



SZABO SCANDIC

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Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

Weitere Information auf den folgenden Seiten!
See the following pages for more information!



Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Rhodium(III) Nitrate, solution (10% Rh)

sc-258087



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Rhodium(III) Nitrate, solution (10% Rh)

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY:

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

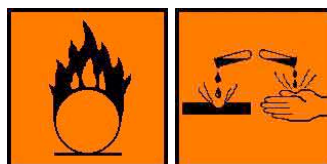
SYNONYMS

N3-O9-Rh.2H2O, "nitric acid, rhodium(3+) salt", "rhodium trinitrate"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability:	1		
Toxicity:	3		
Body Contact:	4		Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4
Reactivity:	2		
Chronic:	2		



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Harmful by inhalation.
Causes severe burns.
Risk of serious damage to eyes.
Harmful to aquatic organisms.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material can produce severe chemical burns within the oral cavity and gastrointestinal tract following ingestion.
 - Ingestion of acidic corrosives may produce burns around and in the mouth, the throat and esophagus.
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- Accidental ingestion of the material may be seriously damaging to the health of the individual; animal experiments indicate that ingestion of less than 40 gram may be fatal.
 - The substance and/or its metabolites may bind to hemoglobin inhibiting normal uptake of oxygen. This condition, known as "methemoglobinemia", is a form of oxygen starvation (anoxia).

EYE

- The material can produce severe chemical burns to the eye following direct contact. Vapors or mists may be extremely irritating.
- If applied to the eyes, this material causes severe eye damage.
- Direct eye contact with acid corrosives may produce pain, tears, sensitivity to light and burns. Mild burns of the epithelia generally recover rapidly and completely.

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SKIN

- The material can produce severe chemical burns following direct contact with the skin.
- Skin contact with acidic corrosives may result in pain and burns; these may be deep with distinct edges and may heal slowly with the formation of scar tissue.
- Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

- Inhalation of dusts, generated by the material, during the course of normal handling, may be harmful.
 - The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.
 - Corrosive acids can cause irritation of the respiratory tract, with coughing, choking and mucous membrane damage. There may be dizziness, headache, nausea and weakness.
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- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.
 - Inhalation of quantities of liquid mist may be extremely hazardous, even lethal due to spasm, extreme irritation of larynx and bronchi, chemical pneumonitis and pulmonary edema.

CHRONIC HEALTH EFFECTS

- Repeated or prolonged exposure to acids may result in the erosion of teeth, swelling and or ulceration of mouth lining. Irritation of airways to lung, with cough, and inflammation of lung tissue often occurs.

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Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
rhodium(III) nitrate	10139-58-9	>60
commercial product contains		
nitric acid	7697-37-2	25

Section 4 - FIRST AID MEASURES

SWALLOWED

· For advice, contact a Poisons Information Center or a doctor at once. · Urgent hospital treatment is likely to be needed.

EYE

- If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure

complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested. Inhalation of vapors or aerosols (mists, fumes) may cause lung edema. Corrosive substances may cause lung damage (e.g. <p>

NOTES TO PHYSICIAN

■ For acute or short term repeated exposures to strong acids:

· Airway problems may arise from laryngeal edema and inhalation exposure. Treat with 100% oxygen initially.

· Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling.

The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methemoglobin.

· Most produce a peak effect within 30 minutes.

· Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methemoglobin.

Symptoms of vasodilation and reflex tachycardia may present following organic nitrate overdose; most organic nitrates are extensively metabolized by hydrolysis to inorganic nitrites. Organic nitrates and nitrites are readily absorbed through the skin, lungs, mucosa and gastrointestinal tract.

Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung edema often do not manifest until a few hours have passed and they are aggravated by physical effort.

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Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not available
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	Not available
Lower Explosive Limit (%):	Not applicable

EXTINGUISHING MEDIA

■ FOR SMALL FIRE:

· USE FLOODING QUANTITIES OF WATER.

· DO NOT use dry chemicals, CO2 or foam.

FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.

· May be violently or explosive reactive.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 500 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Solid which exhibits difficult combustion or is difficult to ignite.

· Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.

Combustion products include: metal oxides, nitrogen oxides (NOx).

Material contains oxidizing agent/organic peroxide. Oxygen provided makes fire fierce and self sustaining.

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FIRE INCOMPATIBILITY

■ Avoid storage with reducing agents.

· Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.

PERSONAL PROTECTION

Glasses:

Full face- shield.

Gloves:

Respirator:

Type AE-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

· Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material.

