

Rhodium Black Pen Plating Solution

Date Prepared : 17.05.2024

Revision : 0

Revision date : -

SDS Number : GBF - 4912

1- IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

1.1- Product Identifier:

Product Name UltraBlack Rhodium Pen Plating Solution

UFI Code No data available

Nanoform The product does not contain nanoparticles.

1.2- Relevant identified uses of the substance advised against:

Identified uses ADDITIVE FOR GALVANIC BATHS
Metal and surface treatment, galvanic industry

Used advised against All those not expressly identified

1.3- Details of the supplier of the safety data sheet:

Company Durston Tools

Address Desborough Park Road, High Wycombe, Buckinghamshire, HP12 3DJ

Tel/Fax +44 (0)1494 342 069

E-mail support@durston.com

1.4- Emergency telephone number:

+44 (0)1494 342 069

2- HAZARDS IDENTIFICATION

2.1- Classification of the substance or mixture:

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Skin corrosion/irritation, Category 1, H314

Serious eye damage/Eye irritation, Category 1, H318

Suspected of causing genetic defects, Category 2, H341

Toxic to aquatic life with long lasting effects, Category 2, H411

Notes: For the full text of the H sentences mentioned in this Section, see Section 16.

2.2- Label elements (according to EC 1272/2008):

GHS Pictograms

Signal word Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

H341 Suspected of causing genetic defects

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P310 Immediately call a POISON CENTER or doctor / physician.
- P391 Collect spillage.
- Contains:** Sulphuric acid,
Dirhodium trisulphate

2.3- Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage $\geq$ than 0.1%.
The product does not contain substances with endocrine disrupting properties in concentration $\geq$ 0.1%.

3- COMPOSITION/INFORMATION ON INGREDIENTS

3.1- Substance

Not applicable

3.2- Mixture

Components:

Chemical Name		EC No.	CAS No.	%	Classification	
Sulphuric acid		231-639-5	7664-93-9	≥5 - < 10	Skin Corr. 1A, H314	
Dirhodium trisulphate		234-014-5	10489-46-0	≥1 -< 3	Met Corr. 1, H290 Skin Corr. 1B, H314 Muta. 2, H341 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 EUH071	
Chemical Name	EC No.	CAS No.	Specific concentration limits		M-Factors	ATE
Sulphuric acid	231-639-5	7664-93-9	Skin Corr. 1A; H314: C ≥ 15 % Skin Irrit. 2; H315: 5 % ≤ C < 15 % Eye Irrit. 2; H319: 5 % ≤ C < 15 %		-	-
Dirhodium trisulphate	234-014-5	10489-46-0	-		1	-

Notes: For the full text of the H sentences mentioned in this Section, see Section 16.

4- FIRST AID MEASURES

4.1- Description of first aid measures

- Eye contact After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately. Protect uninjured eye.
- Skin contact Immediately take off all contaminated clothing. OBTAIN IMMEDIATE MEDICAL ATTENTION. Remove contaminated clothing immediately and dispose off safely. After contact with skin, wash immediately with soap and plenty of water.
- Ingestion Do NOT induce vomiting.
- Inhalation Remove casualty to fresh air and keep warm and at rest.

4.2- Most important symptoms and effects, both acute and delayed

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None

4.3- Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment: None

5- FIRE FIGHTING MEASURES

5.1- Extinguishing Media

Suitable extinguishing equipment

CO2 or Dry chemical fire extinguisher. In the event of an extended fire, all extinguishing agents are permitted.

Unsuitable extinguishing equipment

None in particular.

5.2- Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Hazardous combustion products

As a consequence of combustion or thermal decomposition, dangerous products can be formed. Exposure to combustion or decomposition products can cause damage to health. Possible combustion products: metal oxides, sulfuric acid, sulfur oxides. The ashes or combustion residues have catalytic properties with possible ignition of flammable vapors or liquids.

5.3- Advice for firefighters

Use suitable breathing apparatus. Move undamaged containers from immediate hazard area if it can be done safely. Keep containers cool with water spray. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

6- ACCIDENTAL RELEASE MEASURES

6.1- Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

See protective measures under point 7 and 8. Remove persons to safety. Wear personal protection equipment. Wear breathing apparatus if exposed to vapours/dusts/aerosols. Remove all sources of ignition. Remove persons to safety. Provide adequate ventilation.

