

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name

**Rhodium(III) nitrate solution**

Stock number:

T2633

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

Identified use:

SU24 Scientific research and development

**1.3 Details of the supplier of the safety data sheet**

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Zeppelinstr. 7b  
76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

Informing department:

Product safety Tel + +049 (0) 7275 988687-0

1.4 Emergency telephone number:

Carechem 24: +44 (0) 1235 239 670 (Multi-language emergency number)

Poison Information Center Mainz

www.giftinfo.uni-mainz.de Telephone: +49(0)6131/19240

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008



GHS03 flame over circle

Ox. Liq. 2 H272 May intensify fire; oxidiser.



GHS05 corrosion

Met. Corr.1 H290 May be corrosive to metals.

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Sens. 1 H317 May cause an allergic skin reaction.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

C; Corrosive

R35: Causes severe burns.

Xn; Harmful

R22: Harmful if swallowed.

Xi; Sensitising

R43: May cause sensitisation by skin contact.

O; Oxidising

R8: Contact with combustible material may cause fire.

**Information concerning particular hazards for human and environment:**

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

**Other hazards that do not result in classification**

No information known.

**2.2 Label elements****Labelling according to Regulation (EC) No 1272/2008**

Hazard pictograms

The product is classified and labelled according to the CLP regulation.

Signal word

GHS03, GHS05, GHS07, GHS09  
Danger**Hazard-determining components of labelling:**Rhodium(III) nitrate  
Nitric acid**Hazard statements**

H272 May intensify fire; oxidiser.  
H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H400 Very toxic to aquatic life.

**Precautionary statements**

P221 Take any precaution to avoid mixing with combustibles.  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**2.3 Other hazards****Results of PBT and vPvB assessment**

PBT:

Not applicable.

vPvB:

Not applicable.

Trade name **Rhodium(III) nitrate solution**

(Contd. of page 1)

**SECTION 3: Composition/information on ingredients****3.2 Mixtures****Dangerous components:**

CAS: 10139-58-9 EINECS: 233-397-6	Rhodium(III) nitrate ☒ Xn R22; ☒ Xi R36/37/38; ☒ Xi R43; ▲ O R8 ◆ Ox. Sol. 2, H272; ◆ Skin Corr. 1B, H314; ◆ Acute Tox. 4, H302; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	40,0%
CAS: 7697-37-2 EINECS: 231-714-2	Nitric acid ▲ C R35; ▲ O R8 ◆ Ox. Liq. 3, H272; ◆ Skin Corr. 1A, H314	20,0%

**Additional information** None known.**Non-Hazardous Ingredients**

CAS: 7732-18-5 EINECS: 231-791-2	Water	40,0%
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**SECTION 4: First aid measures****4.1 Description of first aid measures****General information****After inhalation**

Instantly remove any clothing soiled by the product.  
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

**After skin contact**

Seek immediate medical advice.  
Instantly wash with water and soap and rinse thoroughly.

**After eye contact**

Seek immediate medical advice.  
Rinse opened eye for several minutes under running water. Then consult doctor.

**After swallowing**

Seek medical treatment.

**4.2 Most important symptoms and effects, both acute and delayed**

No further relevant information available.

**4.3 Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing agents**

Use fire fighting measures that suit the environment.

**5.2 Special hazards arising from the substance or mixture**

This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. If this product is involved in a fire, the following can be released:  
Nitrogen oxides (NOx)  
Metal oxide

**5.3 Advice for firefighters****Protective equipment:**

Wear self-contained breathing apparatus.  
Wear full protective suit.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation

**6.2 Environmental precautions:**

Do not allow material to be released to the environment without proper governmental permits.  
Do not allow product to reach sewage system or water bodies.  
Do not allow to enter the ground/soil.

**6.3 Methods and material for containment and cleaning up:**

Use neutralizing agent.  
Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Absorb with liquid-binding material.

**Prevention of secondary hazards:**

Acts as an oxidizing agent on organic materials such as wood, paper and fats  
Keep away from combustible material.

