

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier : RHODUNA® 271 ready for use
Product code : 300000002557
Material number : 000000574197100211

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

Use of the Sub-
stance/Mixture : Electroplating

1.3 Details of the supplier of the safety data sheet

Company : Umicore Galvanotechnik GmbH
Klarenbergstraße 53-79
73525 Schwäbisch Gmünd
Germany
Telephone : +49 (0)7171 607-01
Telefax : +497171607316
E-mail address of person
responsible for the SDS : info.ipds@umicore.com

1.4 Emergency telephone number

Poison Center

Telephone : 844 892 0111
Hours of operation : 24HRS

Supplier

Emergency telephone number : For transport in Europe, Central- and South America, Israel and Africa (Non-Arabic speaking countries): +32 3 213 15 70
For transport in the Middle East (Israel excluded) & Arabic speaking Africa: +32 3 213 33 79
For transport in the USA and Canada: 1-877 986 4267
For transport in Asian and the Pacific (China excluded): +65 62 64 78 36
For transport in China: (+86) 400 88 71 190

Hours of operation : This telephone number is available 24 hours per day, 7 days per week.

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, Category 1	H290: May be corrosive to metals.
Skin corrosion, Category 1	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H341 Suspected of causing genetic defects.

Precautionary statements :
Prevention:
P201 Obtain special instructions before use.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 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/doctor.

Hazardous components which must be listed on the label:
sulphuric acid
dirrhodium trisulphate

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Additional Labelling

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 4.5 %

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
sulphuric acid	7664-93-9 231-639-5 016-020-00-8 01-2119458838-20	Met. Corr. 1; H290 Skin Corr. 1A; H314 Eye Dam. 1; H318	<= 11
dirhodium trisulphate	10489-46-0 234-014-5	Met. Corr. 1; H290 Skin Corr. 1B; H314 Eye Dam. 1; H318 Muta. 2; H341	<= 4.5

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Move to fresh air.
If symptoms persist, call a physician.
If unconscious, place in recovery position and get medical attention immediately.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
Wash contaminated clothing before reuse.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
Remove contact lenses.

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Skin contact may provoke the following symptoms:
Burn
corrosive effects
Redness
Eye contact
Excessive lachrymation

4.3 Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Cool closed containers exposed to fire with water spray.
In the presence of fire, note caustic and corrosive effect.

Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Sulphur oxides
Metal oxides
Sulphuric acid

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Collect contaminated fire extinguishing water separately. This

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : When using do not eat or drink. When using do not smoke.
Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully re-sealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards. To maintain product quality, do not store in heat or direct sunlight.

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Further information on storage stability : Keep in a dry place. No decomposition if stored and applied as directed.

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
sulphuric acid	7664-93-9	TWA (Mist, thoracic fraction)	0.05 mg/m ³	GB EH40
Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
		TWA (Mist)	0.05 mg/m ³	2009/161/EU
Further information	Indicative, When selecting an appropriate exposure monitoring method, account should be taken of potential limitations and interferences that may arise in the presence of other sulphur compounds., The mist is defined as the thoracic fraction.			
		TWA (Thoracic fraction)	0.2 mg/m ³	ACGIH
dirhodium trisulphate	10489-46-0	TWA	0.001 mg/m ³ (Rhodium)	GB EH40
		STEL	0.003 mg/m ³ (Rhodium)	GB EH40
		TWA	0.01 mg/m ³ (Rhodium)	ACGIH

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
sulphuric acid	Workers	Inhalation	Acute local effects	0.1 mg/m ³
	Workers	Inhalation	Long-term local effects	0.05 mg/m ³

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
sulphuric acid	Fresh water	0.0025 mg/l
	Sediment	0.002 mg/l
	Marine water	0.00025 mg/l
	Marine sediment	0.002 mg/l
	Sewage treatment plant	8.8 mg/l

8.2 Exposure controls

Engineering measures

Handle only in a place equipped with local exhaust (or other appropriate exhaust).

Personal protective equipment

Eye protection : Safety glasses with side-shields conforming to EN166

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Wear face-shield and protective suit for abnormal processing problems.

Hand protection

Material : Nitrile rubber
Break through time : > 240 min
Glove thickness : 0.38 mm

Skin and body protection : Impervious clothing

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.
ABEK-P3-filter

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid
Colour : brown
Odour : odourless
pH : < 1
Flash point : does not flash
Vapour pressure : not determined
Density : 1.08 - 1.11 g/cm³
Solubility(ies)
Water solubility : completely miscible
Auto-ignition temperature : not determined

9.2 Other information

Flammability (liquids) : Does not sustain combustion.
Metal corrosion rate : Corrosive to metals

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Hazardous reactions : No decomposition if stored and applied as directed.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Alkali metals
Light metals
Alkaline earth metals

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Components:

sulphuric acid:

Acute oral toxicity : LD50 (Rat): 2,140 mg/kg

Acute inhalation toxicity : Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : Assessment: The substance or mixture has no acute dermal toxicity

dirhodium trisulphate:

Acute oral toxicity : Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : Remarks: No data available

Skin corrosion/irritation

Product:

Remarks: Extremely corrosive and destructive to tissue.

