

## 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

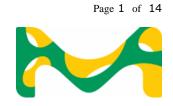
## 1.4 Emergency telephone

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.
Serious eye damage, (Category 1)	H318: Causes serious eye damage.
Long-term (chronic) aquatic hazard, (Category 3)	H412: Harmful to aquatic life with long lasting effects.



## 2.2 Label elements

## Labelling according Regulation (EC) No 1272/2008

FI

Pictogram

Signal Word	Danger
Hazard Statements H290 H315 H318 H412	May be corrosive to metals. Causes skin irritation. Causes serious eye damage. Harmful to aquatic life with long lasting effects.
Precautionary Statements P234 P264 P273 P280 P302 + P352 P305 + P351 + P338	Keep only in original packaging. Wash skin thoroughly after handling. Avoid release to the environment. Wear protective gloves/ eye protection/ face protection. 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.
Supplemental Hazard Statements	none
Reduced Labeling (<= 12	25 ml)

#### Reduced Labeling (<= 125 ml) Pictogram

$\mathbf{\Lambda}$
Pa
<u> </u>

Signal Word	Danger
Hazard Statements H318 H412	Causes serious eye damage. Harmful to aquatic life with long lasting effects.
Precautionary Statements P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	none

## 2.3 Other hazards

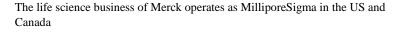
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## 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.

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## SECTION 3: Composition/information on ingredients

## 3.2 Mixtures

Component		Classification	Concentration
nitric acid			
CAS-No. EC-No. Index-No. Registration number	7697-37-2 231-714-2 007-004-00-1 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 toxicity(vapor): 2.65 mg/l	>= 3 - < 5 %
Palladium nitrate ([	Palladium matrix modifi	er)	
CAS-No. EC-No.	10102-05-3 233-265-8 *	Ox. Sol. 1; Met. Corr. 1; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 1; Aquatic Chronic 1; H271, H290, H302, H314, H318, H400, H410 M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 10	>= 0.1 - < 0.25 %

\*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.

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.

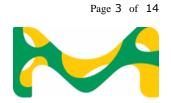
## In case of skin contact

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

## In case of eye contact

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

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## 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. Fire may cause evolution of: corrosive vapours 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.

## **SECTION 6:** Accidental release measures

## **6.1 Personal precautions, protective equipment and emergency procedures** 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.

## 6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemizorb<sup>®</sup> H<sup>+</sup>, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

#### **6.4 Reference to other sections** For disposal see section 13.

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## SECTION 7: Handling and storage

**7.1 Precautions for safe handling** For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

## Storage conditions

No metal or light-weight-metal containers. No metal containers. Tightly closed.

Recommended storage temperature see product label.

#### Storage class

Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

## 7.3 Specific end use(s)

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

## 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). Tightly fitting safety goggles

## **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).

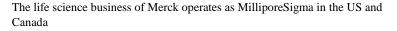
Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested:KCL 741 Dermatril® L

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

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## **Body Protection**

protective clothing

## **Respiratory protection**

Recommended Filter type: filter E-(P2)

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.

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

a)	Physical state	liquid
b)	Color	yellow
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
o)	Vapor pressure	No data available
p)	Density	ca.1.02 g/cm3 at 20 °C
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available

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

## **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 Alkali metals Alkaline earth metals Ammonia alkalines Acids Violent reactions possible with: The generally known reaction partners of water. 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 alloysGives off hydrogen by reaction with metals.Metals

#### **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

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Dermal: No data available

**Skin corrosion/irritation** Remarks: Mixture causes skin irritation.

**Serious eye damage/eye irritation** Remarks: Mixture causes serious eye damage.

**Respiratory or skin sensitization** No data available

**Germ cell mutagenicity** No data available

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

## **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.

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.

