

UFI	:	PY03-S6DU-999R-H4WR
REACH No.	:	This product is a mixture. REACH Registration Number see section 3.

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

Identified uses	:	Reagent for analysis
Uses advised against	:	This product is not intended for consumer use.

1.3 Details of the supplier of the safety data sheet

:

Company

1.4 Emergency telephone

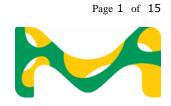
Emergency Phone #	:	+(44)-870-8200418 (CHEMTREC (GB))
		+(353)-19014670 (CHEMTREC Ireland)
		001-803-017-9114 (CHEMTREC India)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

 Corrosive to Metals, (Category 1)	H290: May be corrosive to metals.
Skin irritation, (Category 2)	H315: Causes skin irritation.
Eye irritation, (Category 2)	H319: Causes serious eye irritation.
Carcinogenicity, (Category 1B)	H350: May cause cancer.
Reproductive toxicity, (Category 1B)	H360F: May damage fertility.

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Long-term (chronic) aquatic	H412: Harmful to aquatic life with long
hazard, (Category 3)	lasting effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008 Pictogram		
Signal Word	Danger	
Hazard Statements H290 H315 H319 H350 H360F H412	May be corrosive to metals. Causes skin irritation. Causes serious eye irritation. May cause cancer. May damage fertility. Harmful to aquatic life with long lasting effects.	
Precautionary Statements P202	Do not handle until all safety precautions have been read and understood.	
P234 P273 P302 + P352 P305 + P351 + P338	Keep only in original packaging. Avoid release to the environment. IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
P308 + P313	IF exposed or concerned: Get medical advice/ attention.	
Supplemental Hazard Statements	none	
EUH208	Contains: Cobalt(II) nitrate. May produce an allergic reaction. Restricted to professional users.	
Reduced Labeling (<= 1	L25 ml)	

Pictogram

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				-
		N	5k)	/

Signal Word	Danger
Hazard Statements H350 H412 H360F	May cause cancer. Harmful to aquatic life with long lasting effects. May damage fertility.
Precautionary Statements P202 P308 + P313	Do not handle until all safety precautions have been read and understood. IF exposed or concerned: Get medical advice/ attention.
Supplemental Hazard Statements	none

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.

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Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

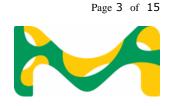
SECTION 3: Composition/information on ingredients

3.2 Mixtures

Component		Classification	Concentration
nitric acid			
CAS-No. EC-No. Index-No. Registration number	7697-37-2 231-714-2 007-030-00-3 01-2119487297-23- XXXX	Ox. Liq. 3; Met. Corr. 1; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; H272, H290, H331, H314, H318 Concentration limits: >= 1 %: Met. Corr. 1, H290; >= 65 %: Ox. Liq. 3, H272; >= 20 %: Skin Corr. 1A, H314; 5 - < 20 %: Skin Corr. 1B, H314; >= 3 %: Eye Dam. 1, H318; 1 - < 3 %: Eye Irrit. 2, H319; 1 - < 5 %: Skin Irrit. 2, H315; Acute inhalation	>= 1 - < 3 %
		toxicity(vapor): 2.65 mg/l	
	luded in the Candidate Lis gulation (EC) No. 1907/2	st of Substances of Very High	Concern
CAS-No. EC-No. Index-No.	10141-05-6 233-402-1 027-009-00-2 *	Ox. Sol. 2; Acute Tox. 4; Eye Dam. 1; Resp. Sens. 1; Skin Sens. 1; Muta. 2; Carc. 1B; Repr. 1B; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H272, H302, H318, H334, H317, H341, H350i, H360F, H373, H400, H410 Concentration limits: >= 0.01 %: Carc. 1B, H350i; M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 1	>= 0.3 - < 1 %

*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, or the annual tonnage does not require a registration.

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For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Call in physician.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media For this substance/mixture no limitations of extinguishing agents are given.

 5.2 Special hazards arising from the substance or mixture Nitrogen oxides (NOx) Not combustible.
 Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures 6.1 Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 **Environmental precautions** Do not let product enter drains.

- Methods and materials for containment and cleaning up 6.3 Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.
- 6.4 **Reference to other sections** For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

No metal containers.

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Recommended storage temperature see product label.

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Storage class

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

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

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de). Full contact

Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet; www.kcl.de).

Splash contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested:KCL 741 Dermatril® L

Body Protection

protective clothing

Respiratory protection

Recommended Filter type: filter ABEK

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented. required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type ABEK

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

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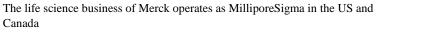
SECTION 9: Physical and chemical properties 9.1 Information on basic physical and chemical properties

a)	Physical state	liquid
b)	Color	pink
c)	Odor	odorless
d)	Melting point/freezing point	No data available
e)	Initial boiling point and boiling range	No data available
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	Not applicable
i)	Autoignition temperature	Not applicable
j)	Decomposition temperature	No data available
k)	рН	ca.0.5 at 20 °C
I)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m) Water solubility	at 20 °C soluble
n)	Partition coefficient: n-octanol/water	No data available
0)	Vapor pressure	No data available
p)	Density	ca.1.014 g/cm3 at 20 °C
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available

- s) Explosive properties Not classified as explosive.
- t) Oxidizing properties none
- 9.2 Other safety information No data available

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SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with: Metals metal alloys Release of: nitrous gases Hydrogen increased reactivity with: oxidisable substances organic solvent Metals metal alloys Alkali metals Alkaline earth metals Ammonia alkalines Acids Violent reactions possible with: The generally known reaction partners of water.