For emergency responders:

Fist-gloves.

Eliminate all open flames and possible sources of ignition. Not smoking. If the product has flowed in large quantities into a water course, into the sewer system or has contaminated the soil or vegetation, notify the competent authorities. Evacuate the danger area, if necessary, consult an expert.

6.2- Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities. Retain contaminated washing water and dispose it. Suitable material for taking up: absorbing material, organic, sand

6.3- Methods and materials for containment and cleaning up

For containment:

Collect the product for possible use or for elimination. After collection, wash the area and

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materials involved with plenty of water.

For cleaning up:

Clear spills immediately. Collect the spilled product and place it in containers for recovery or disposal. Eliminate the residue with jets of water if there are no contraindications. Provide sufficient ventilation of the place affected by the leak. Evaluate the compatibility of the container to be used with the product, checking section 10. The disposal of contaminated material must be carried out in accordance with the provisions of point 13.

6.4- References to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

7- HANDLING AND STORAGE

7.1- Precautions for safe handling

See also section 8 for recommended protective equipment. Avoid contact with skin and eyes, inhalation of vapours and mists. Exercise the greatest care when handling or opening the container. Don't use empty container before they have been cleaned. Advice on general occupational hygiene: Do not eat, drink or smoke when using this product. Contaminated clothing should be changed before entering eating areas. Wash hands after use.

7.2- Conditions for safe storage, including any incompatibilities

Store in original packaging, in a cool, ventilated place, away from heat sources and direct exposure to sunlight. Keep containers closed when not in use. Keep away from food, drink and feed.

Incompatible materials: See subsection 10.5

Instructions as regards storage premises: Cool and adequately ventilated. Safety electric system.

Packaging materials: PELD, PEHD

7.3- Specific end use(s)

Information not available.

8- EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1- Control parameters

Sulphuric acid - CAS: 7664-93-9

- OEL Type: EU - TWA(8h): 0.05 mg/m³ - Notes: thoracic fraction

- OEL Type: ACGIH - TWA(8h): 0.2 mg/m³ - Notes: (T), A2(M) - Pulm func DIRHODIUM

TRISULPHATE - CAS: 10489-46-0

- OEL Type: ACGIH - TWA(8h): 0.01 mg/m³

DNEL Exposure Limit Values

- N.A.

PNEC Exposure Limit Values

- N.A.

8.2- Exposure controls

Eye protection:

PPE for the eyes are second category and must be provided with CE marking and the number of the Notified Body that issued the certification. Standard EN166 PPE requirements - specifications

Protection for skin:

Work clothing EN 13688 standard Protective clothing - General requirements.

When handling the pure product, wear impervious clothing for complete skin protection.

Protection for hands:

670/5000

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Gloves that protect against corrosive chemicals, third category and provided with CE marking and the number of the Notified Body that issued the certification.

Waterproof protective gloves in accordance with EN374-1, -2 and -3 are recommended (eg nitrile minimum thickness 0.3 - neoprene / natural latex minimum thickness 0.55). In relation to the contact time, use gloves with adequate IP (Permeation Index). Gloves must be checked before they are used. Use proper glove removal technique (without touching the outer surface of the glove) to avoid skin contact with the contaminated outer surface of the glove.

Respiratory protection:

The choice of PPE must be made following the UNI EN 529: 2006 standard (Respiratory protection devices - Recommendations for the selection, use, care and maintenance - Guidance document) establishing the adequate FPO value "operational protection" (for example, masks in accordance with UNI EN149 - Respiratory protective devices - Filtering half mask against particles can be used). Under normal working conditions, in the presence of extraction systems and air changes, there is no PPE. If operating conditions involve the use of the product in conditions of poor air exchange and possible stagnation of product mists and / or vapors, use respiratory protection devices.

Thermal Hazards:

N.A.

Environmental exposure controls:

Prevent release into the environment.

