

Safety data sheet

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



Titanium Standard Solution -ICP 1000 mg/l Ti

article number: **2479**
Version: **2.0 en**
Replaces version of: 10.10.2016
Version: (1)

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

1.1 Product identifier

Identification of the substance **Titanium Standard Solution -ICP 1000 mg/l Ti**
Article number **2479**
Registration number (REACH) **not relevant (mixture)**

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

Identified uses: laboratory chemical
laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0

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e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

e-mail (competent person): sicherheit@carlroth.de

1.4 Emergency telephone number

Emergency information service **Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

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 Irrit. 2)	H315
3.3	serious eye damage/eye irritation	(Eye Irrit. 2)	H319

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word **Warning**

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Pictograms

GHS05



Hazard statements

H290 May be corrosive to metals
H315 Causes skin irritation
H319 Causes serious eye irritation

Precautionary statements

Precautionary statements - prevention

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTRE/doctor if you feel unwell.

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Warning**

Symbol(s)



2.3 Other hazards

There is no additional information.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description of the mixture

Composition/information on ingredients.

Name of substance	Identifier	wt %	Classification acc. to 1272/2008/EC	Pictograms	Notes	Specific Conc. Limits
Ammonium hexafluorotitanate(IV)	CAS No 16962-40-6 EC No 241-036-9	> 0,2 5 - < 5	Acute Tox. 4 / H302 Acute Tox. 4 / H312 Acute Tox. 4 / H332			

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Name of substance	Identifier	wt %	Classification acc. to 1272/2008/EC	Pictograms	Notes	Specific Conc. Limits
Nitric acid ...%	CAS No 7697-37-2 EC No 231-714-2 Index No 007-004-00-1	2	Ox. Liq. 2 / H272 Met. Corr. 1 / H290 Acute Tox. 3 / H331 Skin Corr. 1A / H314 Eye Dam. 1 / H318 EUH071		B(a) GHS- HC IOELV	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 %
Hydrofluoric acid ... %	CAS No 7664-39-3 EC No 231-634-8 Index No 009-003-00-1	0,1	Acute Tox. 2 / H300 Acute Tox. 1 / H310 Acute Tox. 2 / H330 Skin Corr. 1A / H314 Eye Dam. 1 / H318		B(a) GHS- HC IOELV	Skin Corr. 1A; H314: C ≥ 7 % Skin Corr. 1B; H314: 1 % ≤ C < 7 % Eye Dam. 1; H318: C ≥ 1 % Eye Irrit. 2; H319: 0,1 % ≤ C < 1 %

Notes

B(a): The classification refers to an aqueous solution
GHS-HC: Harmonised classification (the classification of the substance corresponds to the entry in the list according to 1272/2008/EC, Annex VI)
IOELV: Substance with a community indicative occupational exposure limit value

Remarks

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Medical treatment necessary.

Following skin contact

Rinse skin with water/shower. Rub with a gel containing calcium gluconate. In case of skin irritation, consult a physician.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

Rinse copiously with a calcium gluconate solution.

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4.2 Most important symptoms and effects, both acute and delayed

Irritation

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 (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

Hazardous combustion products

In case of fire may be liberated: nitrogen oxides (NO_x), hydrogen fluoride (HF)

5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

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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

Use extractor hood (laboratory).

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

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

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)

No information available.

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/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Source
EU	hydrogen fluoride	7664-39-3		IOELV	1,8	1,5	3	2,5			2000/39/EC
EU	nitric acid	7697-37-2		IOELV			1	2,6			2006/15/EC
MT	hydrogen fluoride	7664-39-3		OELV	1,8	1,5	3	2,5			CAP. 424
MT	nitric acid	7697-37-2		OELV			1	2,6			CAP. 424

Notation

Ceiling-C

STEL

TWA

Ceiling value is a limit value above which exposure should not occur

Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

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

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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/m ³	human, inhalatory	worker (industry)	acute - systemic effects
Nitric acid ...%	7697-37-2	DNEL	1,3 mg/m ³	human, inhalatory	worker (industry)	chronic - local effects
Nitric acid ...%	7697-37-2	DNEL	2,6 mg/m ³	human, inhalatory	worker (industry)	acute - local effects
Hydrofluoric acid ... %	7664-39-3	DNEL	1,5 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Hydrofluoric acid ... %	7664-39-3	DNEL	2,5 mg/m ³	human, inhalatory	worker (industry)	acute - systemic effects
Hydrofluoric acid ... %	7664-39-3	DNEL	1,5 µg/m ³	human, inhalatory	worker (industry)	chronic - local effects
Hydrofluoric acid ... %	7664-39-3	DNEL	2,5 mg/m ³	human, inhalatory	worker (industry)	acute - local effects

