

# Rapid Electroplating Process, Inc SAFETY DATA SHEET



Conforms to: 29CFR 1900.1200 App D  
Complies with Canadian WHMIS MSDS Requirements  
Based on CCOHS: A Brief Summary of Canadian Requirements (Apr 2014)  
Conforms to Regulation (EC) No.453/2010/EU (REACH)

## 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Product Identification:	Brass Plating Materials: Brass Coatalyte #315 Brass Anode #535, 545
Product Use:	Selective Electroplating
Manufacturer:	Rapid Electroplating Process, Inc. 2901 W. Soffel Ave. Melrose Park, IL 60160 USA
Telephone	00-1-708-344-2504 (9:00 A.M. -4:30 PM, CST/CDT, M-F)
Emergency telephone:	In U.S.--CHEMTREC 1-800-424-9300 (24 Hrs) Outside U.S.-- 001-703-527-3887 (call collect)
Date of Issue (Version):	Jan 2018

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## 2. HAZARDS IDENTIFICATION

**Note**

Solid metallic anodes are generally classified as “articles” and do not constitute a hazardous material in benign, solid form under the definitions of the OSHA Hazard Communication Standard (29 CFR 1910.1200) or DOT/IATA transportation rules. However, some hazardous elements can be formed as a part of their normal use in selective electroplating. Although not considered a normal end use of our anodes, hazardous conditions can also be created by machining/welding/etc. the anode creating dust/fume or other conditions. The following classification information and warnings are for the hazardous elements which may be released in conjunction with the associated RAPID coatalyte (electrolyte) during normal use in selective electroplating.

Unless noted, hazard information presented here is based on the properties of the full strength constituent chemicals with RAPID product concentrations > 1 wt% (>0.1 wt% if identified as carcinogenic). This product contains diluted forms of the chemicals which should be taken into account when evaluating the hazards of the product as a whole.

Hazard	Category	Hazard	Category
Acute Toxicity	--	Reproductive Hazard	--
Oral	2 (ATE Product LD50)	Germ Cell Mutagenicity	Unknown
Dermal	Unknown	Reproductive Toxicity	Lead (from the brass anode) can effect a developing baby or child. DUPONT reports that limited reproductive studies do not suggest effects from sodium cyanide. Some tests have shown the potential for developmental toxicity but only at exposure levels producing toxic effects in the adult animal.
Inhalation Dusts/Mists	Unknown	Lactation	Unknown
Skin Corrosion	1B	Target Organ Toxicity	--
Serious Eye Damage/Irritation	1	Single Exposure	Eyes, skin, cardiovascular system, respiratory system, mucous membranes
Carcinogenicity	2 (Lead/Lead Compounds-IARC/NTP)	Chronic Exposure	Central nervous system, thyroid
Respiratory/Skin Sensitizations	Unknown	Aspiration Hazard	Unknown

Hazard Category	Signal Word	Precautionary Statements:	Hazard Symbol(s) (GHS):
1B (Skin Corrosion/Irritation)	Danger	Causes severe skin burns and eye damage	
2 (Acute Toxicity-Oral)	Danger	Fatal if swallowed	
2 (Carcinogenicity)	Warning	Suspected of causing cancer	
1 (Hazardous to Environment)	Caution	May impact the environment	

### Hazard Statements (US-GHS):

ID	Hazard Statement
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ID	Hazard Statement
EUH031	Contact with acids liberates toxic gas
EUH066	Repeated exposure may cause skin dryness or cracking
EUH210	Safety data sheet available on request.
EUH401	To avoid risks to human health and the environment, comply with the instructions for use.
H301	Toxic if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H320	Causes eye irritation
H331	Toxic if inhaled
H401	Toxic to aquatic life

**Precautionary Statements (US-GHS):**

ID	Precautionary Statement
P102	Keep out of reach of children
P103	Read label before use
P220	Keep/Store away from clothing/acids/foodstuffs/combustible materials
P233	Keep container tightly closed
P234	Keep only in original container
P235	Keep cool
P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P262	Do not get in eyes, on skin, or on clothing
P264	Wash exposed skin thoroughly after handling
P270	Do not eat, drink or smoke when using this product
P271	Use only outdoors or in a well-ventilated area
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301+310	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician
P303+361+353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P309+311	IF exposed or you feel unwell: Call a POISON CENTER or doctor/physician
P321	Specific treatment (see items on label and SDS)
P330	If swallowed, rinse mouth
P332+313	If skin irritation occurs: Get medical advice/attention
P337+313	If eye irritation persists get medical advice/attention
P362	Take off contaminated clothing and wash before reuse
P370	In case of fire use extinguishers suitable for surrounding fire (avoid CO2).
P403+233	Store in a well ventilated place. Keep container tightly closed
P405	Store locked up
P501	Dispose of contents/waste/container according to national/state/local regulations