· Check regularly for spills and leaks.

· Clean up all spills immediately.

· No smoking, naked lights, ignition sources.

MAJOR SPILLS

· Clear area of personnel and move upwind.

· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid personal contact and inhalation of dust, mist or vapors.
- Provide adequate ventilation.

Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.

- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

RECOMMENDED STORAGE METHODS

- Glass container.
 - DO NOT repack. Use containers supplied by manufacturer only.
- For low viscosity materials
- Drums and jerricans must be of the non-removable head type.
 - Where a can is to be used as an inner package, the can must have a screwed enclosure.

STORAGE REQUIREMENTS

- In addition, Goods of Class 5.1, packing group III should be stored in packages and be separated from buildings, tanks, and compounds containing other dangerous goods in tanks, and from property boundaries by a distance of at least 5 metres.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Notes
Canada - Northwest Territories Occupational Exposure Limits (English)	rhodium(III) nitrate (Rhodium, Metal Fume and dusts (as Rh))		0.1		0.3	
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	rhodium(III) nitrate (Rhodium - Metal fume and dusts (as Rh))		0.1	-	0.3	
US - Minnesota Permissible Exposure Limits (PELs)	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
Canada - Ontario Occupational Exposure Limits	rhodium(III) nitrate (Rhodium, water-soluble compounds of, including chloride, nitrate, and sulfate (as rhodium))		0.01			
US NIOSH Recommended Exposure Limits (RELs)	rhodium(III) nitrate (Rhodium (soluble compounds, as Rh))		0.001			
US - Idaho - Limits for Air Contaminants	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
US - Alaska Limits for Air Contaminants	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			

Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	rhodium(III) nitrate (Rhodium, (as Rh): Soluble compounds)		0.01		0.03	
US - Washington Permissible exposure limits of air contaminants	rhodium(III) nitrate (Rhodium (as Rh) - Soluble compounds, salts)		0.001		0.003	
US - Michigan Exposure Limits for Air Contaminants	rhodium(III) nitrate (Rhodium, Soluble compounds (as Rh))		0.001			
US OSHA Permissible Exposure Levels (PELs) - Table Z1	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
Canada - Nova Scotia Occupational Exposure Limits	rhodium(III) nitrate (Rhodium - Soluble compounds (as Rh))		0.01			TLV Basis: asthma
Canada - Northwest Territories Occupational Exposure Limits (English)	rhodium(III) nitrate (Rhodium, Metal Fume and Soluble salts (as Rh))		0.001		0.003	
US - California Permissible Exposure Limits for Chemical Contaminants	rhodium(III) nitrate (Rhodium, metal Soluble salts, as Rh)		0.001			
US - Hawaii Air Contaminant Limits	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	rhodium(III) nitrate (Rhodium - Soluble salts (as Rh))	-	0.001	-	0.003	
US ACGIH Threshold Limit Values (TLV)	rhodium(III) nitrate (Rhodium - Soluble compounds (as Rh))		0.01			TLV Basis: asthma
Canada - Alberta Occupational Exposure Limits	rhodium(III) nitrate (Rhodium, as Rh - Soluble compounds)		0.01			
Canada - British Columbia Occupational Exposure Limits	rhodium(III) nitrate (Rhodium - Soluble compounds, as Rh)		0.001		0.003	
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	rhodium(III) nitrate (Rhodium: Soluble compounds (as Rh))		0.001			
US - Oregon Permissible Exposure Limits (Z-1)	rhodium(III) nitrate (Rhodium, as Rh Soluble salts)		0.001			
Canada - Prince Edward Island Occupational Exposure Limits	rhodium(III) nitrate (Rhodium - Soluble compounds (as Rh))		0.01			TLV Basis: asthma
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	rhodium(III) nitrate (Rhodium (as Rh), soluble compounds)		0.001			
Canada - British Columbia Occupational Exposure Limits	nitric acid (Nitric acid)	2		4		
Canada - Ontario Occupational Exposure Limits	nitric acid (Nitric acid)	2	5	4	10	
US - Minnesota Permissible Exposure Limits (PELs)	nitric acid (Nitric acid)	2	5	4	10	

