

ruthenium nitrosyl nitrate solution, aqueous

Section 1. Identification

Code: C8014E

GHS product identifier: ruthenium nitrosyl nitrate solution, aqueous

Chemical name: Not available.

Other means of identification: Not available.

Product type: Liquid.

Relevant identified uses of the substance or mixture and uses advised against: Not applicable.

Supplier's details: Johnson Matthey, 2001 Nolte Drive, West Deptford, NJ 08066 USA

Emergency telephone number (with hours of operation): For Hazardous Materials [or Dangerous Goods] Incident, Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night (collect calls accepted).
Within USA and Canada: 1-800-424-9300. Outside USA and Canada: +1 703-527-3887

Section 2. Hazards identification

OSHA/HCS status This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture
OXIDIZING LIQUIDS - Category 2
CORROSIVE TO METALS - Category 1
SKIN CORROSION - Category 1B
SERIOUS EYE DAMAGE - Category 1

GHS label elements

Hazard pictograms



Signal word **Danger**

Hazard statements
May intensify fire; oxidizer.
May be corrosive to metals.
Causes severe skin burns and eye damage.

Precautionary statements

Prevention Wear protective gloves or clothing and eye or face protection. Keep away from heat and hot surfaces. - No smoking. Keep away from clothing, incompatible materials and combustible materials. Keep only in original container.

Response Absorb spillage to prevent material damage. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage Store locked up. Store in a corrosion resistant container with a resistant inner liner.

Disposal Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified None known.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Chemical name Not available.

Other means of identification Not available.

CAS number/other identifiers

CAS number Not applicable.

Product code C8014E

| Ingredient name | % | CAS number |
|----------------------------------|---------|------------|
| tris(nitrato-O)nitrosylruthenium | 57 - 63 | 34513-98-9 |
| Nitric acid | 26 - 30 | 7697-37-2 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** Get medical attention immediately. Call a poison center or physician. Rinse immediately contaminated clothing and skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** Causes serious eye damage.
- Inhalation** No known significant effects or critical hazards.
- Skin contact** Causes severe burns.
- Ingestion** No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** No specific data.

Section 4. First aid measures

Skin contact Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion Adverse symptoms may include the following:
stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments No specific treatment.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical Oxidizing material. May intensify fire. In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products Decomposition products may include the following materials:
nitrogen oxides
metal oxide/oxides

Special protective actions for fire-fighters Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark DOT Class: Oxidizer.

Remark Not available.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Absorb spillage to prevent material damage. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

Large spill Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb spillage to prevent material damage. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.

Advice on general occupational hygiene Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store in a corrosion resistant container with a resistant inner liner. Store locked up. Separate from reducing agents and combustible materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

tris(nitrato-O)nitrosylruthenium
Nitric acid

None.

ACGIH TLV (United States, 3/2015).

TWA: 2 ppm 8 hours.

TWA: 5.2 mg/m³ 8 hours.

STEL: 4 ppm 15 minutes.

STEL: 10 mg/m³ 15 minutes.

OSHA PEL 1989 (United States, 3/1989).

TWA: 2 ppm 8 hours.

TWA: 5 mg/m³ 8 hours.

STEL: 4 ppm 15 minutes.

STEL: 10 mg/m³ 15 minutes.

NIOSH REL (United States, 10/2013).

TWA: 2 ppm 10 hours.

TWA: 5 mg/m³ 10 hours.

STEL: 4 ppm 15 minutes.

STEL: 10 mg/m³ 15 minutes.

OSHA PEL (United States, 2/2013).

TWA: 2 ppm 8 hours.

TWA: 5 mg/m³ 8 hours.