**6.4 Reference to other sections**

See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

**SECTION 7: Handling and storage****7.1 Precautions for safe handling**

Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.

**Information about protection against explosions and fires:**

The product is not flammable.  
Substance/product can reduce the ignition temperature of flammable substances.  
This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

**7.2 Conditions for safe storage, including any incompatibilities****Storage Requirements to be met by storerooms and containers:**

No special requirements.

**Information about storage in one common storage facility:**

Store away from flammable substances.  
Store away from reducing agents.  
Do not store with organic materials.  
Store away from metal powders.  
Store away from strong bases.

**Further information about storage conditions:**

Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Store in a locked cabinet or with access restricted to technical experts or their assistants.

**7.3 Specific end use(s)**

No further relevant information available.

**SECTION 8: Exposure controls/personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

(Contd. on page 3)  
DE/E

Trade name **Rhodium(III) nitrate solution**

(Contd. of page 2)

**8.1 Control parameters****Components with critical values that require monitoring at the workplace:****10139-58-9 Rhodium(III) nitrate (40,0%)**

PEL (USA)	0,001 mg/m <sup>3</sup> as Rh
TLV (USA)	0,01 mg/m <sup>3</sup> as Rh

**7697-37-2 Nitric acid (20,0%)**

AGW (Germany)	2,6 mg/m <sup>3</sup> , 1 ppm EU, 13, 16
PEL (USA)	5 mg/m <sup>3</sup> , 2 ppm
REL (USA)	Short-term value: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5 mg/m <sup>3</sup> , 2 ppm
TLV (USA)	Short-term value: 10 mg/m <sup>3</sup> , 4 ppm Long-term value: 5,2 mg/m <sup>3</sup> , 2 ppm

**Additional information:** No data**8.2 Exposure controls****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures should be adhered to in handling the chemicals.

Keep away from foodstuffs, beverages and food.

Instantly remove any soiled and impregnated garments.

Wash hands during breaks and at the end of the work.

Do not inhale dust / smoke / mist.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

Use breathing protection with high concentrations.

Check protective gloves prior to each use for their proper condition.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

**Breathing equipment:****Protection of hands:**

Impervious gloves

Not determined

**Material of gloves****Penetration time of glove material**

Tightly sealed safety glasses.

**Eye protection:**

Full face protection

**Body protection:**

Protective work clothing.

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

Form:	Liquid
Colour:	Red-brown
Smell:	Acidic
Odour threshold:	Not determined.

**pH-value:** Not determined.**Change in condition**

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined
Inflammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Self-inflammability:	Product is not selfigniting.

**Critical values for explosion:**

Lower:	Not determined
Upper:	Not determined
Steam pressure at 20 °C:	23 hPa
Density	Not determined
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.

**Solubility in / Miscibility with**

Water:	Fully miscible
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not determined.
kinematic:	Not determined.

**Solvent content:****Organic solvents:** 0,0 %**Solids content:** 40,0 %**9.2 Other information** No further relevant information available.**SECTION 10: Stability and reactivity****10.1 Reactivity**

May intensify fire; oxidiser.

**10.2 Chemical stability**

Stable under recommended storage conditions.

**Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions**

Reacts with reducing agents

Reacts with flammable substances

**10.5 Incompatible materials:**

Flammable substances

Reducing agents

Bases

Organic materials

Metal powders

**10.6 Hazardous decomposition products:**Nitrogen oxides (NO<sub>x</sub>)

Metal oxide

**SECTION 11: Toxicological information****11.1 Information on toxicological effects****Acute toxicity:**

Harmful if swallowed.

(Contd. on page 4)  
DE/E

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Revision: 24.05.2012

Printing date 01.07.2013

Trade name **Rhodium(III) nitrate solution**

(Contd. of page 3)

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.  
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

**LD/LC50 values that are relevant for classification:**

7697-37-2 Nitric acid

Inhalative LC50/4H 0,13 mg/l/4H (rat)

**Skin irritation or corrosion:**

Causes severe skin burns.

**Eye irritation or corrosion:**

Causes serious eye damage.