US ACGIH Threshold Limit Values (TLV)	nitric acid (Nitric acid)	2		4		TLV Basis: upper respiratory tract & eye irritation; dental erosion
US NIOSH Recommended Exposure Limits (RELs)	nitric acid (Nitric acid)	2	5	4	10	
Canada - Alberta Occupational Exposure Limits	nitric acid (Nitric acid)	2	5.2	4	10	
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	nitric acid (Nitric acid)	2	5	4	10	
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	nitric acid (Nitric acid)	2	5			
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	nitric acid (Nitric acid)	2	5	4	10	
US - California Permissible Exposure Limits for Chemical Contaminants	nitric acid (Nitric acid)	2	5	4	10	
US - Idaho - Limits for Air Contaminants	nitric acid (Nitric acid)	2	5			
US OSHA Permissible Exposure Levels (PELs) - Table Z1	nitric acid (Nitric acid)	2	5			
US - Hawaii Air Contaminant Limits	nitric acid (Nitric acid)	2	5	4	10	
US - Alaska Limits for Air Contaminants	nitric acid (Nitric acid)	2	5	4	10	
US - Michigan Exposure Limits for Air Contaminants	nitric acid (Nitric acid)	2	5	4	10	
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	nitric acid (Nitric acid)	2	5	4	10	
US - Washington Permissible exposure limits of air contaminants	nitric acid (Nitric acid)	2		4		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	nitric acid (Nitric acid)	2		4		
Canada - Prince Edward Island Occupational Exposure Limits	nitric acid (Nitric acid)	2		4		TLV Basis: upper respiratory tract & eye irritation; dental erosion
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	nitric acid (Nitric acid)	2	5			
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	nitric acid (Nitric acid)	2	5.2	4	10	
US - Oregon Permissible Exposure Limits (Z-1)	nitric acid (Nitric acid)	2	5			

Canada - Northwest Territories Occupational Exposure Limits (English)	nitric acid (Nitric acid)	2	5.2	4	10	
Canada - Nova Scotia Occupational Exposure Limits	nitric acid (Nitric acid)	2		4		TLV Basis: upper respiratory tract & eye irritation; dental erosion

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

Type AE-P Filter of sufficient capacity
Consult your EHS staff for recommendations

EYE

- Chemical goggles.
- Full face shield.

HANDS/FEET

- Elbow length PVC gloves.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- DO NOT wear cotton or cotton-backed gloves.
- DO NOT wear leather gloves.
- Promptly hose all spills off leather shoes or boots or ensure that such footwear is protected with PVC over-shoes.

OTHER

- Overalls.
- PVC Apron.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

ENGINEERING CONTROLS

- Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Mixes with water.
Corrosive.
Acid.

State	DIVIDED SOLID	Molecular Weight	324.95
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	Not available.	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not applicable	pH (1% solution)	Not available
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not applicable	Vapour Pressure (mmHG)	Not available

Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	Not available
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not available
Volatile Component (%vol)	Not available	Evaporation Rate	Not Available

APPEARANCE

Dark-gold liquid, mixes with water.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable under normal handling conditions.

STORAGE INCOMPATIBILITY

- Reacts with mild steel, galvanized steel / zinc producing hydrogen gas which may form an explosive mixture with air.
- Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.
- Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0.
- Inorganic acids neutralize chemical bases (for example: amines and inorganic hydroxides) to form salts.
- Inorganic oxidising agents can react with reducing agents to generate heat and products that may be gaseous (causing pressurization of closed containers). The products may themselves be capable of further reactions (such as combustion in the air).
- Organic compounds in general have some reducing power and can in principle react with compounds in this class. Actual reactivity varies greatly with the identity of the organic compound.
- Inorganic oxidising agents can react violently with active metals, cyanides, esters, and thiocyanates.
- **WARNING:** Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.
- The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono- or poly-fluorobenzene show extreme sensitivity to heat and are explosive.
- Avoid reaction with borohydrides or cyanoborohydrides.
- Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions.

Avoid reaction with oxidizing agents, bases and strong reducing agents.

- Reacts with metals producing flammable / explosive hydrogen gas.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

RHODIUM(III) NITRATE

TOXICITY AND IRRITATION

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.
- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

RHODIUM(III) NITRATE:

TOXICITY	IRRITATION
NITRIC ACID:	
Oral (human) LDLo: 430 mg/kg	Nil Reported
Inhalation (rat) LC50: 2500 ppm/1h *	* DuPont
Unreported (man) LDLo: 110 mg/kg	
Inhalation (Cat) LC: 500 mg/m ³ /4h	
Inhalation (Rat) LC50: 130 mg/m ³ /4h	
Oral (Human) LD: 430 mg/kg	
Inhalation (Cat) TCLo: 300 mg/m ³ /2h	

- The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.