Appropriate engineering controls

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Section 8. Exposure controls/personal protection

Environmental exposure controls Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

| | | | |
|---|----------------|---|-------------------------|
| Physical state | Liquid. | Melting point | Not available. |
| Color | Red. [Dark] | Boiling point | Not available. |
| Odor | Not available. | Flash point | Not available. |
| Odor threshold | Not available. | | |
| Vapor pressure | Not available. | | |
| Vapor density | Not available. | Flammability (solid, gas) | DOT Class: Oxidizer. |
| Evaporation rate | Not available. | Lower and upper explosive (flammable) limits | Not available. |
| Relative density | Not available. | Auto-ignition temperature | Not available. |
| pH | Not available. | Decomposition temperature | Not available. |
| Partition coefficient: n-octanol/water | Not available. | SADT | Not available. |
| Solubility in water | Not available. | Viscosity | Not available. |
| Solubility | Not available. | | |

Section 10. Stability and reactivity

Reactivity No specific test data related to reactivity available for this product or its ingredients.

Chemical stability The product is stable.

Possibility of hazardous reactions Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following:
contact with combustible materials
Reactions may include the following:
risk of causing or intensifying fire

Conditions to avoid Drying on clothing or other combustible materials may cause fire.

Incompatible materials Reactive or incompatible with the following materials:
combustible materials
reducing materials
metals

Section 10. Stability and reactivity

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|-----------------------|-----------------------|----------|----------|
| Nitric acid | LC50 Inhalation Vapor | Rat - Male, Female | 2200 ppm | 1 hours |

Conclusion/Summary Not available.

Irritation/Corrosion

Not available.

Conclusion/Summary

Skin Causes severe skin burns and eye damage.

Eyes Not available.

Respiratory Not available.

Sensitization

Not available.

Skin Not available.

Respiratory Not available.

Mutagenicity

Not available.

Conclusion/Summary Not available.

Carcinogenicity

Not available.

Conclusion/Summary Not available.

Reproductive toxicity

Not available.

Conclusion/Summary Not available.

Teratogenicity

Not available.

Conclusion/Summary Not available.

Specific target organ toxicity (single exposure)

| Name | Category | Route of exposure | Target organs |
|-------------|------------|-------------------|-------------------|
| Nitric acid | Category 1 | Inhalation | respiratory tract |

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation No known significant effects or critical hazards.

Skin contact Causes severe burns.

Ingestion No known significant effects or critical hazards.

Section 11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

| | |
|--------------|--|
| Eye contact | Adverse symptoms may include the following: pain watering redness |
| Inhalation | No specific data. |
| Skin contact | Adverse symptoms may include the following: pain or irritation redness blistering may occur |
| Ingestion | Adverse symptoms may include the following: stomach pains |

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

| | |
|-----------------------------|----------------|
| Potential immediate effects | Not available. |
| Potential delayed effects | Not available. |

Long term exposure

| | |
|-----------------------------|----------------|
| Potential immediate effects | Not available. |
| Potential delayed effects | Not available. |

Potential chronic health effects

Not available.

| | |
|-----------------------|---|
| Conclusion/Summary | Not available. |
| General | No known significant effects or critical hazards. |
| Carcinogenicity | No known significant effects or critical hazards. |
| Mutagenicity | No known significant effects or critical hazards. |
| Teratogenicity | No known significant effects or critical hazards. |
| Developmental effects | No known significant effects or critical hazards. |
| Fertility effects | No known significant effects or critical hazards. |

Numerical measures of toxicity

Acute toxicity estimates

Not available.

| | |
|---------------------|----------------|
| Interactive effects | Not available. |
| Other information | Not available. |

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|-------------------------------------|---------------------------------------|----------|
| Nitric acid | Acute LC50 180000 µg/l Marine water | Crustaceans - Carcinus maenas - Adult | 48 hours |
| | Acute LC50 72 ppm Fresh water | Fish - Gambusia affinis - Adult | 96 hours |

Conclusion/Summary Not available.

Persistence and degradability

Not available.

Conclusion/Summary Not available.