10.4 Conditions to avoid

no information available

10.5 Incompatible materials Metals, metal alloysMetals

10.6 Hazardous decomposition products In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract. Acute toxicity estimate Inhalation - 4 h - 20 mg/l - vapor(Calculation method)

Symptoms: Possible symptoms:, mucosal irritations Dermal: No data available

Skin corrosion/irritation

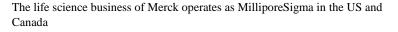
Remarks: Mixture causes skin irritation.

Serious eye damage/eye irritation

Remarks: Mixture causes serious eye irritation.

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Respiratory or skin sensitization

Mixture may produce an allergic reaction.

Germ cell mutagenicity

No data available

Carcinogenicity

Possible carcinogen.

Reproductive toxicity May impair fertility.

Specific target organ toxicity - single exposure No data available

Specific target organ toxicity - repeated exposure No data available

Aspiration hazard No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

Components

nitric acid

Acute toxicity

Oral: No data available Acute toxicity estimate Inhalation - 2.65 mg/l - vapor (Acute toxicity estimate according to Regulation (EC) No. 1272/2008) Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit Result: Causes severe burns. Remarks: (IUCLID) Remarks: Causes poorly healing wounds.

Serious eye damage/eye irritation

Eyes - Rabbit Result: Causes burns. Remarks: (IUCLID) Remarks: Causes serious eye damage.

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Respiratory or skin sensitization No data available

Germ cell mutagenicity

Test Type: Ames test Test system: Salmonella typhimurium Result: negative

Carcinogenicity No data available

Reproductive toxicity No data available

Specific target organ toxicity - single exposure No data available

Specific target organ toxicity - repeated exposure No data available

Aspiration hazard No data available

Cobalt(II) nitrate

Acute toxicity

LD50 Oral - Rat - male and female - 978 mg/kg (OECD Test Guideline 401) Remarks: (in analogy to similar compounds) The value is given in analogy to the following substances: Cobaltous nitrate, hexahydrate Acute toxicity estimate Oral - 978 mg/kg (ATE value derived from LD50/LC50 value) Inhalation: No data available Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit Result: No skin irritation - 4 h (OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit Result: Causes serious eye damage. (OECD Test Guideline 405)

Respiratory or skin sensitization

May cause allergic skin reaction. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) May cause allergy or asthma symptoms or breathing difficulties if inhaled. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Germ cell mutagenicity

Suspected of causing genetic defects.

Carcinogenicity

May cause cancer by inhalation.

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Reproductive toxicity

May damage fertility.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Inhalation - May cause damage to organs through prolonged or repeated exposure. - Lungs

Aspiration hazard

No data available

SECTION 12: Ecological information

12.1 Toxicity

Mixture No data available

- **12.2 Persistence and degradability** No data available
- **12.3 Bioaccumulative potential** No data available
- **12.4 Mobility in soil** No data available

12.5 Results of PBT and vPvB 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 Endocrine disrupting properties <u>Product:</u>

Assessment

: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

Components

nitric acid

No data available

Cobalt(II) nitrate

Toxicity to fish

semi-static test LC50 - Pimephales promelas (fathead minnow) - 1.866 mg/l - 96 h (US-EPA)

Toxicity to daphniastatic test LC50 - Ceriodaphnia dubia (water flea) - 0.39 mg/l -and other aquatic48 hinvertebrates(US-EPA)

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Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata - 0.095 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - 120 mg/l - 30 min (OECD Test Guideline 209)
Toxicity to fish(Chronic toxicity)	semi-static test NOEC - Pimephales promelas (fathead minnow) - 0.9 mg/l - 7 d (US-EPA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Ceriodaphnia dubia (water flea) - 0.02 mg/l - 7 d (US-EPA)

SECTION 13: Disposal considerations							
13.1	Waste tr No data a	eatment methods vailable					
SECTION 14: Transport information							
14.1	UN numb ADR/RID:		IMDG: 3264	IATA: 3264			
14.2	I.2 UN proper shipping name ADR/RID: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) IMDG: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid) IATA: Corrosive liquid, acidic, inorganic, n.o.s. (nitric acid, 2%)						
14.3	Transpor ADR/RID:	t hazard class(es) 8	IMDG: 8	IATA: 8			
14.4	Packagin ADR/RID:		IMDG: III	IATA: III			
14.5	Environn ADR/RID:	n ental hazards no	IMDG Marine pollutant: no	IATA: no			
14.6	Special precautions for user						
	Further ir	nformation :	No data available				
14.7		transport in bulk table for product as s	according to IMO instruments supplied.	ts			

SECTION 15: Regulatory information

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

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This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	: Cobalt(II) nitrate
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	: Cobalt(II) nitrate
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	: Cobalt(II) nitrate
Regulation (EU) 2019/1148 on the marketing and use of explosives precursors	: nitric acid

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H272 H290 H302	May intensify fire; oxidizer. May be corrosive to metals. Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360F	May damage fertility.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.

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Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; 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; 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; 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

Met. Corr.1	H290	Based on product data or assessment
Skin Irrit.2	H315	Calculation method
Eye Irrit.2	H319	Calculation method
Carc.1B	H350	Calculation method
Repr.1B	H360F	Calculation method
Aquatic Chronic3	H412	Calculation method



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Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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