

Rh-140; rhodium(III) chloride crystal hydrate

## Section 1. Identification

Code: C3004D

GHS product identifier: Rh-140; rhodium(III) chloride crystal hydrate

Chemical name: Rhodium chloride (RhCl<sub>3</sub>), hydrate

Other means of identification: Rhodium trichloride

Product type: Powder.

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 CORROSIVE TO METALS - Category 1  
ACUTE TOXICITY (oral) - Category 4  
SERIOUS EYE DAMAGE - Category 1  
GERM CELL MUTAGENICITY (oral) - Category 2

### GHS label elements

Hazard pictograms



Signal word **Danger**

Hazard statements May be corrosive to metals.  
Harmful if swallowed.  
Causes serious eye damage.  
Suspected of causing genetic defects if swallowed.

### Precautionary statements

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep only in original container. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

### Response

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 Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

## Section 3. Composition/information on ingredients

Substance/mixture Substance

Chemical name Rhodium chloride (RhCl<sub>3</sub>), hydrate

Other means of identification Rhodium trichloride

### CAS number/other identifiers

CAS number 20765-98-4

Product code C3004D

## Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Rhodium chloride (RhCl <sub>3</sub> ), hydrate	100	20765-98-4

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.
- Skin contact** Get medical attention immediately. Call a poison center or physician. Flush contaminated 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** Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
- Skin contact** No known significant effects or critical hazards.
- Ingestion** Harmful if swallowed.

#### Over-exposure signs/symptoms

- Eye contact** Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** Adverse symptoms may include the following:  
respiratory tract irritation  
coughing
- 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

## Section 4. First aid measures

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
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 No specific fire or explosion hazard.

Hazardous thermal decomposition products Decomposition products may include the following materials:  
halogenated compounds  
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.

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 Not available.

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. Do not breathe dust. 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 Move containers from spill area. Absorb spillage to prevent material damage. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill Move containers from spill area. Absorb spillage to prevent material damage. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. 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). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe dust. 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. Empty containers retain product residue and can be hazardous. Do not reuse container. Absorb spillage to prevent material damage.

## Section 7. Handling and storage

**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. 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

Ingredient name	Exposure limits
Rhodium chloride (RhCl <sub>3</sub> ), hydrate	<p><b>NIOSH REL (United States, 10/2013).</b> TWA: 0.001 mg/m<sup>3</sup>, (as Rh) 10 hours.</p> <p><b>OSHA PEL (United States, 2/2013).</b> TWA: 0.001 mg/m<sup>3</sup>, (as Rh) 8 hours.</p> <p><b>ACGIH TLV (United States, 3/2015).</b> TWA: 0.01 mg/m<sup>3</sup>, (as Rh) 8 hours. Form: Soluble</p> <p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 0.001 mg/m<sup>3</sup>, (as Rh) 8 hours. Form: Soluble</p>

**Appropriate engineering controls** Use only with adequate ventilation. 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.

**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	Solid. [Crystalline powder.]	Melting point	Not available.
Color	Brownish-red. Metallic.	Boiling point	800°C (1472°F)
Odor	Odorless.	Flash point	Not available.
Odor threshold	Not available.	Burning time	Not available.
Vapor pressure	Not available.	Burning rate	Not available.
Vapor density	Not available.	Flammability (solid, gas)	Not available.
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	Easily soluble in the following materials: cold water.		

## 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	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	No specific data.
Incompatible materials	Reactive or incompatible with the following materials: metals
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
Rhodium chloride (RhCl <sub>3</sub> ), hydrate	LD50 Oral	Rat	753 mg/kg	-

Conclusion/Summary Harmful if swallowed.

#### Irritation/Corrosion

Not available.

#### Conclusion/Summary

Skin	Not available.
Eyes	Causes serious eye damage.
Respiratory	Not available.

#### Sensitization

Not available.

Skin	Not available.
Respiratory	Not available.

#### Mutagenicity

Product/ingredient name	Test	Experiment	Result
Rhodium chloride (RhCl <sub>3</sub> ), hydrate	-	Subject: Bacteria	Positive

Conclusion/Summary Suspected of causing genetic defects.

#### Carcinogenicity

Not available.

Conclusion/Summary Not available.

#### Reproductive toxicity

## Section 11. Toxicological information

Not available.