**Sensitization:**

May cause an allergic skin reaction.

**Germ cell mutagenicity:**

No effects known.

**Carcinogenicity:**

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

**Reproductive toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for components in this product.

**Specific target organ system toxicity - repeated exposure:**

No effects known.

**Specific target organ system toxicity - single exposure:**

No effects known.

**Aspiration hazard:**

No effects known.

**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Harmful  
Corrosive  
Irritant

**SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:**

No further relevant information available.

**12.2 Persistence and degradability**

No further relevant information available.

**12.3 Bioaccumulative potential**

No further relevant information available.

**12.4 Mobility in soil**

No further relevant information available.

**Additional ecological information:****General notes:**

Do not allow product to reach ground water, water bodies or sewage system.  
Do not allow material to be released to the environment without proper governmental permits.  
Water hazard class 2 (Self-assessment): hazardous for water.  
Danger to drinking water if even small quantities leak into soil.  
Avoid transfer into the environment.

**12.5 Results of PBT and vPvB assessment****PBT:**

Not applicable.

**vPvB:**

Not applicable.

**12.6 Other adverse effects**

No further relevant information available.

**SECTION 13: Disposal considerations****13.1 Waste treatment methods****Recommendation**

Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.  
Consult state, local or national regulations for proper disposal.

**Uncleaned packagings:****Recommendation:**

Disposal must be made according to official regulations.

**Recommended cleaning agent:**

Water, if necessary with cleaning agent.

**SECTION 14: Transport information****UN-Number****ADR, IMDG, IATA**

UN3093

**14.2 UN proper shipping name****ADR****IMDG, IATA**3093 CORROSIVE LIQUID, OXIDIZING, N.O.S.  
CORROSIVE LIQUID, OXIDIZING, N.O.S.**14.3 Transport hazard class(es)****ADR****Class****Label****IMDG, IATA**8 (CO1) Corrosive substances.  
8+5.1**Class****Label**8 Corrosive substances.  
8+5.1**Packing group****ADR, IMDG, IATA**

II

**14.5 Environmental hazards:****Marine pollutant:**

No

**14.6 Special precautions for user****Kemler Number:****EMS Number:**Warning: Corrosive substances.  
85  
F-A,S-Q**14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC****Code**

Not applicable.

**Transport/Additional information:****ADR****Exempted quantities (EQ):****Limited quantities (LQ)****Transport category****Tunnel restriction code**E2  
1L  
2  
E(Contd. on page 5)  
DE/E

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Revision: 24.05.2012

Printing date 01.07.2013

Trade name **Rhodium(III) nitrate solution**

(Contd. of page 4)

UN "Model Regulation":

UN3093, CORROSIVE LIQUID, OXIDIZING, N.O.S., 8 (5.1), II

**SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****Australian Inventory of Chemical Substances**

7697-37-2 Nitric acid

7732-18-5 Water

**Standard for the Uniform Scheduling of Drugs and Poisons**

7697-37-2 Nitric acid

S5, S6

**National regulations****Information about limitation of use:**Employment restrictions concerning young persons must be observed.  
For use only by technically qualified individuals.**Classification according to VbF:**

Not applicable

**Water hazard class:**

Water hazard class 2 (Self-assessment): hazardous for water.

**Other regulations, limitations and prohibitive regulations****ELINCS (European List of Notified Chemical Substances)**

None of the ingredients is listed.

**Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients are listed.

**REACH - Pre-registered substances**

All ingredients are listed.

**15.2 Chemical safety assessment:**

A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Relevant phrases**

H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
R22	Harmful if swallowed.
R35	Causes severe burns.
R36/37/38	Irritating to eyes, respiratory system and skin.
R43	May cause sensitisation by skin contact.
R8	Contact with combustible material may cause fire.

**Department issuing data specification sheet:** Health, Safety and Environmental Department.**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 IATA: International Air Transport Association  
 GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
 VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)  
 LC50: Lethal concentration, 50 percent  
 LD50: Lethal dose, 50 percent

DE/E