METALL ETCH 291L

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SECTION 1: IDENTIFICATION

Product name : METALL ETCH 291L

Product code : 000000000050628620

Manufacturer or supplier's details

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BASF Emergency Advice Number: + 61 3 8855 6666 [outside Australia]

Recommended use of the chemical and restrictions on use

Recommended use	:	Pickling agent for metal surfaces
Restrictions on use	:	Uses other than recommended

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to Metals	:	Category 1
Acute toxicity (Oral)	:	Category 3
Acute toxicity (Inhalation)	:	Category 3
Acute toxicity (Dermal)	:	Category 2
Skin corrosion/irritation	:	Sub-category 1A
Serious eye damage/eye irritation	:	Category 1

GHS label elements

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.
Precautionary Statements	:	**Prevention:** P234 Keep only in original packaging. P261 Avoid breathing mist or vapors. P262 Do not get in eyes, on skin, or on clothing. P264 Wash skin 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/ face protection/ hearing protection.

Response:
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.

P390 Absorb spillage to prevent material damage.

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

P405 Store locked up.

P406 Store in a corrosion resistant container with a

resistant inner liner.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

Classified as 'corrosive' due to pH value
If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Reaction Product

Chemical nature : Water

organic compounds

inorganic acids

Components

Chemical name	Common Name/Synonyms	CAS-No.	Concentration (% w/w)
sulphuric acid	sulphuric acid (Applicable for products with pH <= 2)	7664-93-9	>= 10 -< 15
Hydrofluoric acid	hydrogen fluoride (Solution)	7664-39-3	>= 7 -< 10
Quaternary ammonium compounds, (hydrogenated tallow	Quaternary ammonium compounds,	68187-69-9	< 10

alkyl)bi	(hydrogenated tallow alkyl)bis(hydroxyethyl) methyl, ethoxylated, chlorides		
1,3-Diethyl-2-thiourea	1,3-diethyl-2-thiourea	105-55-5	< 1

SECTION 4. FIRST AID MEASURES

General advice : First aid personnel should pay attention to their own safety.
Immediately remove contaminated clothing.
In case of intoxication, call a poison control center or physician for treatment advice, taking the packaging or the label of the product.
Symptoms of poisoning may occur even after several hours, continue medical observation for at least 48 hours after the accident.
Never give anything by mouth to an unconscious person.
Keep patient warm and at rest.

If inhaled : If breathed in, move person into fresh air.

Call a physician or poison control center immediately.

If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact	:	Call a physician immediately. First treatment with calcium gluconate paste. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
In case of eye contact	:	Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist. Call a physician immediately. If easy to do, remove contact lens, if worn.
If swallowed	:	Do not induce vomiting due to aspiration hazard. Rinse mouth with water. Immediately rinse mouth and then drink milk or a magnesium hydroxide/calcium carbonate suspension, do not induce vomiting, seek medical attention. Keep at rest. If symptoms persist, call a physician or Poison Control Center immediately.
Most important symptoms and effects, both acute and delayed	:	Toxic if swallowed or if inhaled. Fatal in contact with skin. Causes serious eye damage.

Causes severe burns.

Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Symptoms of poisoning may not appear for several hours. Keep under medical supervision for at least 48 hours.

May cause severe burns of the mouth and throat if orally ingested, as well as a danger of perforation of the oesophagus and the stomach.

Notes to physician : Administration of calcium gluconate.
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water spray jet

Dry powder

Alcohol-resistant foam

Carbon dioxide (CO2)

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire fighting	:	Hazardous decomposition products formed under fire conditions.
Hazardous combustion products	:	Sulfur oxides Fluorine compounds

Advice for firefighters

Specific extinguishing methods	:	In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Special protective equipment for fire-fighters	:	Appropriate breathing apparatus may be required.
Hazchem Code	:	2X

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid breathing vapours.

Keep away from sources of ignition.

Advice on product handling can be found in sections 7 and 8 of this safety data sheet.

For non-emergency personnel:

For emergency responders:

Use personal protective equipment.

Ensure adequate ventilation, especially in confined areas.