Conclusion/Summary Not available.

### Teratogenicity

Not available.

Conclusion/Summary Not available.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

Information on the likely routes of exposure Not available.

### Potential acute health effects

Eye contact Causes serious eye damage.

Inhalation Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact No known significant effects or critical hazards.

Ingestion Harmful if swallowed.

### Symptoms related to the physical, chemical and toxicological characteristics

Eye contact Adverse symptoms may include the following:  
pain  
watering  
redness

Inhalation Adverse symptoms may include the following:  
respiratory tract irritation  
coughing

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 Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity Suspected of causing genetic defects if swallowed.

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



## Section 11. Toxicological information

### Acute toxicity estimates

Not available.

Interactive effects Not available.

Other information Not available.

## Section 12. Ecological information

### Toxicity

Not available.

Conclusion/Summary Not available.

### Persistence and degradability

Not available.

Conclusion/Summary Not available.

### Bioaccumulative potential

Not available.

### Mobility in soil

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

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
<b>UN number</b>	UN3260	UN3260	UN3260
<b>UN proper shipping name</b>	Corrosive solid, acidic, inorganic, n.o.s. (Rhodium chloride (RhCl <sub>3</sub> ), hydrate, solid)	CORROSIVE SOLID, ACIDIC, INORGANIC, N. O.S. (Rhodium chloride (RhCl <sub>3</sub> ), hydrate, solid)	Corrosive solid, acidic, inorganic, n.o.s. (Rhodium chloride (RhCl <sub>3</sub> ), hydrate, solid)
<b>Transport hazard class(es) and Packing group</b>	8 III 	8 III 	8 III 
<b>Environmental hazards</b>	No.	No.	No.

## Section 14. Transport information

<b>Additional information</b>	<b>Limited quantity</b> Yes.	<b>Emergency schedules (EmS)</b> F-A, S-B	<b>Passenger and Cargo Aircraft</b> Quantity limitation: 25 kg Packaging instructions: 860
	<b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 25 kg	<b>Special provisions</b> 223, 274	<b>Cargo Aircraft Only</b> Quantity limitation: 100 kg Packaging instructions: 864
	<b>Cargo aircraft</b> Quantity limitation: 100 kg		<b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: 5 kg Packaging instructions: Y845
	<b>Special provisions</b> IB8, IP3, T1		<b>Special provisions</b> A3

**Special precautions for user** Avoid exposure. ERG No. 154

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): This material is listed or exempted.

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

No products were found.

SARA 304 RQ Not applicable.

### SARA 311/312

Classification Reactive  
Immediate (acute) health hazard  
Delayed (chronic) health hazard

### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Rhodium chloride (RhCl <sub>3</sub> ), hydrate	100	No.	No.	Yes.	Yes.	Yes.

### State regulations

Massachusetts This material is not listed.

New York This material is not listed.

New Jersey This material is not listed.

Pennsylvania This material is not listed.



## Section 15. Regulatory information

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	This material is listed or exempted.
Canada	This material is listed or exempted.
China	This material is listed or exempted.
Europe	This material is listed or exempted.
Japan	<b>Japan inventory (ENCS):</b> This material is listed or exempted. <b>Japan inventory (ISHL):</b> Not determined.
Malaysia	Not determined.
New Zealand	This material is listed or exempted.
Philippines	This material is listed or exempted.
Republic of Korea	This material is listed or exempted.
Taiwan	This material is listed or exempted.
Turkey	Not determined.

## Section 16. Other information

### Procedure used to derive the classification

Classification	Justification
CORROSIVE TO METALS - Category 1	Expert judgment
ACUTE TOXICITY (oral) - Category 4	Expert judgment
SERIOUS EYE DAMAGE - Category 1	Expert judgment
GERM CELL MUTAGENICITY (oral) - Category 2	Expert judgment

### History

Date of printing 10/01/2017

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Version 3

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

## Section 16. Other information

### References

Not available.

Indicates information that has changed from previously issued version.

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

### Rh-140; rhodium(III) chloride crystal hydrate



CAS: 20765-98-4      Code: C3004D

#### Danger

May be corrosive to metals. Harmful if swallowed. Causes serious eye damage. Suspected of causing genetic defects if swallowed.

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep only in original container. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. 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.

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### 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.