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|-------------------------|--------------------|-----|-----------|
| Nitric acid | -0.21 | - | low |

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Section 12. Ecological information

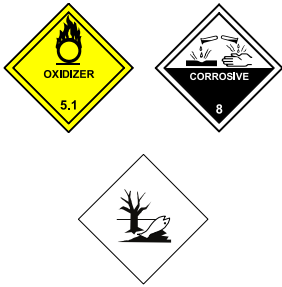
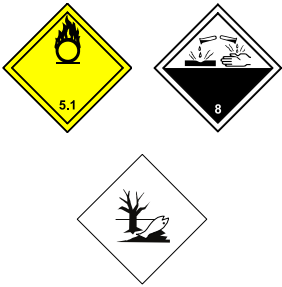
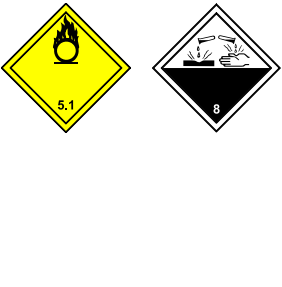
Mobility Not available.
Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Waste stream Not available.
RCRA classification Not available.

Section 14. Transport information

| | DOT Classification | IMDG | IATA |
|---|--|---|---|
| UN number | UN3098 | UN3098 | UN3098 |
| UN proper shipping name | Oxidizing liquid, corrosive, n.o.s. (nitric acid, tris (nitrate-O) nitrosylruthenium, solution) | OXIDIZING LIQUID, CORROSIVE, N.O.S. (nitric acid, tris(nitrate-O) nitrosylruthenium, solution) | Oxidizing liquid, corrosive, n.o.s. (nitric acid, tris (nitrate-O) nitrosylruthenium, solution) |
| Transport hazard class(es) and Packing group | 5.1 (8) II  | 5.1 (8) II  | 5.1 (8) II  |
| Environmental hazards | Yes. | Yes. | No. |
| Additional information | <p>This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.</p> <p>Reportable quantity 3571.4 lbs / 1621.4 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p> | <p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p>Emergency schedules (EmS) F-A, S-Q</p> <p>Special provisions 274</p> <p>IMDG Code Segregation group 1 - Acids</p> | <p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p>Passenger and Cargo Aircraft Quantity limitation: 1 L Packaging instructions: 550</p> <p>Cargo Aircraft Only Quantity limitation: 5 L Packaging instructions: 554</p> <p>Limited Quantities - Passenger Aircraft Quantity limitation: 0.5 L Packaging instructions: Y540</p> <p>Special provisions</p> |

Section 14. Transport information

| | | | |
|--|---|--|----|
| | <p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 1 L</p> <p>Cargo aircraft Quantity limitation: 5 L</p> <p>Special provisions 62, IB1</p> | | A3 |
|--|---|--|----|

Special precautions for user Avoid exposure. ERG no. 140

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

Not available.

Proper shipping name Not available.
 Ship type Not available.
 Pollution category Not available.

Section 15. Regulatory information

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 311: nitric acid

Clean Air Act (CAA) 112 regulated toxic substances: nitric acid

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) Not listed

Clean Air Act Section 602 Class I Substances Not listed

Clean Air Act Section 602 Class II Substances Not listed

DEA List I Chemicals (Precursor Chemicals) Not listed

DEA List II Chemicals (Essential Chemicals) Not listed

SARA 302/304

Composition/information on ingredients

| Name | % | EHS | SARA 302 TPQ | | SARA 304 RQ | |
|-------------|-----------|------|--------------|-----------|-------------|-----------|
| | | | (lbs) | (gallons) | (lbs) | (gallons) |
| Nitric acid | ≥25 - ≤50 | Yes. | 1000 | 85.7 | 1000 | 85.7 |

