

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

1.1 Product identifier

Trade name : Antox 71 E Plus

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

Use of the Sub-
stance/Mixture : Treatment of metal surfaces.

Recommended restrictions
on use : None known.

1.3 Details of the supplier of the safety data sheet

Company : Chemetall GmbH
Aarauerstrasse 51
CH-5200 Brugg
Contact person : franz.braun@chemetall.com
Telephone : ++41(0)56 616 90 30
Telefax : ++41(0)56 616 90 40

Contact person product safety
Telephone : +49(0)6971653381
E-mail address : msds.de@chemetall.com

1.4 Emergency telephone number

Schweiz / Suisse / Switzerland : Tox Info Suisse
TEL. ++41(0) 44 251 51 51
TEL. 145 (24 H)
www.toxinfo.ch info@toxinfo.ch

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, Category 1	H290: May be corrosive to metals.
Acute toxicity, Category 3	H301: Toxic if swallowed.
Acute toxicity, Category 3	H331: Toxic if inhaled.
Acute toxicity, Category 2	H310: Fatal in contact with skin.
Skin corrosion, Category 1A	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

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

Supplemental Hazard Statements : EUH071 Corrosive to the respiratory tract.

Precautionary statements : **Prevention:**
P260 Do not breathe mist or vapours.
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
P310 Immediately call a POISON CENTER/doctor.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Hazardous components which must be listed on the label:
Hydrofluoric Acid

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Symptoms of poisoning may appear several hours later.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Aqueous solution
inorganic acids

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (% w/w)
Nitric Acid, 13 - < 26%	7697-37-2 231-714-2 01-2119487297-23	Skin Corr. 1A; H314 Eye Dam. 1; H318 Met. Corr. 1; H290 Acute Tox. 4; H332 Note B	>= 20 - < 25
Magnesium fluoride	7783-40-6 231-995-1	Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	>= 10 - < 20
Hydrofluoric Acid	7664-39-3 231-634-8 01-2119458860-33	Acute Tox. 2; H330 Acute Tox. 1; H310 Acute Tox. 2; H300 Skin Corr. 1A; H314 Note B	>= 5 - < 7

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Take off contaminated clothing and shoes immediately.
 First Aid responders should pay attention to self-protection and use the recommended protective clothing
 Symptoms of poisoning may appear several hours later.
 Keep warm and in a quiet place.
 For effective first-aid, special training / education is needed.
 Medical supervision for minimum 48 hours.
- If inhaled : Move out of dangerous area.
 Ensure adequate ventilation.
 Call a physician immediately.
- In case of skin contact : Take off all contaminated clothing immediately.
 Wash off immediately with plenty of water for at least 15 minutes.
 First treatment with calcium gluconate paste.
 Immediately drink calcium solution (calcium tablets dissolved in water).
 Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
 Take victim immediately to hospital.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
 Protect unharmed eye.
 Call a physician immediately.

If swallowed : Do NOT induce vomiting.
Rinse mouth with water.
Immediately drink calcium solution (calcium tablets dissolved in water).
Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Toxic if swallowed or if inhaled
Fatal in contact with skin.
Causes severe skin burns and eye damage.
Watch victim for several hours because of possible delayed signs of poisoning.
If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : First treatment with calcium gluconate paste.
Immediately drink calcium solution (calcium tablets dissolved in water).
For specialist advice physicians should contact the Poisons Information Service.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Carbon dioxide (CO₂)
Dry powder
Alcohol-resistant foam
Water spray jet

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Heating or fire can release toxic gas.
Hydrogen fluoride
Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Special protective equipment for firefighters

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment.
Keep people away from and upwind of spill/leak.
Evacuate personnel to safe areas.

6.2 Environmental precautions

Environmental precautions : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Use neutralizing agents.
Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).
Dispose of as special waste in compliance with local and national regulations.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

6.4 Reference to other sections

For further information see Section 8 of the safety data sheet.
For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Do not breathe vapours, aerosols.
Wear personal protective equipment.
Provide sufficient air exchange and/or exhaust in work rooms.
Avoid contact with skin and eyes.
Avoid formation of aerosol.
Ensure that eye flushing systems and safety showers are located close to the working place.
To avoid risks to man and the environment, comply with the instructions for use.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : Do not breathe spray, vapour. Take off contaminated clothing and shoes immediately. Avoid contact with skin and eyes.
Keep away from food, drink and animal feedingstuffs. Wash hands before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in a place accessible by authorized persons only. Store in original container. Keep containers tightly closed in a cool,

Version: 3.1

Revision Date: 05.10.2017

Print Date: 21.11.2017

well-ventilated place. To maintain product quality, do not store in heat or direct sunlight.