Components:

sulphuric acid:

Result: Corrosive after 3 minutes or less of exposure

Remarks: data waiving in REACH dossier

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Serious eye damage/eye irritation

Product:

Remarks: May cause irreversible eye damage.

Components:

sulphuric acid:

Species: Rabbit

Result: Irreversible effects on the eye

Respiratory or skin sensitisation

Product:

Remarks: No data available

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: No data available

Carcinogenicity

Product:

Remarks: No data available

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

STOT - single exposure

Product:

Remarks: No data available

STOT - repeated exposure

Product:

Remarks: No data available

Repeated dose toxicity

Components:

sulphuric acid:

Species: Rat, female

LOAEL: 0.0003 mg/l

Application Route: inhalation (vapour)

Method: OECD Test Guideline 412

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

GLP: yes

Further information

Product:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Components:

sulphuric acid:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): > 16 mg/l
Exposure time: 96 h
Test Type: static test
GLP: no
Remarks: Fresh water

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 100 mg/l
aquatic invertebrates
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes
Remarks: Fresh water

Toxicity to fish (Chronic tox- : NOEC: 0.025 mg/l
icity)
Exposure time: 65 days
Species: Jordanella floridae (flagfish)
GLP: no
Remarks: Fresh water

dirhodium trisulphate:

Ecotoxicology Assessment

Acute aquatic toxicity : No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Do not dispose of waste into sewer.
Dispose of in accordance with the European Directives on waste and hazardous waste.
In accordance with local and national regulations.
Do not contaminate ponds, waterways or ditches with chemical or used container.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number

ADN : UN 3264
ADR : UN 3264
RID : UN 3264
IMDG : UN 3264
IATA : UN 3264

14.2 UN proper shipping name

ADN : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(Sulphuric acid, dirhodium trisulfate)
ADR : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(Sulphuric acid, dirhodium trisulfate)
RID : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(Sulphuric acid, dirhodium trisulfate)

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

IMDG : CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
(Sulphuric acid, dirhodium trisulfate)

IATA : Corrosive liquid, acidic, inorganic, n.o.s.
(Sulphuric acid, dirhodium trisulfate)

14.3 Transport hazard class(es)

ADR : 8



RID : 8



IMDG : 8



IATA : 8



14.4 Packing group

ADN

Packing group : II
Classification Code : C1
Hazard Identification Number : 80
Labels : 8

ADR

Packing group : II
Classification Code : C1
Hazard Identification Number : 80
Labels : 8
Tunnel restriction code : (E)
Limited quantity : 1.00 L

RID

Packing group : II
Classification Code : C1
Hazard Identification Number : 80
Labels : 8

IMDG

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Packing group : II
Labels : 8
EmS Code : F-A, S-B
IMDG segregationcode : Acids

IATA

Packing instruction (cargo aircraft) : 855
Maximum quantity : 30.00 L
Packing instruction (passenger aircraft) : 851
Maximum quantity : 1.00 L
Packing instruction (LQ) : Y840
Packing group : II
Labels : Corrosive
Remarks :

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Not applicable

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pol- : Not applicable

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

lutants

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Not applicable

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

CH INV	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
AICS	: On the inventory, or in compliance with the inventory
NZIoC	: Not in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
ISHL	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On TSCA Inventory

15.2 Chemical safety assessment

SECTION 16: Other information

Full text of H-Statements

H290	: May be corrosive to metals.
H314	: Causes severe skin burns and eye damage.

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

H318 : Causes serious eye damage.
H341 : Suspected of causing genetic defects.

Full text of other abbreviations

Eye Dam. : Serious eye damage
Met. Corr. : Corrosive to metals
Muta. : Germ cell mutagenicity
Skin Corr. : Skin corrosion
2009/161/EU : Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits
2009/161/EU / TWA : Limit Value - eight hours
ACGIH / TWA : 8-hour, time-weighted average
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:

Met. Corr. 1 H290

Classification procedure:

Based on product data or assessment

RHODUNA® 271 ready for use

Version 5.0

SDS Number: 300000002557

Revision Date: 16.03.2018

Skin Corr. 1	H314	Based on product data or assessment
Eye Dam. 1	H318	Based on product data or assessment
Muta. 2	H341	Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

GB / EN