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## Serious eye damage/eye irritation

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

## **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

## Palladium nitrate (Palladium matrix modifier)

#### Acute toxicity

LD50 Oral - Rat - male and female - 200 - 2,000 mg/kg (OECD Test Guideline 423) Inhalation: No data available Dermal: No data available

## Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE) Result: Causes burns. - 4 h (OECD Test Guideline 435)

## Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

## **Respiratory or skin sensitization**

Maximization Test - Guinea pig

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Result: negative (OECD Test Guideline 406)

## Germ cell mutagenicity

Test Type: In vitro mammalian cell gene mutation test Test system: mouse lymphoma cells Result: negative Test Type: Ames test Test system: Escherichia coli/Salmonella typhimurium Result: negative Test Type: Micronucleus test Test system: Chinese hamster ovary cells Result: negative Species: Rat Remarks: DNA inhibition (RTECS)

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

## **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> The

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.

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## 12.7 Other adverse effects

Caustic even in diluted form. Hazard for drinking water supplies. Depending on the concentration, phosphorus and/or nitrogen compounds may contribute to the eutrophication of drinking- water supplies. Discharge into the environment must be avoided.

## Components

## nitric acid

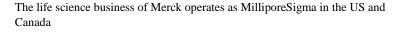
No data available

## Palladium nitrate (Palladium matrix modifier)

Toxicity to fish	semi-static test LC50 - Oncorhynchus mykiss (rainbow trout) - 0.306 mg/l - 96 h (OECD Test Guideline 203) Remarks: The value is given in analogy to the following substances: diamminedichloropalladium
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 0.069 mg/l - 48 h (OECD Test Guideline 202) Remarks: The value is given in analogy to the following substances: diamminedichloropalladium
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata - 0.058 mg/l - 72 h (OECD Test Guideline 201) Remarks: The value is given in analogy to the following substances: diamminedichloropalladium
	static test NOEC - Pseudokirchneriella subcapitata - 0.002 mg/l - 72 h (OECD Test Guideline 201) Remarks: The value is given in analogy to the following substances: diamminedichloropalladium
Toxicity to bacteria	static test EC50 - activated sludge - 61 mg/l - 3 h (OECD Test Guideline 209) Remarks: The value is given in analogy to the following substances: diamminedichloropalladium
	static test NOEC - activated sludge - 18 mg/l - 3 h (OECD Test Guideline 209) Remarks: The value is given in analogy to the following substances: diamminedichloropalladium
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0.028 mg/l - 21 d (OECD Test Guideline 211) Remarks: (in analogy to similar products)

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Section 13. Disposal considerations					
13.1	.1 Waste treatment methods No data available				
SECT	TION 14: T	ransport informat	ion		
14.1	<b>UN numb</b> ADR/RID:		IMDG: 3264	IATA: 3264	
14.2		CORROSIVE LIQUI	D, ACIDIC, INORGANIC, N.O.S. D, ACIDIC, INORGANIC, N.O.S. idic, inorganic, n.o.s. (nitric aci	(nitric acid)	
14.3	<b>Transpor</b> ADR/RID:	t hazard class(es) 8	IMDG: 8	IATA: 8	
14.4	<b>Packagin</b> ADR/RID:		IMDG: III	IATA: III	
14.5	<b>Environm</b> ADR/RID:	nental hazards no	IMDG Marine pollutant: no	IATA: no	
14.6	Special p	recautions for use	r		
	Further in	formation :	No data available		

## SECTION 15: Regulatory information

SECTION 13: Disposal considerations

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

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

## Authorisations and/or restrictions on use

Regulation (EU) 2019/1148 on the marketing : nitric acid and use of explosives precursors

#### **Other regulations**

Take note of Dir 94/33/EC on the protection of young people at work.

## **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

H271 May cause fire or explosion; strong oxidizer.

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H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.

## 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

Classification of t	he mixture	Classification procedure:
Met. Corr.1	H290	Based on product data or assessment
Skin Irrit.2	H315	Calculation method
Eye Dam.1	H318	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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