Further information on storage conditions : Avoid contact with metals. Protect from frost.

Advice on common storage : Incompatible with bases.

Recommended storage temperature : 0 - 40 °C

7.3 Specific end use(s)

Specific use(s) : Treatment of metal surfaces.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Nitric Acid, 13 - < 26%	7697-37-2	STEL	1 ppm 2.6 mg/m ³	2006/15/EC
Further information	Indicative			
		STEL	1 ppm 2.6 mg/m ³	GB EH40
Magnesium fluoride	7783-40-6	TWA	2.5 mg/m ³ (Fluorine)	2000/39/EC
Further information	Indicative			
		TWA	2.5 mg/m ³ (Fluorine)	GB EH40
Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
Hydrofluoric Acid	7664-39-3	TWA	1.8 ppm 1.5 mg/m ³	2000/39/EC
Further information	Indicative			
		STEL	3 ppm 2.5 mg/m ³	2000/39/EC
Further information	Indicative			
		TWA	1.8 ppm 1.5 mg/m ³ (Fluorine)	GB EH40
		STEL	3 ppm 2.5 mg/m ³ (Fluorine)	GB EH40

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Hydrofluoric Acid	Workers	Inhalation	Long-term systemic effects	1.5 mg/m ³
	Workers	Inhalation	Long-term local ef-	0.0015 mg/m ³

					fects			
--	--	--	--	--	-------	--	--	--

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye protection : Tightly fitting safety goggles
Eye protection (EN 166)

Hand protection

Material : Fluorinated rubber
Break through time : 480 min
Glove thickness : 0.4 mm

Material : Nitrile rubber
Break through time : 480 min
Glove thickness : 0.35 mm

Material : butyl-rubber
Break through time : 480 min
Glove thickness : 0.5 mm

Material : Natural Rubber
Break through time : 480 min
Glove thickness : 0.5 mm

Material : PVC
Break through time : 480 min
Glove thickness : 0.5 mm

Material : Polychloroprene
Break through time : 480 min
Glove thickness : 0.5 mm

Remarks : Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection : Chemical resistant protective clothing according to DIN EN 13034 (Type 6)

Respiratory protection : For short-time or low exposures in well ventilated areas, use a half mask in combination with a filter.
ABEK-filter

When working in narrow, closed and low-oxygen areas (e.g. containers) use self-contained breathing apparatus (EN 133).

Protective measures : Avoid formation of aerosol.

Version: 3.1

Revision Date: 05.10.2017

Print Date: 21.11.2017

Always have on hand a first-aid kit, together with proper instructions.
Handle in accordance with good industrial hygiene and safety practice.
Ensure that eye flushing systems and safety showers are located close to the working place.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	paste
Colour	:	colourless
Odour	:	stinging
Odour Threshold	:	No data available
pH	:	< 2 (20 °C) (undiluted)
Melting point/range	:	not determined
Boiling point/boiling range	:	No data available
Flash point	:	Not applicable Other information: Does not sustain combustion.
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	23 hPa (20 °C)
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	1.25 g/cm ³ (20 °C)
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available

Version: 3.1

Revision Date: 05.10.2017

Print Date: 21.11.2017

Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	not determined
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	no explosion risk
Oxidizing properties	:	No data available

9.2 Other information

Metal corrosion rate : Corrosive to metals

Other physico-chemical properties: This information is not available/not determined.

SECTION 10: Stability and reactivity

10.1 Reactivity

Contact with light-metals liberates hydrogen.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Gives off hydrogen by reaction with metals.

10.4 Conditions to avoid

Conditions to avoid : Protect from frost, heat and sunlight.

10.5 Incompatible materials

Materials to avoid : glass
Attacks silicate containing materials.
Metals
Incompatible with bases.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:

Version: 3.1

Revision Date: 05.10.2017

Print Date: 21.11.2017

Acute oral toxicity : Acute toxicity estimate: 79.37 mg/kg
Method: Calculation method
Remarks: Toxic if swallowed.

Acute inhalation toxicity : Acute toxicity estimate: 6.85 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method
Remarks: Toxic if inhaled.

Acute dermal toxicity : Acute toxicity estimate: 79.37 mg/kg
Method: Calculation method
Remarks: Fatal in contact with skin.

Acute toxicity

Components:

Hydrofluoric Acid:

Acute oral toxicity : Acute toxicity estimate: 5 mg/kg
Method: Converted acute toxicity point estimate

Acute dermal toxicity : Acute toxicity estimate: 5 mg/kg
Method: Converted acute toxicity point estimate

Skin corrosion/irritation

Product:

Remarks: Causes severe burns.

