Safety data sheet
According to Regulation no. 1907/2006 and Regulation 878/2020
RHODIUM TRICHLORIDE SOLUTION

Revision n. 3 – 04.09.2025
Replaces revision 3 – 02.04.2024

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trading name	Rhodium trichloride solution
Product code	526

1.2 Relevant identified uses of the substance and uses advised against

Recommended uses: industrial use. Catalyst for synthesis
Uses advised against: none in particular

1.3 Details of the supplier of the safety data sheet

Name	FAGGI ENRICO S.P.A.
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Phone	+39 055311861
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Person responsible for the safety data sheet	lorenzo.magaldi@faggi.it

1.4 Emergency telephone number: 111 - Medical helpline operating in England, in Scotland (NHS 24) and in Wales (NHS Direct Wales)

1.5 Registration number: A REACH registration number is not available for this substance as it is a mixture.

2. HAZARDS IDENTIFICATION

2.1 Classification of the mixture according to Regulation (EC) No 1272/2008

Hazard classes	Category codes	Hazard warnings
Metal Corrosive	1	H290
Skin corrosive	1A	H314
Eye Dam.	1	H318
Skin. Sens.	1	H317
STOT SE	3	H335
Muta	2	H341
Aquatic acute	2	H411

2.2 Label elements

Pictograms

Signal word: **DANGER**

Hazard statements

H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H317	May cause an allergic skin reaction
H335	May cause respiratory irritation

		H341	Suspected of causing genetic defects
		H411	Toxic to aquatic life with long lasting effects
	Precautionary statements	P270	Do not eat, drink or smoke when using this product
		P280	Wear protective gloves/clothing. Protect your eyes/face.
		P303+P361+P353	IF ON SKIN (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower
		P305+P351+P388	IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
		P301+P330+P331	IF SWALLOWED: rinse mouth. Do not induce vomiting
		P304+P340	IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing.

2.3 Other hazards

DOES NOT contain PBT/vPvB substances as defined in Regulation (EC) 1907/2006, Annex XIII
DOES NOT contain substances that interfere with the endocrine system in accordance with Regulation (EC) 1907/2006 art.59 paragraph 1 and in accordance with the criteria set out in Regulation (EU) 2017/2100 and Regulation (EU) 2018/605.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

Product identifier	**Concentration**	**Classification**	
		Hazard classes Category codes	**Hazard warnings**
Rhodium (III) chloride trihydrate	5%≤ C ≤ 10%	Met. Corr. 1	H290
CAS: 20765-98-4		Acute Tox. 4	H302
EC: 606-630-8		Skin Irr.	H315
Index Number: not available		Skin sens.	H317
ATE (oral): LD50 753 - 1257 mg/kg bw (rat)		Eye Dam. 1	H318
		Muta 2	H341
M-factor acute: 1		Aquatic Acute 1	H400
M-factor chronic: 1		Aquatic Chronic 1	H410
Hydrochloric acid	25% ≤ C ≤ 50%	Met. Corr. 1	H290
CAS 7647-01-0		Skin Corr. 1 A	H314
EC: 231-595-7		STOT SE 3	H335
INDEX: 017-002-01-X			
REACH No. 01-211948862-27-XXXX			

ATE: not applicable

Specific limits:

C ≥ 25 %

Eye damage 1
Corrosive to metals 1
Acute target organ toxicity single exposure 3
Skin corrosion 1A

10 % ≤ C < 25 %

Eye damage 1
Corrosive to metals 1
Acute target organ toxicity single exposure 3
Skin corrosion 1B

1 % ≤ C < 10 %

Eye damage 1
Corrosive to metals 1

0.1 % ≤ C < 1 %

Corrosive to metals 1

4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation	Keep the person affected at rest in a well-ventilated and warm area. In the event of respiratory arrest, administer artificial respiration
Ingestion	Do not induce vomiting. Drink plenty of water and consult a doctor
Skin contact	Immediately wash skin with plenty of water. Seek medical attention
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Do not use eye drops or creams. Seek medical attention.

Recommendations:

- **Seek medical attention immediately** YES
- **Possibility of delayed post-exposure effects** YES
- **Move the exposed individual from the place of exposure to fresh air** YES
- **Remove the exposed individual's clothing and shoes** YES
- **Method for handling contaminated clothing** Wear gloves
- **For first responders, wear PPE** YES

4.2 Most important symptoms and effects, both acute and delayed

Eye, nose and throat irritation, chest pain, choking sensation, skin irritation, corneal burns, skin burn (after severe exposure), nausea, vomiting. Abundant and haemorrhagic mucous secretions, bronchitis, pulmonary oedema, corneal necrosis, tissue necrosis, perforation of the gastrointestinal tract

4.3 Indication of any immediate medical attention and special treatment needed

Seek medical attention immediately. Emergency showers and eyewash systems must be available at the workplace.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Water spray, carbon dioxide, foam
Unsuitable extinguishing media	None in particular

5.2 Special hazards arising from the substance or mixture

In case of fire, hydrochloric acid may form which is toxic if inhaled. The product reacts with metals forming hydrogen which is highly flammable.