Appropriate engineering controls:

None

9- PHYSICAL AND CHEMICAL PROPERTIES

9.1- Information on basic physical and chemical properties

Physical State	Liquid
Colour	Dark brown
Odour	Characteristic
Odour threshold.	Not available
pH (solution)	< 2
Melting Point (°C)	Not available.
Boiling Point (°C)	99
Evaporation Rate (Water=1)	Not available.
Flammability, solid/gas	Not available.
Flash Point (°C)	Not available.
Flammability Limits in Air, % vol.	
Lower Explosive Limit	Not available.
Upper Explosive Limit	Not available.
Auto-Ignition Temperature	Not available.
Vapour pressure.	Not available.
Vapour density (Air= 1)	Not available.
Relative Density	1,1 - 1,3 g/cm ³
Solubility	Not available.
Partition Coefficient (n-octanol/water)	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

9.2- Other information:

9.2.1- Information with regard to physical hazard classes:

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No data available

9.2.2- Other safety characteristics:

Explosive properties

No explosive properties.

Oxidising property

No oxidizing property.

10- STABILITY AND REACTIVITY

10.1- Reactivity

SULFURIC ACID

Incompatible with: flammable substances, reducing substances, basic substances, metals, organic substances, water.

DIRODIO TRISULFATE

the product has corrosive effects on steel and aluminum

10.2- Chemical stability

Stable under recommended handling and storage conditions.

10.3- Possibility of hazardous reactions

Under normal conditions of use and storage no dangerous reactions are foreseeable.

10.4- Conditions to avoid

None in particular. However, follow the usual precautions towards chemicals.

10.5- Incompatible materials

CONTAINS SULFURIC ACID:

Incompatible with: flammable substances, reducing substances, basic substances, metals, organic substances, water.

10.6- Hazardous decomposition products

Sulfur dioxide

Sulfur trioxide

11- TOXICOLOGICAL INFORMATION

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

Acute toxicity

Sulphuric Acid (CAS# 7664-93-9)

LD50 oral (rat)	2.140 mg/kg bw
LC50 inhalation (rat)	375 mg/m ³ , air

Skin corrosion/irritation

Causes severe skin burns damage.

Serious eye damage/irritation

Causes serious eye damage.

Respiratory or Skin Sensitization

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Suspected of causing genetic defects

Carcinogenicity

Based on available data, the classification criteria are not met.

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Reproductive toxicity

Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity (Single Exposure)

Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity (Repeated Exposure)

Based on available data, the classification criteria are not met.

Aspiration Hazard

Based on available data, the classification criteria are not met.

11.2- Information on other hazards

11.2.1- Endocrine disrupting properties

No test data is available for the mixture.

11.2.2- Other information

No test data is available for the mixture.

12- ECOLOGICAL INFORMATION

12.1- Toxicity

Sulphuric Acid (CAS# 7664-93-9)		
LC50 Fish	> 16 - < 28 mg/l, 96 Hours (Lepomis macrochirus)	
LC50 Aquatic invertebrates	> 100 mg/l, 48 Hours (Daphnia magna)	
EC50 Algae	> 100 mg/l, 72 Hours (Desmodesmus subspicatus)	
Dirhodium trisulphate (CAS# 10489-46-0)		
LC50 Fish	220 mg/l, 96 Hours (Leuciscus idus melanotus)	
LC50 Aquatic invertebrates	290 µg/l, 24 Hours (Daphnia magna)	
EC50 Algae	4,5 mg/l, 72 Hours (Raphidocelis subcapitata)	

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

This product does not contain any substances classified as PBT or vPvB.

12.6- Endocrine disrupting properties

No data available.

12.7- Other adverse effects

No data available.

13- DISPOSAL CONSIDERATIONS

13.1- Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

Additional disposal information:

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Do not dispose of the product with household waste. Do not enter the sewers. Recycle if possible, otherwise contact an authorized company for industrial waste disposal.

Uncleaned packaging:

Containers and packaging contaminated with dangerous substances or preparations will have the same treatment as products.

Directive 94/62 / EC of the European Parliament and of the Council of 20 December 1994 on packaging and waste of packaging.

Waste code:

The European Union does not establish homogeneous rules for the elimination of chemical residues, as they are special residues. Their treatment and elimination depends on the internal laws of each country. So, for in any case, it is necessary to contact the competent Authorities, or with the companies legally authorized to elimination of residues.

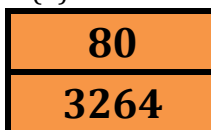
2014/955 / EU: Council Decision of 18 December 2014 amending the list of waste contained in Commission Decision 2000/532 / EC.