Serious eye damage/eye irritation

Product:

Remarks: Causes serious eye damage.

Respiratory or skin sensitisation

Product:

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Based on available data, the classification criteria are not met.

Reproductive toxicity

Product:

Based on available data, the classification criteria are not met.

STOT - single exposure

Product:

Based on available data, the classification criteria are not met.

STOT - repeated exposure

Product:

Based on available data, the classification criteria are not met.

Aspiration toxicity

Product:

Based on available data, the classification criteria are not met.

Experience with human exposure

Product:

General Information : Causes very severe, deep burns which generally heal badly.
Poisoning by resorption through skin possible.

Further information

Product:

Remarks: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
Corrosive to the respiratory tract.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Ecotoxicology studies for the product are not available.

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: No data available

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Product:

Mobility : Remarks: No data available

12.5 Results of PBT and vPvB assessment

Product:

Version: 3.1

Revision Date: 05.10.2017

Print Date: 21.11.2017

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Additional ecological information : Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. Even leakage of small amounts in the subsoil can contaminate drinking water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : In accordance with local and national regulations.

Contaminated packaging : Dispose of as unused product.

Waste Code : : Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SECTION 14: Transport information

14.1 UN number

ADR : UN 2922

RID : UN 2922

IMDG : UN 2922

IATA : UN 2922

14.2 UN proper shipping name

ADR : CORROSIVE LIQUID, TOXIC, N.O.S.
(Hydrofluoric Acid, Nitric Acid)

RID : CORROSIVE LIQUID, TOXIC, N.O.S.
(Hydrofluoric Acid, Nitric Acid)

IMDG : CORROSIVE LIQUID, TOXIC, N.O.S.
(Hydrofluoric Acid, Nitric Acid)

IATA : Corrosive liquid, toxic, n.o.s.
(Hydrofluoric Acid, Nitric Acid)

14.3 Transport hazard class(es)

ADR : 8

RID : 8

IMDG : 8

IATA : 8

14.4 Packing group

ADR

Packing group : II
Classification Code : CT1
Hazard Identification Number : 86
Labels : 8 (6.1)
Tunnel restriction code : (E)

RID

Packing group : II
Classification Code : CT1
Hazard Identification Number : 86
Labels : 8 (6.1)

IMDG

Packing group : II
Labels : 8 (6.1)
EmS Code : F-A, S-B
Remarks : Acids, Clear of living quarters.

IATA (Cargo)

Packing instruction (cargo aircraft) : 855
Packing instruction (LQ) : Y840
Packing group : II
Labels : Corrosives, Toxic Substances

IATA (Passenger)

Packing instruction (passenger aircraft) : 851
Packing instruction (LQ) : Y840
Packing group : II
Labels : Corrosives, Toxic Substances

14.5 Environmental hazards

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Refer to protective measures listed in sections 7 and 8.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

		Quantity 1	Quantity 2
H2	ACUTE TOXIC	50 to	200 to

Volatile organic compounds : Directive 1999/13/EC on the limitation of emissions of volatile organic compounds
Volatile organic compounds (VOC) content: 0 %

Other regulations : The product is classified and labelled in accordance with EC directives or respective national laws.
Regional or national implementations of GHS may not implement all hazard classes and categories.

15.2 Chemical safety assessment

For a mixture it is not mandatory to include an exposure scenario in the material safety data sheet.

The necessary safety - related information is stated in the first 16 sections.

SECTION 16: Other information

Full text of H-Statements

H290 : May be corrosive to metals.
H300 : Fatal if swallowed.
H310 : Fatal in contact with skin.
H314 : Causes severe skin burns and eye damage.
H315 : Causes skin irritation.
H318 : Causes serious eye damage.
H319 : Causes serious eye irritation.
H330 : Fatal if inhaled.
H332 : Harmful if inhaled.
H335 : May cause respiratory irritation.

Full text of other abbreviations

Acute Tox. : Acute toxicity
Eye Dam. : Serious eye damage
Eye Irrit. : Eye irritation
Met. Corr. : Corrosive to metals
Skin Corr. : Skin corrosion
Skin Irrit. : Skin irritation
STOT SE : Specific target organ toxicity - single exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society

for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : The information provided is based on our current knowledge and experience and apply to the product as delivered. Regarding the product properties, these are not guaranteed. The delivery of this safety datasheet does not free the recipient of the product from his own responsibility to follow the relevant rules and regulations concerning this product.

GB / EN