5.3 Advice for firefighters

General Information	Prevent the water used to extinguish the fire from flowing into the sewer, groundwater or surface water. Cool hazardous containers with water.
Equipment	Normal fire-fighting clothes and equipment, such as self-contained breathing apparatus (EN 137), firefighting protective clothing (EN469), gloves (EN 659) and boots (HO A29 or A30)

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Immediately move away from the contaminated area and stay upwind.

6.1.2. For emergency responders

Wear:

Chemical hazard safety gloves conforming to EN420 EN374

Full set of clothing according to UNI EN 13034:2006

Half-face masks with filters ABEK2P3 R conforming to EN14387:2004 + a1:2008

6.2 Environmental precautions

Prevent entry into sewers, groundwater and surface water

6.3 Methods and material for containment and cleaning up

6.3.1 Recommendations on how to contain a spill

Contain the spill with appropriate absorbent material (sand, sawdust) and place in an airtight container.

6.3.2 Recommendations on how to clean up after a spill

Wash the contaminated zone using plenty of water.

6.3.3 Any other information

None.

6.4 Reference to other sections

None

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1. Recommendations for safe handling of the substance or mixture, such as fire containment and prevention measures and the formation of aerosols and dust

Keep in closed and labelled original packaging

7.1.2. General recommendations on occupational hygiene

Do not eat, drink and smoke in work areas. Wash your hands after use. Remove contaminated clothing and protective equipment before entering eating areas

7.2 Conditions for safe storage, including any incompatibilities

Store away from bases, strong oxidising agents and metals.

7.2.1 Management of risks related to explosive atmospheres, corrosive conditions, flammability hazards, incompatible substances and mixtures, evaporation conditions, potential ignition sources

Store in the original containers and close them immediately after use.

7.2.2 Containment of the effects of weather conditions, pressure, temperature, sunlight, humidity and vibrations

Store in a cool, dry place.

7.2.3 Conditions for keeping substances / mixtures intact

The packaging must be tightly closed and labelled.

7.2.4. Provisions relating to ventilation, specific design of storage rooms or containers, quantitative limits under storage conditions, compatibility of packaging

Use PE and PP plastic packaging or other durable materials. Keep the packaging in a containment basin.

7.3 Specific end use(s)

Industrial use. Catalyst for synthesis

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

SUBSTANCE: HYDROCHLORIC ACID

DNEL

Workers
Systemic effects for long-term exposure – inhalation: no hazard identified
Systemic effects for short-term exposure – inhalation: no hazard identified
Local effects for long-term exposure – inhalation: 8 mg/m3
Local effects for short-term exposure – inhalation: 15 mg/m3
Systemic effects for long-term exposure – dermal: no hazard identified
Systemic effects for short-term exposure – dermal: no hazard identified
Local effects for long-term exposure – dermal: High hazard (no derived threshold)
Local effects for short-term exposure – dermal: High hazard (no derived threshold)
Hazards for eyes: Moderate risk (no derived threshold)
8-hour limit value: 5 ppm mg/m3 Legislative Decree 81/08 (IT)
Short-term limit value: 10 ppm 15 mg/m3 Legislative Decree 81/08
General population
Systemic effects for long-term exposure – inhalation: no hazard identified
Systemic effects for short-term exposure – inhalation: no hazard identified
Local effects for long-term exposure – inhalation: 8 mg/m3
Local effects for short-term exposure – inhalation: 15 mg/m3
Systemic effects for long-term exposure – dermal: no hazard identified
Systemic effects for short-term exposure – dermal: no hazard identified
Local effects for long-term exposure – dermal: High hazard (no derived threshold)
Local effects for short-term exposure – dermal: High hazard (no derived threshold)
Systemic effects for long-term exposure – oral: no hazard identified
Systemic effects for short-term exposure – oral: no hazard identified
Eye hazards: Moderate risk (no derived threshold)

PNEC

Fresh water: no hazard identified
Marine water: no hazard identified
Sewage Treatment Plant: No Hazard Identified
Sediment (Fresh Water): No Hazard Identified
Sediment (Marine Water): No Hazard Identified
Soil: No Hazard Identified

SUBSTANCE: RHODIUM(III) CHLORIDE

DNEL

Workers
Systemic effects for long-term exposure – inhalation: 0.94 mg/m3
Systemic effects for short-term exposure – inhalation: no hazard identified
Local effects for long-term exposure – inhalation: moderate hazard (no threshold derived)
Local effects for short term exposure – inhalation: moderate hazard (no threshold derived)