Council Directive 91/156 / EEC of 18 March 1991 amending Directive 75/442 / EEC on waste.

14- TRANSPORT INFORMATION

Land transport (ADR/RID)

14.1-	UN number	UN3264
14.2-	UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Sulphuric acid, dirhodium trisulphate)
14.3-	Transport hazard class(es)	8
14.4-	Packing Group	II
14.5-	Environmental hazard	Yes
14.6-	Maritime transport in bulk according to IMO instruments	Not applicable.
	Limited Quantity (ADR/RID)	1 L
	Exceptional amount (ADR/RID)	E2
	Tank code (ADR/RID)	L4BN
	Tunnel code	2 (E)
	Orange plate	



Sea transport (IMDG Code)

14.1-	UN number	UN3264
14.2-	UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Sulphuric acid, dirhodium trisulphate)
14.3-	Transport hazard class(es)	8
14.4-	Packing Group	II
14.5-	Environmental hazard	Yes
	Marine pollutant:	Yes
14.6-	Maritime transport in bulk according to IMO instruments	Not applicable.
	Limited Quantity (IMDG)	1 L
	Exceptional amount (IMDG)	E2



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EmS No (Fire)	F-A
N*FS (Spill)	S-B
Air transport (ICAO-IATA/DGR)	
14.1- UN number	UN3264
14.2- UN proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Sulphuric acid, dirhodium trisulphate)
14.3- Transport hazard class(es)	8
14.4- Packing Group	II
14.5- Environmental hazard	Not hazardous.
14.6- Maritime transport in bulk according to IMO instruments	Not applicable.



15- REGULATORY INFORMATION

- 15.1- **Safety, health and environmental regulations/legislations specific for the substance or mixture**
- Regulation (EC) No 1907/2006, (REACH),
 - Commission Regulation (EU) No 453/2010 amending Regulation (EC) No 1907/2006,
 - Regulation (EC) No 1272/2008 (CLP),
 - Commission Directive 2006/15/EC,
 - Commission Directive 2000/39/EC.
 - ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
- 15.2- **Chemical safety assessment**
- No chemical safety assessment has been processed for the mixture and the substances it contains.

16- OTHER INFORMATION

Full text of any H- & EUH-statements not written out in full under Sections 2 to 15

H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H341	Suspected of causing genetic defects.
H400	Very toxic to aquatic life
H410	Toxic to aquatic life with long-lasting effects
H411	Toxic to aquatic life with long lasting effects
EUH071	Corrosive to the respiratory tract.

List of abbreviations

ADN	European Agreement concerning the international Carriage of Dangerous Goods by Inlands Waterways
ADR	European Agreement Concerning the Int. Carriage of Dangerous Goods by Road
CAS No	Chemical Abstract Service Index Number
CLP	Regulation of Classification, Labelling and Packaging of Chemicals
CLP	Regulation of Classification, Labelling and Packaging of Chemicals
EC No	Identifier in ESIS (European archive of existing substances)
EmS	Emergency Schedule
IATA DGR	International Air Transport Association Dangerous Goods Regulation

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IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal Concentration 50%
LD50	Dosage producing 50% mortality
PBT	Persistent Bioaccumulative Toxic
RID	International Rule for Transport of Dangerous Substances by Railway
STEL	Short-term exposure limit
TWA	Time-weighted average exposure limit
vPvB	Very Persistent, Very Bioaccumulative

Other Information:

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Revision No 0
Revision Date -
Organized by Gultekin Baskoylu (Chemist)

Sources of information:

- ECHA and related EU directives,
- UN ADR, IMDG, IATA lists,
- Safety data sheets for raw materials and product components,
- Other helpful resources.

Note for users

The information, recommendations and suggestions herein are believed to be reliable. However, it is the user's responsibility to determine the safe handling and suitability for his/her use of the product described herein. Since the use by others is outside our control, no guarantee, expressed or implied, is made by TWL as to the effects of such use, the results obtained or the safety and toxicity of the product nor does TWL per se assume any liability arising out of use, by others of the product referred to herein. Nor is the information herein to be construed as absolutely complete since more information may be desirable or necessary when particular or exceptional circumstances exist, or because of applicable laws or government regulations.