

S 23: Do not breathe gas/fumes

S 24/25: Avoid contact with skin and eyes

S 36/37/39: Use protective gloves, protective glasses and protective clothes during work

S 45: In case of accident or indisposition summon medical care (show this label)

S 60: This material and its container must be disposed of as hazardous waste.

Security evaluation:

No security evaluations of substances in this formulation were carried out!.

EG-Safety Data Sheet

In accordance with 1907/2006/EG

Greinox P

Last Update: October 2009

Page 6/6

National regulations:

Water Hazard Class (Germany): 2 (according to VwVwS from 17.05.1999)

Dangerous component responsible for labelling: HYDROFLUORIC ACID, NITRIC ACID.

Other Regulations:

Occupational Restrictions Rules: Refer to Occupational Restrictions for Adolescents (§ 22 JarbS)!

Combustible Liquid Act (VbF) - Classification: n.d.a.

Merkblatt M 004: Irritating/Corrosive Substances

Merkblatt M 015 „Nitric Acid, Nitric Oxide, Nitrous Gases“

Merkblatt M 053: General Working Protection Measures for Handling with Dangerous Agents

Merkblatt M 005: Hydrogen Fluoride, Hydrofluoric Acid and Inorganic Fluorides

TRGS 514: Storage of very toxic and toxic Materials in Packagings and movable Containers

TA Luft: Technical Instruction on Air Quality Control

BGR 190: Usage of Respiratory Equipment.

BGR 192: Usage of Eye- and Face Protection.

BGR 195: Using of Protection Gloves.

16. Other information

Recommended application restrictions by the manufacturer:

Only for industrial application – no public product!

Text of R-phrases mentioned in part 2 and 3:

R 8: Contact with combustible material may cause fire.

R 26/27/28: Very toxic by inhalation, in contact with skin and if swallowed

R 35: Causes severe burns

R 37: Irritating to respiratory system

Changes compared to last issue:

Revaluation according to REACH-regulation (EG) No. 1907/2006

Datasheet issuing division:

Chemical law: Hazardous material division of Foster Chemicals GmbH (tel.: +49 (0)2165/91490)

The safety data sheet is based on the safety data of the educts which were used in the production.

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products described or their suitability for a particular application. It is the responsibility of the user of the product to ensure to his satisfaction that the product is suitable for the intended purpose and method of use. We do not accept responsibility for any harm caused by the use of this information.

n.d.a. = no data available

n.a. = not applicable

* = changes compared to a former safety data sheet