Hazards Not Otherwise Classified	None known.
Ingredients with Unknown Toxicity	None >1%

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Anode (Brass Anode #535, 545):**

Chemical Name	Common Name	CAS-No	Concentration (Wt%)
Zinc (Metal)	Anode	7440-66-6	~33
Lead (Metal)	Anode	7439-92-1	<0.5
Copper (Metal)	Anode	7440-50-8	~67
Dynel (acrylo), Woven	Sleeve_y1	Not Applicable (Dynel)	Not Applicable

**Note** The sleeve serves to carry and maintain the plating chemicals between the metallic anode and the workpiece as well as provide electrical contact insulation between the metallic anode and the workpiece. As such, it is not expected to participate in chemical reactions which will evolve hazardous chemicals during theselective plating process.

**Coatalyte/Activator (Brass Coatalyte #315):**

Chemical Name	Common Name	CAS-No	Concentration (Wt%)
Sodium Cyanide	Prussiate	143-33-9	< 25
Copper Cyanide	Cuprous Cyanide	544-92-3	< 10
Zinc Oxide	-	1314-13-2	< 5
Components not designated as hazardous or <1 wt% or carcinogen <0.1 wt%	Various	Various	> 60

**Note** Because of manufacturing variances and possible product improvements, the compositions and physical properties listed here should be considered representative. The values listed should not be construed as specifications.

#### 4. FIRST AID MEASURES

<b>Description of First Aid Measures:</b>	
General Information:	Move to fresh air; flush affected area with water (especially under eyelids if eyes affected); remove contaminated clothing; treat for shock as necessary. Never give anything by mouth to an unconscious person.
Following Inhalation:	Move to fresh air. If breathing stops, give artificial respiration/oxygen as appropriate. Call physician.
Following Eye contact:	Rinse with clear water, especially under eyelid. Consult Physician.
Following Skin contact:	Wash affected area with soap and water. Consult physician if irritation occurs.
Following Ingestion:	Call a poison control center (PCC)/physician/emergency responders immediately and follow instructions.  If victim is conscious: Rinse mouth. If directed, administer water or milk and/or oxygen if symptoms develop.  Do not administer emetic or induce vomiting. Never give anything by mouth to an unconscious person.  If victim has stopped breathing: Call a poison control center (PCC)/physician/emergency responders immediately and follow instructions.  As a part of safety planning, consult physician regarding use of oxygen/amyl nitrate especially if heart conditions exist in workers.
<b>Most Important Symptoms and Effects</b>	
Acute:	Irritant to skin, eyes and other mucous membranes. TLV 'skin' notation indicates that cyanide may penetrate the skin, especially if broken.
Delayed:	DUPONT suggests that small exposures to cyanide continuing over a long period have caused decreased thyroid activity and kidney changes. Long-term administration to dogs have produced unspecified acute intoxication symptoms, increased numbers of red blood cells, decreased proteins and central nervous system changes. Literature indicates that body can metabolize small amounts of cyanide without chronic/long term residual effects.
Indication of Immediate Medical Attention and Special Treatment Needed:	Cyanide Exposure: Weakness, dizziness, confusion, headache, vomiting, skin/mucous membrane irritation. In the extreme case, cyanosis, unconsciousness and death. Cyanide disrupts the oxidative mechanism; skin may have deceptively healthy pink to red color but with injury or lack of oxygen may be bluish. Prompt action is needed to prevent further injury or death.
Note to physicians:	DUPONT suggests that intravenous injections by a physician of sodium nitrite and sodium thiosulfate may be useful for severe cyanide exposure. Without symptoms, no treatment is suggested--decontaminate and observe for at least 30 minutes (the biological half-life of cyanide in the body is about 20-90 minutes). An expansive discussion of cyanide first aid from the DUPONT MSDS is available on request. The Center for Disease Control also offers guidance for cyanide emergencies at <a href="http://www.bt.cdc.gov/agent/cyanide/">http://www.bt.cdc.gov/agent/cyanide/</a> .  Note: Dupont suggests that to prepare activated charcoal slurry, mix thoroughly 50 g of activated charcoal in 400 ml (about 2 cups) water.