• relevant PNECs of components of the mixture

Name of substance	CAS No	Endpoint	Threshold level	Environmental compartment	Exposure time
Hydrofluoric acid ... %	7664-39-3	PNEC	0,9 mg/l	freshwater	short-term (single instance)
Hydrofluoric acid ... %	7664-39-3	PNEC	0,9 mg/l	marine water	short-term (single instance)
Hydrofluoric acid ... %	7664-39-3	PNEC	51 mg/l	sewage treatment plant (STP)	short-term (single instance)
Hydrofluoric acid ... %	7664-39-3	PNEC	11 mg/kg	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



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• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. 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. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

Butyl caoutchouc (butyl rubber)

• material thickness

0,7mm

• 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

Physical state	liquid (fluid)
Colour	colourless
Odour	stinging
Odour threshold	no data available

Other physical and chemical parameters

pH (value)	(acidic)
Melting point/freezing point	not determined
Initial boiling point and boiling range	this information is not available
Flash point	not determined
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)

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Explosive limits

• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	not relevant
Vapour pressure	this information is not available
Density	this information is not available
Vapour density	this information is not available
Bulk density	Not applicable
Relative density	this information is not available
<u>Solubility(ies)</u>	
Water solubility	miscible in any proportion
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	Information on this property is not available.
Decomposition temperature	no data available
Viscosity	not determined
Explosive properties	Shall not be classified as explosive.
Oxidising properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture 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: Alkali hydroxide (caustic alkali), Alkali metals, Fluorine, Metals, Phosphorus oxides (e.g. P₂O₅), Strong alkali

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

different metals

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Shall not be classified as acutely toxic.

• Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	ATE
Ammonium hexafluorotitanate(IV)	16962-40-6	oral	500 mg/kg
Ammonium hexafluorotitanate(IV)	16962-40-6	dermal	1.100 mg/kg
Ammonium hexafluorotitanate(IV)	16962-40-6	inhalation: dust/mist	1,5 mg/l/4h
Nitric acid ...%	7697-37-2	inhalation: vapour	2,65 mg/l/4h
Hydrofluoric acid ... %	7664-39-3	oral	5 mg/kg
Hydrofluoric acid ... %	7664-39-3	dermal	5 mg/kg
Hydrofluoric acid ... %	7664-39-3	inhalation: gas	100 ppmV/4h
Hydrofluoric acid ... %	7664-39-3	inhalation: vapour	0,5 mg/l/4h

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

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

data are not available

• If in eyes

Causes serious eye irritation

• If inhaled

cough, Dyspnoea

• If on skin

causes skin irritation

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Other information

None

SECTION 12: Ecological information

12.1 Toxicity

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

Aquatic toxicity (acute)

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Hydrofluoric acid ... %	7664-39-3	EC50	48 mg/l	aquatic invertebrates	96 h

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.

Bioaccumulative potential of components of the mixture

Name of substance	CAS No	BCF	Log KOW	BOD5/COD
Hydrofluoric acid ... %	7664-39-3	53 - 58		

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/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

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.

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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	3264
14.2	UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
	Hazardous ingredients	Nitric acid ...%, Hydrofluoric acid ... %
14.3	Transport hazard class(es)	
	Class	8 (corrosive substances)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	nONE (non-environmentally hazardous acc. to the dangerous goods regulations)
14.6	Special precautions for user	
		Provisions for dangerous goods (ADR) should be complied within the premises.
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	3264
	Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
	Particulars in the transport document	UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid ...%, Hydrofluoric acid ... %), 8, III, (E)
	Class	8
	Classification code	C1
	Packing group	III
	Danger label(s)	8
		
	Special provisions (SP)	274
	Excepted quantities (EQ)	E1
	Limited quantities (LQ)	5 L
	Transport category (TC)	3
	Tunnel restriction code (TRC)	E
	Hazard identification No	80

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• International Maritime Dangerous Goods Code (IMDG)

UN number	3264
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Particulars in the shipper's declaration	UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid ...%, Hydrofluoric acid ... %), 8, III
Class	8
Marine pollutant	-
Packing group	III
Danger label(s)	8



Special provisions (SP)	223, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-A, S-B
Stowage category	A
Segregation group	1 - Acids

• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	3264
Proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Particulars in the shipper's declaration	UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (contains: Nitric acid ...%, Hydrofluoric acid ... %), 8, III
Class	8
Packing group	III
Danger label(s)	8



Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	1 L

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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	Type of registration	Conditions of restriction	No
Titanium Standard Solution	1907/2006/EC annex XVII	R3	3

Legend

R3

1. Shall not be used in:
 - ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
 - tricks and jokes,
 - games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
 - can be used as fuel in decorative oil lamps for supply to the general public, and,
 - present an aspiration hazard and are labelled with R65 or H304,
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
 - (a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: 'Keep lamps filled with this liquid out of the reach of children'; and, by 1 December 2010, 'Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage';
 - (b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter may lead to life threatening lung damage';
 - (c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

Name acc. to inventory	CAS No	Wt%	Listed in	Remarks
Metals and their compounds		4,1	A)	

Legend

A) Indicative list of the main pollutants

- **Restrictions according to REACH, Title VIII**

None.