Environmental precautions : Do not allow uncontrolled discharge of product into the environment.

Avoid subsoil penetration.

If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Ensure adequate ventilation.

Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous

earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Avoid all sources of ignition: heat, sparks, open flame.

The relevant fire protection measures should be noted.

Advice on safe handling : Provide good ventilation of working area (local exhaust ventilation if necessary).

Do not return residues to the storage containers.

Smoking, eating and drinking are forbidden in application area. For personal protection see section 8. Comply with the health and safety at work laws.

The workplace should be equipped with an emergency shower and eye-rinsing facility.

Avoid contact with the skin, eyes and clothing.

Handle in accordance with good industrial hygiene and safety practice.

		Do not breathe vapors or spray mist.
Hygiene measures	:	Remove contaminated clothing immediately and dispose of safely. Wash hands before breaks and at the end of workday. Keep away from food, drink and animal feedingstuffs.
Further information on storage conditions	:	Avoid direct sunlight. Store only in corrosion proof containers. Close containers carefully once opened and store them upright in order to prevent any leakage. No smoking. No admission for unauthorised personnel. Always keep in containers of same material as the original one. Observe label precautions. avoid contact with metals Keep in a dry, cool and well-ventilated place.
Materials to avoid	:	Segregate from alkalies and alkalizing substances. glass Bases Metals

Packaging material : Suitable material: High density polyethylene (HDPE), Low density polyethylene (LDPE), Polyethylenetherephtalate (PET), Polypropylene, Carbon steel (Iron), tinned carbon steel (Tinplate)

Suitable material: rubberized

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
sulphuric acid	7664-93-9	TWA	1 mg/m3	AU OEL
		STEL	3 mg/m3	AU OEL
		TWA (Thoracic particulate matter)	0.2 mg/m3	ACGIH
Hydrofluoric acid	7664-39-3	Peak limit	3 ppm 2.6 mg/m3 (Fluorine)	AU OEL

		TWA	0.5 ppm (Fluorine)	ACGIH
		C	2 ppm (Fluorine)	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Hydrofluoric acid	7664-39-3	Fluoride (Fluorine)	Urine	Prior to shift (16 hours after exposure ceases)	2 mg/l	ACGIH BEI
		Fluoride (Fluorine)	Urine	End of shift (As soon as possible after exposur	3 mg/l	ACGIH BEI

				e ceases)		

Engineering measures : Ensure adequate ventilation.

Personal protective equipment

Respiratory protection : Self-contained breathing apparatus (EN 133)

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Filter type : Inorganic gas/vapor type

Hand protection

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. polyvinylchloride (PVC) - 0.7 mm coating thickness chloroprene rubber (CR) - 0.5 mm coating thickness natural rubber/natural latex (NR) - 0.5 mm coating thickness butyl rubber gloves - material thickness: 0.5 mm Performance level 6, corresponding to a breakthrough time of >480 min according to EN ISO 374-1 The protection glove should be tested for its specific suitability (e.g. mechanical strength, product compatibility, anti-static properties). Gloves

should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Preventive skin protection

Eye protection	:	Tightly fitting safety goggles (splash goggles) (e.g. EN 166)
Skin and body protection	:	Chemical resistant protective clothing according to DIN EN 13034 (Type 6)
Protective measures	:	Do not breathe vapour/spray. Eye wash fountains and safety showers must be easily accessible. If these are not sufficient to maintain concentrations at the workplace below the occupational exposure limits, appropriate certified respirators must be worn. Avoid contact with the skin, eyes and clothing. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	clear
Odor	:	No data available

