

Safety Data Sheet
acc. to OSHA HCS (29 CFR 1910.1200)


Printing date: 04/01/2016

Revision: 04/01/2016

1 Identification

- **Product identifier**
- **Trade name: Midas® Bright Copper Electroforming Solution**
- **Product code: 335-074**
- **Recommended use and restriction on use**
- **Recommended use:** Electroforming solution
- **Restrictions on use:** See Sections 8 and 10 for further information.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
RIO GRANDE
7500 Bluewater Rd. NW
Albuquerque NM 87121-1962
1-800-545-6566
info@riogrande.com
- **Emergency telephone number:**
ChemTel Inc.
+1 (800)255-3924, +1 (813)248-0585

2 Hazard(s) identification

- **Classification of the substance or mixture**
Met. Corr. 1 H290 May be corrosive to metals.
Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Eye Dam. 1 H318 Causes serious eye damage.
- **Label elements**
- **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**

GHS05 GHS07
- **Signal word:** Danger
- **Hazard-determining components of labeling:**
copper sulphate
sulphuric acid
- **Hazard statements:**
H290 May be corrosive to metals.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
- **Precautionary statements:**
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection.

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P234	Keep only in original container.
P270	Do not eat, drink or smoke when using this product.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P302+P352	IF ON SKIN: Wash with plenty of water.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330	Rinse mouth.
P390	Absorb spillage to prevent material damage.
P362+P364	Take off contaminated clothing and wash it before reuse.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

7758-98-7	copper sulphate ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319	10-20%
7664-93-9	sulphuric acid ⚠ Met. Corr. 1, H290; Skin Corr. 1A, H314	<10%

· **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
For the wording of the listed Hazard Statements refer to section 16.

4 First-aid measures

· **Description of first aid measures**

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**

Immediately remove any clothing soiled by the product.

Immediately rinse with water.

If skin irritation continues, consult a doctor.

Seek immediate medical help for blistering or open wounds.

· **After eye contact:**

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**

Thirst

Caustic effect on skin and mucous membranes.

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Gastric or intestinal disorders when ingested.
 Nausea in case of ingestion.
 Vomiting.
 Diarrhea.
 Irritant to skin and mucous membranes.
 Strong irritant with the danger of severe eye injury.

· **Danger:**

Danger of gastric perforation.
 Harmful if swallowed.

· **Indication of any immediate medical attention and special treatment needed:** Treat symptomatically.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

The product is not flammable.
 Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents:** None.

· **Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

· **Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.
 Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures:**

Ensure adequate ventilation.
 Wear protective equipment. Keep unprotected persons away.
 For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

· **Environmental precautions:**

Do not allow to enter sewers/ surface or ground water.
 Inform respective authorities in case of seepage into water course or sewage system.

· **Methods and material for containment and cleaning up:**

Use limestone to neutralize and absorb spill.
 Send for recovery or disposal in suitable receptacles.

· **Reference to other sections:**

See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

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7 Handling and storage

- **Handling**
- **Precautions for safe handling:**
 - Use only in well ventilated areas.
 - Avoid splashes or spray in enclosed areas.
 - Use personal protective equipment as required.
- **Information about protection against explosions and fires:**
 - Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
 - Store in a cool location.
 - Use only receptacles specifically permitted for this substance/product.
 - Unsuitable material for receptacle: aluminium.
 - Unsuitable material for receptacle: steel.
- **Information about storage in one common storage facility:**
 - Store away from foodstuffs.
 - Do not store together with alkalis (caustic solutions).
- **Further information about storage conditions:** Keep containers tightly sealed.
- **Specific end use(s):** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**

7664-93-9 sulphuric acid

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 1 mg/m ³
TLV (USA)	Long-term value: 0.2* mg/m ³ *as thoracic fraction
EL (Canada)	Long-term value: 0.2 mg/m ³ ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m ³
LMPE (Mexico)	Long-term value: 0.2* mg/m ³ A2;*fracción torácica

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - The usual precautionary measures for handling chemicals should be followed.
 - Keep away from foodstuffs, beverages and feed.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Avoid contact with the eyes and skin.

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- **Engineering controls:** No relevant information available.
- **Breathing equipment:**
Not required under normal conditions of use.
Use suitable respiratory protective device in case of insufficient ventilation.
For large spills, respiratory protection may be advisable.
- **Protection of hands:**



Protective gloves

- **Eye protection:**



Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment**
Avoid release to the environment.
- **Risk management measures** See Section 7 for additional information.

9 Physical and chemical properties

Information on basic physical and chemical properties

- **Appearance:**

Form: Liquid

Color: Blue

- **Odor:** Characteristic

- **Odor threshold:** Not determined.

- **pH-value at 20 °C (68 °F):** <1.0

- **Melting point/Melting range:** Not determined.

- **Boiling point/Boiling range:** 100 °C (212 °F)

- **Flash point:** Not applicable.

- **Flammability (solid, gaseous):** Not applicable.

- **Auto-ignition temperature:** Not determined.