SARA 304 RQ 3571.4 lbs / 1621.4 kg

SARA 311/312

Classification Fire hazard
 Reactive
 Immediate (acute) health hazard

Composition/information on ingredients

| Name | % | Fire hazard | Sudden release of pressure | Reactive | Immediate (acute) health hazard | Delayed (chronic) health hazard |
|----------------------------------|-----------|-------------|----------------------------|----------|---------------------------------|---------------------------------|
| tris(nitrato-O)nitrosylruthenium | ≥50 - ≤75 | Yes. | No. | Yes. | Yes. | No. |
| Nitric acid | ≥25 - ≤50 | Yes. | No. | Yes. | Yes. | No. |

SARA 313

Section 15. Regulatory information

| | Product name | CAS number | % |
|--|--------------|------------|-----------|
| Form R - Reporting requirements | nitric acid | 7697-37-2 | ≥25 - ≤50 |
| Supplier notification | nitric acid | 7697-37-2 | ≥25 - ≤50 |

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

| | |
|---------------|--|
| Massachusetts | The following components are listed: NITRIC ACID |
| New York | The following components are listed: Nitric acid |
| New Jersey | The following components are listed: NITRIC ACID |
| Pennsylvania | The following components are listed: NITRIC ACID |
| | Not available. |

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

| | |
|-------------------|--|
| Australia | Not determined. |
| Canada | At least one component is not listed in DSL but all such components are listed in NDSL. |
| China | Not determined. |
| Europe | All components are listed or exempted. |
| Japan | Japan inventory (ENCS): Not determined. Japan inventory (ISHL): Not determined. |
| Malaysia | Not determined. |
| New Zealand | Not determined. |
| Philippines | Not determined. |
| Republic of Korea | All components are listed or exempted. |
| Taiwan | All components are listed or exempted. |
| Turkey | Not determined. |

Section 16. Other information

Procedure used to derive the classification

| Classification | Justification |
|----------------------------------|-----------------------|
| OXIDIZING LIQUIDS - Category 2 | On basis of test data |
| CORROSIVE TO METALS - Category 1 | Expert judgment |
| SKIN CORROSION - Category 1B | On basis of test data |
| SERIOUS EYE DAMAGE - Category 1 | On basis of test data |

History



Date of printing 10/01/2017

Section 16. Other information

| | |
|--------------------------------|--|
| Date of issue/Date of revision | 10/01/2017 |
| Date of previous issue | 09/01/2017 |
| Version | 2 |
| Prepared by | Not available. |
| Key to abbreviations | ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations |
| References | Not available. |

Indicates information that has changed from previously issued version.

US Label (29 CFR 1910.1200(f)(1))

| | |
|---|---|
| ruthenium nitrosyl nitrate solution, aqueous |   |
| CAS: Not applicable. Code: C8014E | |
| Danger | |
| May intensify fire; oxidizer. May be corrosive to metals. Causes severe skin burns and eye damage. | |
| Wear protective gloves or clothing and eye or face protection. Keep away from heat and hot surfaces. - No smoking. Keep away from clothing, incompatible materials and combustible materials. Keep only in original container. Absorb spillage to prevent material damage. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician. Store locked up. Store in a corrosion resistant container with a resistant inner liner. Dispose of contents and container in accordance with all local, regional, national and international regulations. Read SDS before using this product. Do not handle until all safety precautions have been read and understood. | |
| Johnson Matthey 2001 Nolte Drive, West Deptford, NJ 08066 USA non-emergencies: +1 856 384 7050; emergencies +1 800 424 9300 | |

Notice to reader

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is given in good faith, being based on the latest information available to Johnson Matthey PLC and is to the best of Johnson Matthey PLC's knowledge and belief, accurate and reliable at the time of preparation. However, no representation, warranty or guarantee is made as to the accuracy, liability or completeness and Johnson Matthey PLC assumes no responsibility therefore, and disclaims any liability for any loss, damage or injury howsoever arising (including in respect of any claim brought by any third party) incurred using this information. The product is supplied on the condition that the user accepts responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. Freedom from patent or any other proprietary rights of any third party must not be assumed.