Oral (?) LD50: 50-500 mg/kg *

[Various Manufacturers]

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
rhodium(III) nitrate	LOW		LOW	HIGH
nitric acid			LOW	

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

! Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

· Recycle wherever possible.

· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 5.1

Identification Numbers: UN3085 PG: III

Label Codes: 5.1, 8 Special provisions: 62, IB8,

IP3, T1,

TP33

Packaging: Exceptions: 152 Packaging: Non- bulk: 213

Packaging: Exceptions: 152 Quantity limitations: 25 kg

Passenger aircraft/rail:

Quantity Limitations: Cargo 100 kg Vessel stowage: Location: B
aircraft only:

Vessel stowage: Other: 13, 34,

56, 58,

106, 138

Hazardous materials descriptions and proper shipping names:

Oxidizing solid, corrosive, n.o.s.

Air Transport IATA:

ICAO/IATA Class: 5.1 ICAO/IATA Subrisk: 8

UN/ID Number: 3085 Packing Group: III

Special provisions: A3

Cargo Only

Packing Instructions: 518 Maximum Qty/Pack: 100 kg

Passenger and Cargo Passenger and Cargo

Packing Instructions: 516 Maximum Qty/Pack: 25 kg

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: Y516 Maximum Qty/Pack: 5 kg

Shipping Name: OXIDIZING SOLID, CORROSIVE, N.O.S.

*(CONTAINS RHODIUM(III) NITRATE)

Maritime Transport IMDG:

IMDG Class: 5.1 IMDG Subrisk: 8

UN Number: 3085 Packing Group: III

EMS Number: F-A , S-Q Special provisions: 223 274

Limited Quantities: 5 kg

Shipping Name: OXIDIZING SOLID, CORROSIVE, N.O.S.(contains rhodium(III) nitrate)

Section 15 - REGULATORY INFORMATION

rhodium(III) nitrate (CAS: 10139-58-9,13465-43-5) is found on the following regulatory lists;

"Canada Non-Domestic Substances List (NDSL)", "US Toxic Substances Control Act (TSCA) - Inventory"

Regulations for ingredients

nitric acid (CAS: 7697-37-2) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits", "Canada - British Columbia Occupational Exposure Limits", "Canada - Northwest Territories Occupational Exposure Limits (English)", "Canada - Nova Scotia Occupational Exposure Limits", "Canada - Ontario Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits", "Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)", "Canada - Saskatchewan Industrial Hazardous Substances", "Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits", "Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances", "Canada Domestic Substances List (DSL)", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada National Pollutant Release Inventory (NPRI)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "OECD Representative List of High Production Volume (HPV) Chemicals", "US - Alaska Limits for Air Contaminants", "US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - California Toxic Air Contaminant List Category II", "US - Connecticut Hazardous Air Pollutants", "US - Hawaii Air Contaminant Limits", "US - Idaho - Limits for Air Contaminants", "US - Massachusetts Oil & Hazardous Material List", "US - Michigan Exposure Limits for Air Contaminants", "US - Minnesota Hazardous Substance List", "US - Minnesota Permissible Exposure Limits (PELs)", "US - New Jersey Right to Know Hazardous Substances", "US - Oregon Hazardous Materials", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Pennsylvania - Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US - Wyoming List of Highly Hazardous Chemicals, Toxics and Reactives", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US ACGIH Threshold Limit Values (TLV)", "US CWA (Clean Water Act) - List of Hazardous Substances", "US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances", "US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest", "US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US EPA Acute Exposure Guideline Levels (AEGs) - Interim", "US EPA High Production Volume Chemicals Additional List", "US EPCRA Section 313 Chemical List", "US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act", "US NFPA 1 Annex B Typical Oxidizers", "US NIOSH Recommended Exposure Limits (RELs)", "US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives", "US OSHA Permissible Exposure Levels (PELs) - Table Z1", "US SARA Section 302 Extremely Hazardous Substances", "US Toxic Substances Control Act (TSCA) - Inventory", "USA: Chemical Facility Anti-Terrorism Standards - List Appendix A - 6CFR 27"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

- Contact with air may produce sufficient heat to ignite combustible materials.*.
- Skin contact may produce health damage*.
- Ingestion may produce serious health damage*.
- Cumulative effects may result following exposure*.

* (limited evidence).

Ingredients with multiple CAS Nos

Ingredient Name CAS rhodium(III) nitrate 10139-58-9, 13465-43-5

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- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net/references.

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use,

frequency of use and current or available engineering controls must be considered.

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