Systemic effects for long-term exposure – cutaneous: 2.7 mg/kg bw/day
Systemic effects for short-term exposure – cutaneous: no hazard identified Local effects for long-term exposure – cutaneous: High risk (no threshold derived)
Local effects for short-term exposure – skin: High risk (no threshold derived)
Eye Hazards: Moderate Risk (no threshold derived)

General population
Risk unknown but no further information is necessary as no exposure is expected

PNEC
Fresh water: 0.29 µg/L
Sea water: 0.029 µg/L
Sewage treatment plant: 14.6 mg/L
Sediment (freshwater): 4.37 mg/kg sediment dry weight
Sediment (seawater): 0.44 mg/kg sediment dry weight
Soil: 0.001 mg/kg dry weight of soil

8.2 Exposure controls

8.2.1 Appropriate technical measures

Ventilation systems. Emergency showers and eyewash system near the work area.
Periodically check the flow rate of the suction hood.

8.2.2 Individual protection measures, such as personal protective equipment

Eye/face protection	Splash safety goggles conforming to Directive 89/686/EEC and EN166:2001
Skin protection (hands)	Chemical gloves according to EN 420 EN 374 Glove material: fluoro rubber, butyl rubber, chloroprene, nitrile rubber, PVC, latex Material thickness: 0.5 mm Penetration time: ≥ 60 min DIN EN374 method
Skin protection (body)	Complete clothing according to UNI EN 13034:2006
Respiratory protection	Half-face masks with filters ABEK2P3 R conforming to EN14387:2004 + a1:2008
Thermal hazards	Information not available

8.2.3 Environmental exposure controls

Keep all environments equipped with suction systems using localised collection systems and ambient air exchange systems. Convey the aspirated volumes to an abatement system and then to the atmosphere. Do not use air recirculation suction systems. Avoid any spillage into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Colour	Reddish brown
Odour	Pungent, irritating

Melting point/freezing point	Approx. -50°C
Boiling point or initial boiling point and boiling range	Approx. 107 °C
Flammability	Non-flammable
Lower and upper limits of explosiveness	Non-explosive
Flash point	Non-flammable
Auto-ignition temperature	Non-flammable
Decomposition temperature	Not applicable
pH	Undefined
Kinematic viscosity	1.73 mm^2/s at 20 °C
Solubility	Completely soluble in water
Partition coefficient n-octanol/water (log value)	Not applicable
Vapour pressure	12 hPa at 25 °C
Density and/or relative density	1.3 g/ml
Relative vapour density	Data not available
Particle characteristics	Not applicable

9.2 Other information

None

10. STABILITY AND REACTIVITY

10.1 Reactivity

Hydrochloric acid is a strong acid with corrosive action with numerous metals. May produce corrosive vapours

10.2 Chemical stability

Stable under normal storage conditions

10.3 Possibility of hazardous reactions

Hydrochloric acid can react with oxidising products (peroxides, permanganates, chromates, persulfates etc.) generating toxic gases. Reacts with metals generating hydrogen with heat production; risk of explosion. May produce chlorine due to the effect of light or other catalysts. Reacts violently with bases and amines

10.4 Conditions to avoid

Exposure to heat and sunlight.

10.5 Incompatible materials

Strong bases, oxidising agents, metals

10.6 Hazardous decomposition products

Does not decompose but may generate hydrochloric acid vapours

11. TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	**MIXTURE:** LD50 (rat) (oral): 7530 mg/kg bw
Skin corrosion/irritation	**MIXTURE:** Skin corrosive
Serious eye damage/eye irritation	**MIXTURE:** Risk of serious eye damage. Rabbit 0.5 ml Cat. 1 (irreversible effects on eyes)

	Respiratory or skin sensitisation	**MIXTURE:** May cause an allergic skin reaction
	Germ cell mutagenicity	**MIXTURE:** Suspected of causing mutations
	Carcinogenicity	**MIXTURE:** Based on available data the classification criteria are not met
	Reproductive toxicity	**MIXTURE:** Based on available data the classification criteria are not met
	Specific target organ toxicity (STOT) single exposure	**MIXTURE:** Highly irritating to the respiratory tract and lungs
	Specific target organ toxicity (STOT) repeated exposure	**MIXTURE:** Based on available data the classification criteria are not met

11.2 **Information on other hazards**
None

12. ECOLOGICAL INFORMATION (Hydrochloric acid)

12.1	**Toxicity**	**Substance: Rhodium trichloride** LC50 (fish): 220 mg/l/96h EC50 (invertebrates): 290 µg/l/48h EC50 (algae): 4.5 mg/l/72h **Mixture:** LC50 (fish): 2200 mg/l/96h EC50 (invertebrates): 2.9 mg/l/48h EC50 (algae): 45 mg/l/72h
12.2	**Persistence and degradability**	It is not biodegradable and dissociates in water. Adsorption/desorption in the soil is impossible.
12.3	**Bioaccumulation potential**	Insignificant given the high solubility in water
12.4	**Mobility in soil**	Does not reach sediment / soil and therefore cannot be ingested by birds or mammals
12.5	**Results of PBT and vPvB assessment**	Not applicable
12.6	**Properties of interference with the endocrine system**	No known effects
12.7	**Other adverse effects**	No known effects

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

The substance and its packaging must be disposed of as hazardous waste by authorised companies.