Odor Threshold	:	not determined
pH	:	0.1 - 1 (20 °C)
Melting point/ range	:	not determined
Boiling point/boiling range	:	> 100 °C Method: calculated
Flash point	:	> 99 °C
Evaporation rate	:	not determined
Flammability	:	Does not sustain combustion.
Upper explosion limit / Upper flammability limit	:	not determined
Lower explosion limit / Lower flammability limit	:	not determined
Vapor pressure	:	not determined (20 °C)

		not determined (50 °C)
Relative vapor density	:	Heavier than air. Lighter than air.
Density	:	1.13 g/cm3 (20 °C)
Solubility(ies) Water solubility	: :	 not determined
Partition coefficient: n-octanol/water	:	not applicable for mixtures
Autoignition temperature	:	not determined
Decomposition temperature	:	No decomposition if stored and handled as prescribed/indicated.
Viscosity Viscosity, kinematic	: :	 6 mm2/s (23 °C) not determined (40 °C)
Flow time	:	< 30 s (23 °C) Cross section: 3 mm Method: ISO 2431
Explosive properties	:	Not explosive

Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Self-heating substances	:	The substance or mixture is not classified as self heating.
Metal corrosion rate	:	Corrosive to metals

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	Gives off hydrogen by reaction with metals.
Conditions to avoid	:	Heat, flames and sparks. Avoid direct sunlight. avoid contact with metals
Incompatible materials	:	glass Bases Metals
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Toxic if swallowed or if inhaled.
Fatal in contact with skin.

Product:

Acute oral toxicity : Acute toxicity estimate: 59.49 mg/kg

Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 5.95 mg/l
Exposure time: 4 h

Test atmosphere: vapor

Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 59.49 mg/kg

Method: Calculation method

Skin corrosion/irritation

Causes severe burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization

Skin sensitization

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

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

Chronic toxicity

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

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

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

STOT-single exposure
Based on available data, the classification criteria are not met.

STOT-repeated exposure
Based on available data, the classification criteria are not met.

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential

Components:

Hydrofluoric acid:

Partition coefficient: n-octanol/water	:	log Pow: -1.4

1,3-Diethyl-2-thiourea:

Partition coefficient: n-octanol/water	:	log Pow: 0.57 pH: 6.5 - 12 Method: OECD Test Guideline 107

Mobility in soil
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not discharge into drains/surface waters/groundwater. Observe national and local legal requirements.
Contaminated packaging	:	Containers which are not properly emptied must be disposed pursuant to Directive 2008/98/EC Packaging that is not properly emptied must be disposed of as the unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 2922
Proper shipping name	:	CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, HYDROFLUORIC ACID)

Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	8 (6.1)
Environmentally hazardous	:	no

IATA-DGR

UN/ID No.	:	UN 2922
Proper shipping name	:	CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, HYDROFLUORIC ACID)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	Corrosive, Toxic
Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851

IMDG-Code

UN number	:	UN 2922
Proper shipping name	:	CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, HYDROFLUORIC ACID)
Class	:	8

Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	8 (6.1)
EmS Code	:	F-A, S-B
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

ADG

UN number	:	UN 2922
Proper shipping name	:	CORROSIVE LIQUID, TOXIC, N.O.S. (SULPHURIC ACID, HYDROFLUORIC ACID)
Class	:	8
Subsidiary risk	:	6.1
Packing group	:	II
Labels	:	8 (6.1)
Hazchem Code	:	2X
Environmentally hazardous	:	no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

ERG Code : 154

SECTION 15. REGULATORY INFORMATION

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

Standard for the Uniform Scheduling of Medicines and Poisons : Schedule 6 (Please use the original publication to check for specific uses, specific conditions or threshold limits that might apply for this chemical)

Prohibition/Licensing Requirements : There is no applicable prohibition, authorisation and restricted use requirements, including for carcinogens referred to in Schedule 10 of the model WHS Act and Regulations.

The ingredients of this product are reported in the following inventories:

AIIC : All components are listed on the inventory, regulatory obligations/restrictions apply

SECTION 16: ANY OTHER RELEVANT INFORMATION

Further information

Revision Date : 14.04.2025

Other information : For multi-pack systems observe material safety data sheets of all components.
Restricted to professional users.

Date format : dd.mm.yyyy

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
AU OEL	:	Australia. Workplace Exposure Standards for Airborne Contaminants.
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / C	:	Ceiling limit
AU OEL / TWA	:	Exposure standard - time weighted average
AU OEL / STEL	:	Exposure standard - short term exposure limit
AU OEL / Peak limit	:	Exposure standard - peak

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; Nch - Chilean Norm;

NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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