#### 5. FIRE-FIGHTING MEASURES

Extinguishing Media:	As appropriate for surrounding fire.
Extinguishing Media Which must not be used for safety reasons:	Avoid CO2 or acid-based extinguishers in confined area because they may react with spilled material to produce HCN.
Hazardous combustion products:	On extreme heating or mixing with acids: metal oxides, nitrous oxides, cyanates, and/or flammable HCN gas.
Special exposure hazards arising from the substance or mixture:	If material is free to mix with water, mixing may result in toxic water runoff
Conditions of Flammability:	Not flammable (aqueous solution). See Section 9: Physical and Chemical Properties.
Advice for fire-fighters:	Wear self-contained breathing apparatus.
Additional information:	Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

#### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Control access to spill area. Ensure adequate ventilation and avoid direct contact with material.
Environmental precautions:	Comply with all national, regional and local regulations for ultimate disposal of cyanide/brass waste solution. Do not flush cyanide compounds into sewers that may contain an acid. Use toxic material disposal service or hypochlorite detoxification.
Methods for containment:	Use inert, absorbent material.
Methods for clean-up:	Confine material in appropriately marked container. After pickup, clean affected area with mild hypochlorite (bleach, etc.)
Additional information:	Dispose of in accordance with local, regional and national regulations.

#### 7. HANDLING AND STORAGE

Precautions for safe handling:	--
Handling:	DO NOT TAKE INTERNALLY. USE IN WELL-VENTILATED AREA. DO NOT MIX WITH OTHER CHEMICALS. Keep container closed when not in use. Keep away from children. Brass Coatalyte #315 may give off some ammonia gas during use, and under unusual conditions, HCN.
Usage:	To reduce the possibility of injury by splatter or obstruction of ventilation/air movement, do not crowd workpiece with body or face. Avoid conditions that could allow workpiece to: bend/spring-back and "flick" solution; or drop into puddled solution and splash.

Storage:	Store/use in ventilated areas and avoid temperature extremes. Keep away from foodstuff, acids and other incompatible materials. Do not store near combustible/flammable materials (in the event of fire and container rupture, there is the potential for cyanide/brass solution runoff from fire-fighting water). As a strong poison, cyanides should be controlled and handled by responsible individuals. Keep away from children and foodstuff.
Specific end use(s):	Recommendations: Observe instructions for use.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure limit values:

Chemical Name	ACGIH TWA	ACGIH STEL	OSHA PEL
Copper (Metal)	1 mg/m3 - As Cu; Respirable fraction	Not Listed.	1 mg/m3 - as Cu Dust/Mist
Copper Compounds	1 mg/m3 - Soluble compounds, as Cu; Respirable fraction	Not Listed.	1 mg/m3 - as Cu Dust/Mist
Copper Cyanide	1 mg/m3 - as Cu; Respirable fraction; STEL of 5(Skin)C as CN also applies.	5(Skin)C mg/m3 - As CN	1 mg/m3 - as Cu Dust; 5(Skin) as CN also applies
Cyanide Compounds	Not Listed.	5(Skin)C mg/m3 - as CN	5(Skin) mg/m3 - as CN
Lead (Metal)	0.05 mg/m3 - as Pb	Not Listed.	Special - as Pb, se CFR 29 1910.1025
Lead Compounds	0.05 mg/m3 - as Pb	Not Listed.	Special - as Pb, se CFR 29 1910.1025
Sodium Cyanide	Not Listed.	5(Skin)C mg/m3	5(Skin) mg/m3 - as CN
Zinc (Metal)	Unknown	Unknown	Unknown
Zinc Compounds	Not Listed.	Not Listed.	Not Listed.

**Note** Under normal conditions of evaporation, only the water phase is expected to evaporate leaving the soluble salts behind. Any TWA is thus believed to be meaningful only for the abnormal case in which the solution as a whole is introduced into the air as an aerosol.