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not self-igniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits**

Lower: Not determined.

Upper: Not determined.

- **Oxidizing properties:** Not determined.

- **Vapor pressure:** Not determined.

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- | | |
|---|--|
| · Density at 20 °C (68 °F): | 1.17 g/cm ³ (9.764 lbs/gal) |
| · Relative density: | Not determined. |
| · Vapor density: | Not determined. |
| · Evaporation rate: | Not determined. |
| · Solubility in / Miscibility with Water: | Fully miscible. |
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |
| · Other information | No relevant information available. |

10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**
To avoid thermal decomposition, do not overheat.
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions:**
Reacts with alkali (lyes).
Reacts with strong acids.
Reacts with reducing agents.
Corrosive action on metals.
- **Conditions to avoid:** No relevant information available.
- **Incompatible materials:** Alkalis
- **Hazardous decomposition products:**
Sulfur oxides (SO_x)
Toxic metal compounds
Toxic metal oxide smoke

11 Toxicological information

· Information on toxicological effects

· Acute toxicity:

· LD/LC50 values that are relevant for classification:

7758-98-7 copper sulphate

Oral	LD50	300 mg/kg (rat)
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· Primary irritant effect:

- **On the skin:** Irritant to skin and mucous membranes.
- **On the eye:** Causes serious eye damage.
- **Sensitization:** Based on available data, the classification criteria are not met.

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· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NTP (National Toxicology Program):**

7664-93-9 sulphuric acid

K

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

· **Probable route(s) of exposure:**

Ingestion.

Inhalation.

Eye contact.

Skin contact.

· **Acute effects (acute toxicity, irritation and corrosivity):** Harmful if swallowed.

· **Repeated dose toxicity:** No relevant information available.

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

· **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.

· **Carcinogenicity:** Based on available data, the classification criteria are not met.

· **Reproductive toxicity:** Based on available data, the classification criteria are not met.

· **STOT-single exposure:** Based on available data, the classification criteria are not met.

· **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

· **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity** Toxic for aquatic organisms

· **Persistence and degradability** No relevant information available.

· **Bioaccumulative potential:** No relevant information available.

· **Mobility in soil:** No relevant information available.

· **Additional ecological information**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

· **Other adverse effects:** No relevant information available.

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13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

- **Uncleaned packagings**

- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**

- **DOT, ADR, IMDG, IATA**

UN3264

- **UN proper shipping name**



Limited Quantity for packages less than 30 kg (66 lb) and inner packagings less than 5 L (1.3 gal).

- **DOT, IATA**

Corrosive liquid, acidic, inorganic, n.o.s. (sulfuric acid, copper sulfate)

- **ADR**

3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID, COPPER SULPHATE), ENVIRONMENTALLY HAZARDOUS

- **IMDG**

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID, COPPER SULPHATE), MARINE POLLUTANT

- **Transport hazard class(es)**

- **DOT**



- **Class**

8 Corrosive substances

- **Label**

8

- **ADR**



- **Class**

8 (C1) Corrosive substances

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· Label	8
· IMDG	
	
· Class	8 Corrosive substances
· Label	8
· IATA	
	
· Class	8 Corrosive substances
· Label	8
· Packing group	
· DOT, ADR, IMDG, IATA	III
· Environmental hazards	Product contains environmentally hazardous substances: copper sulphate
· Marine pollutant:	Yes (DOT) Symbol (fish and tree)
· Special precautions for user	Warning: Corrosive substances
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	See 173.154(d) for corrosive exceptions. Product is additionally classified as a MARINE POLLUTANT based on MARPOL and DOT rules. Labeling as a MARINE POLLUTANT is not required for non-bulk single package shipments by motor vehicle, rail car or aircraft. Bulk packaging consists of a maximum capacity of greater than 450L (119 gallons) for a liquid and a maximum net mass greater than 400kg (882 pounds) for a solid.

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15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· Section 302 (extremely hazardous substances):
--

None of the ingredients are listed.

· Section 304 (emergency release notification):
--

None of the ingredients are listed.

· Sections 311/312 (hazardous chemical threshold planning quantity in pounds):

None of the ingredients are listed.

· Section 355 (extremely hazardous substances):
--

7664-93-9 sulphuric acid

· Section 313 (Specific toxic chemical listings):
--

7758-98-7 copper sulphate

7664-93-9 sulphuric acid

· TSCA (Toxic Substances Control Act)
--

All ingredients are listed.

· Proposition 65 (California)

· Chemicals known to cause cancer:

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for females:
--

None of the ingredients are listed.

· Chemicals known to cause reproductive toxicity for males:
--

None of the ingredients are listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency):

None of the ingredients are listed.

· IARC (International Agency for Research on Cancer):
--

None of the ingredients are listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health):
--

None of the ingredients are listed.

· Canadian substance listings

· Canadian Domestic Substances List (DSL):

All ingredients are listed.

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16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 04/01/2016 / -

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Met. Corr. 1: Corrosive to metals, Hazard Category 1

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

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