14. TRANSPORT INFORMATION

14.1	**UN number or ID number**	3264
14.2	**Official UN shipping name**	
	ADR/RID ADN ICAO/IATA/IMDG	Inorganic liquid, corrosive, acidic, n.o.s. (hydrochloric acid, rhodium trichloride)
14.3	**Transport hazard class(es)**	
	ADR/RID/ADN/IMDG/ICAO-IATA: Class	8
	ADR/RID/ADN/IMDG/ICAO-IATA: Label	8 + mark environmental hazard
	ADR: Tunnel restriction code	(E)
	IMDG - EmS:	F-A, S-B
14.4	**Packing group**	I
14.5	**Dangers for the environment**	
	ADR/RID/ADN/ICAO-IATA:	yes
	IMDG: Marine Contaminant:	yes

14.6 Special precautions for users

Transport must be carried out by vehicles authorized for the transport of dangerous goods according to the provisions of the current edition of the A.D.R. Agreement. and the applicable national provisions. Transport must be carried out in the original packaging and, in any case, in packaging which is made of materials which cannot be attacked by the contents, and which are not likely to generate dangerous reactions. Those responsible for loading and unloading dangerous goods must have received appropriate training on the risks presented by the preparation and on any procedures to be adopted in the event of emergency situations.

14.7 **Maritime transport in bulk according to IMO instruments**

Bulk transport is not foreseen

15. REGULATORY INFORMATION

15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**	**Applicability**
Reg. (EC) 1907/2006/EC Reach	YES
Reg. (EC) 1272/2008 CLP and subsequent amendments and additions	YES
Reg. (EC) 2037/2000 "Substances that deplete the ozone layer"	NO
Reg. (EC) 850/2004 "Persistent organic pollutants"	NO
Reg. (EC) 689/2008 "export and import of hazardous chemicals"	NO
Substance listed in Annex I of Dir. 2012/18/EU cd Seveso	NO
Italian Legislative Decree 81/2008 Consolidated law on health and safety in the workplace	YES
Directive 2014/103/EU "ADR"	YES
Reg. (EC) 1907/2006/EC Reach art. 59 – Candidate List of Substances of Very High Concern (SVHC)	NO

	Reg. (EC) 1907/2006/EC reach - Annex XIV - substances subject to authorisation	NO
	Reg. (EC) 1907/2006/EC reach - Annex XVII - Restrictions on certain dangerous substances	Limited Usage Item 3 -75
	https://echa.europa.eu/en/substances-restricted-under-reach	(see link)

15.2 **Chemical safety assessment**

A chemical safety assessment has not been carried out

16. **OTHER INFORMATION**

Changes made since the previous issue

Changes to sections 3 – 11 – 14 - 16

Key of abbreviations and acronyms

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
GHS: Globally Harmonized System of Classification and Labeling of Substances
EINECS: European Inventory of Chemical Substances
CAS: Chemical Abstract Service
STA: Acute Toxicity Estimate
PBT: Persistent, Bioaccumulative and Toxic.
vPvB: (very persistent and very bioaccumulative). Very persistent and very bioaccumulative
LD: lethal dose
PNEC: predicted no effect concentration
DNEL: derived no effect level
TLV (ceiling value): threshold limit value
STEL: short-term exposure limit
EU-OEL: European occupational exposure limit
TWA: time-weighted average
EC: effective concentration
NOAEL: no observed adverse effect level
LC: lethal concentration
NOEC: no observed effect concentration
LOEC: lowest observed effect concentration
Bw: body weight
Koc: organic carbon-water partition coefficient

Main bibliographical references and data sources

ECHA database on registered substances and substances being registered: https://chem.echa.europa.eu/

Reporting, for mixtures, of which methods of information assessment have been used for classification purposes

Classification	**Classification procedure**
Metal Corrosive 1	calculation
Skin corrosive 1 A	calculation
STOT SE 3	calculation
Aquatic chronic 1	calculation
Skin Sensitive 1	calculation

Eye Dam. 1	calculation
Muta. 2	calculation

Appropriate training for workers to ensure the protection of human health and the environment

Chemical Risk Training pursuant to Legislative Decree 81/08 Title IX dangerous substances
PPE training