Exposure controls:	--
Engineering Controls:	Local exhaust.
Personal protective equipment:	As appropriate for conditions of use: Chemical aprons/suits, eye wash fountain, safety shower.
Respiratory protection:	NIOSH approved dust/mist respirator.
Eye protection:	Chemical splash goggles/face shield. Avoid use of contact lenses.
Hand protection:	Gloves, rubber, e.g., butyl or neoprene.
Skin protection:	As appropriate for conditions of use: Rubber aprons/suits
Environmental exposure controls:	Maintain levels below community environmental protection thresholds.
General hygiene considerations:	DO NOT TAKE INTERNALLY. Keep away from eyes and out of open wounds. Practice good industrial/personal hygiene and safety practice; do not smoke/eat/drink in area of use; wash hands after use; wash clothing/materials that may have come in contact with chemicals.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Anode (Brass Anode #535, 545):

Physical state:	Solid	Vapour pressure:	Not Applicable
Appearance:	Metallic	Vapor density:	Not Applicable
Color:	Yellow	Relative Density:	~8.5
Odor:	No identifiable odor.	Solubility (in water):	Not Applicable
pH:	Not Applicable	Partition coefficient: n-octanol/water:	Not Applicable
Melting point / melting range:	930° C (1710° F)	Auto-ignition temperature:	Not Applicable
Boiling point / boiling range:	Not Applicable	Decomposition Temperature:	Not Applicable
Flash point:	Not Applicable	Viscosity:	Not Applicable
Evaporation rate:	Not Applicable	Oxidizing properties:	Not Applicable
Flammability (solid, gas):	Not Flammable	Explosion Data-Mechanical Impact:	Insensitive
Upper / Lower Flammability Limit--Explosive Limits:	Not Applicable	Explosion Data-Static Discharge:	Insensitive

### Coatlyte/Activator (Brass Coatlyte #315):

Physical state:	Liquid	Vapour pressure:	As Water
Appearance:	Liquid	Vapor density:	As Water
Color:	Red	Relative Density:	1.2
Odor:	Slight ammonia odor.	Solubility (in water):	Aqueous solution--soluble in water.
pH:	9.8	Partition coefficient: n-octanol/water:	As Water
Melting point / melting range:	< 0° C (< 32° F)	Auto-ignition temperature:	Not Applicable (aqueous solution)
Boiling point / boiling range:	> 100° C (> 212° F)	Decomposition Temperature:	Not Applicable (aqueous solution)
Flash point:	Not Applicable (aqueous solution)	Viscosity:	As Water
Evaporation rate:	As Water	Oxidizing properties:	Not Applicable
Flammability (solid, gas):	Not Flammable	Explosion Data-Mechanical Impact:	Insensitive
Upper / Lower Flammability Limit--Explosive Limits:	Not Applicable (aqueous solution)	Explosion Data-Static Discharge:	Insensitive

## 10. STABILITY AND REACTIVITY

Reactivity:	Reacts with acids to release HCN gas
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Chemical Stability:	Stable
Possibility of Hazardous Reactions:	On extreme heating or mixing with acids: metal oxides, nitrous oxides, cyanates, and/or flammable HCN gas.
Conditions to avoid:	High heat. Mixing with incompatible materials.
Incompatible Materials:	Acids, acid salts, and weak alkalis. Strong oxidizers (e.g. nitrates and chlorites) may react exothermally.
Hazardous decomposition products:	On extreme heating or mixing with acids: metal oxides, nitrous oxides, cyanates, and/or flammable HCN gas.
Anode Reactivity:	RAPID Brass Anodes are generally inert until used in the plating process with RAPID Brass Coatalyte #315. During the plating process, the anode slowly dissolves and contributes copper and zinc and trace lead ions to the coatalyte replenishing the copper and zinc plated onto the workpiece as brass.