- **List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list**

none of the ingredients are listed

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• Seveso Directive

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

• Directive 75/324/EEC relating to aerosol dispensers

Filling batch

Deco-Paint Directive (2004/42/EC)

VOC content	0 %
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Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	0 %
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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)

Name acc. to inventory	CAS No	Listed in	Remarks
Metals and their compounds		A)	

Legend

A) Indicative list of the main pollutants

Regulation 98/2013/EU on the marketing and use of explosives precursors

Explosives precursors which are subject to restrictions							
Name of substance	CAS No	Type of registration	CN Code 1	CN Code 2	Remarks	Limit value	Upper limit value for the purpose of licensing under Article 5(3)
Nitric acid ...%	7697-37-2	Annex I	ex 2808 00 00	ex 3824 99 96		3 % w/w	10 % w/w

Legend

annex I Substances which shall not be made available to members of the general public on their own, or in mixtures or substances including them, except if the concentration is equal to or lower than the limit values set out below

CN Code 1 Combined Nomenclature (CN) code for a separate chemically defined compound meeting the requirements of Note 1 to Chapter 28 or 29 of the CN, respectively

CN Code 2 Combined Nomenclature (CN) code for a mixture without constituents (e.g. mercury, precious or rare-earth metals or radioactive substances) which would determine classification under another CN code

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Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

none of the ingredients are listed

National inventories

Country	National inventories	Status
AU	AICS	not all ingredients are listed
CA	DSL	not all ingredients are listed
CA	NDSL	not all ingredients are listed
CN	IECSC	not all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	not 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
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NDSL	Non-domestic Substances List (NDSL)
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
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

Indication of changes (revised safety data sheet)

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
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		Precautionary statements - response: 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
8.1		• relevant DNELs of components of the mixture: change in the listing (table)	yes
8.1		• relevant PNECs of components of the mixture: change in the listing (table)	yes
14.2	Hazardous ingredients: Nitric acid	Hazardous ingredients: Nitric acid ...%, Hydrofluoric acid ... %	yes
14.3	Transport hazard class(es)	Transport hazard class(es): class 8 hazard - corrosive substances	yes
14.8	Particulars in the transport document: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid), 8, III, (E)	Particulars in the transport document: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid ...%, Hydrofluoric acid ... %), 8, III, (E)	yes
14.8	Particulars in the shipper's declaration: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid), 8, III	Particulars in the shipper's declaration: UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (contains: Nitric acid ...%, Hydrofluoric acid ... %), 8, III	yes
14.8		Marine pollutant: -	yes
14.8		• International Civil Aviation Organization (ICAO-IATA/DGR)	yes
14.8		UN number: 3264	yes
14.8		Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s.	yes
14.8		Particulars in the shipper's declaration: UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (contains: Nitric acid ...%, Hydrofluoric acid ... %), 8, III	yes
14.8		Class: 8	yes
14.8		Packing group: III	yes
14.8		Danger label(s): 8	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8		Special provisions (SP): A3	yes
14.8		Excepted quantities (EQ): E1	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.8		Limited quantities (LQ): 1 L	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
2006/15/EC	Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC
Acute Tox.	acute toxicity
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
BCF	bioconcentration factor
BOD	Biochemical Oxygen Demand
CAP. 424	Occupational Health and Safety Authority Act (CAP. 424)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	ceiling value
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
CN Code	Combined Nomenclature
COD	chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
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)
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

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Abbr.	Descriptions of used abbreviations
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
log KOW	n-octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
Met. Corr.	substance or mixture corrosive to metals
NLP	No-Longer Polymer
Ox. Liq.	oxidising liquid
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
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
SVHC	Substance of Very High Concern
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative

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
H300	fatal if swallowed
H302	harmful if swallowed
H310	fatal in contact with skin
H312	harmful in contact with skin
H314	causes severe skin burns and eye damage
H315	causes skin irritation
H318	causes serious eye damage

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Code	Text
H319	causes serious eye irritation
H330	fatal if inhaled
H331	toxic if inhaled
H332	harmful if inhaled

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 information 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.