## 11. TOXICOLOGICAL INFORMATION

### Toxic Levels:

Source	Chemical Name	LD50 (mg/kg)	LC50 (mg/M3)	IARC Listed	NTP Listed	OSHA Listed	ACGIH Carcinogenicity Listed
Anode	Copper (Metal)	Not Available		No	No	No	No
Anode	Copper Compounds	Various	Not Available	No	No	No	No
Anode	Lead (Metal)	Not Available	Not Available	IARC lists Lead as 'Possibly Carcinogenic to Humans'.	NTP Lists Lead and Lead Compounds as 'Reasonably Anticipated to be Human Carcinogen'.	29CFR1910.1025 (Lead)	ACGIH lists Lead and Inorganic Lead Compounds as 'Confirmed Animal Carcinogen with Unknown Relevance to Humans.'
Anode	Lead Compounds	1500 OG. Pig as PbCl <sub>2</sub> , NIOSH	Not Available	IARC lists Inorganic Lead Compounds (as a group) as 'Probably Carcinogenic to Humans'.	NTP Lists Lead and Lead Compounds as 'Reasonably Anticipated to be Human Carcinogen'.	29CFR1910.1025 (Lead)	ACGIH lists Lead and Inorganic Lead Compounds as 'Confirmed Animal Carcinogen with Unknown Relevance to Humans.'
Anode	Zinc (Metal)	Not Available	Not Available	No	No	No	No
Anode	Zinc Compounds	Various	N/A	No	No	No	No
Coat315	Copper Compounds	Various	Not Available	No	No	No	No
Coat315	Copper Cyanide	126 OR	Not Available	No	No	No	No
Coat315	Cyanide Compounds	7 -11 OR - as Sodium Cyanide	15 R (4hr) (4 Hr)	No	No	No	No
Coat315	Sodium Cyanide	7 -11 OR -as Sodium Cyanide	15 R (4 Hr)	No	No	No	No

### Estimated Product LD50 (mg/kg)

33.311

**Note** When the anode is used for normal selective plating, the backing/stem and sleeve are expected to be inert and not generate hazardous chemical products themselves.

### EFFECTS OF ACUTE EXPOSURE

Eye contact:	Potential for eye irritation or chemical burns.
Inhalation:	Mist can cause respiratory irritation.
Skin contact:	Can cause skin irritation or chemical burns. Note that Cyanide TWA has a "skin" notation.
Ingestion:	Potentially toxic by ingestion.

### EFFECTS OF CHRONIC EXPOSURE

Target organs:	Eyes, skin, cardiovascular system, central nervous system, thyroid, blood
Chronic Effects:	DUPONT suggests that small exposures to cyanide continuing over a long period have caused decreased thyroid activity and kidney changes. Long-term administration to dogs have produced unspecified acute intoxication symptoms, increased numbers of red blood cells, decreased proteins and central nervous system changes. Literature indicates that body can metabolize small amounts of cyanide without chronic/long term residual effects.
Carcinogenicity:	No component has been identified as a carcinogen.
Mutagenicity:	Unknown
Reproductive Effects:	Lead (from the brass anode) can effect a developing baby or child. DUPONT reports that limited reproductive studies do not suggest effects from sodium cyanide. Some tests have shown the potential for developmental toxicity but only at exposure levels producing toxic effects in the adult animal.
Developmental Effects:	--
Teratogenicity:	None known.
Embryotoxicity:	Lead (from the brass anode) can effect a developing baby or child. DUPONT reports that limited reproductive studies do not suggest effects from sodium cyanide. Some tests have shown the potential for developmental toxicity but only at exposure levels producing toxic effects in the adult animal.
Skin Sensitization:	None known.
Respiratory Sensitization:	None known.
Toxicologically Synergistic Materials	None known.

**12. ECOLOGICAL INFORMATION**

**Specific Toxicity:**

Chemical Name	Effect dose/concentration	Test duration	Species	Result/Evaluation	Method	Remark
Copper Cyanide	LC50 0.32 mg/L	96 Hrs	Fathead Minnow	LC50	Unknown	-
Sodium Cyanide	EC50 10 mg/l	48 Hrs	Water flea (Daphnia pulex)	EC50	Unknown	Information given is based on data obtained from similar substances
Sodium Cyanide	EC50 0.05 mg/l	96 Hrs	Algae	EC50	Unknown	Information given is based on data obtained from similar substances
Sodium Cyanide	LC50 ca. 0.025 mg/l	96 Hrs	Fish	LC50	Unknown	Information given is based on data obtained from similar substances
Zinc Oxide	EC50 0.098 mg/L	48 Hrs	Daphnia magna (Water flea)	EC50	Unknown	Unknown
Zinc Oxide	EC50 >1,000 mg/l	48 Hrs	Daphnia magna (Water flea)	EC50	Unknown	Unknown
Zinc Oxide	LC50 1.1 mg/L	96 Hrs	Oncorhynchus mykiss (rainbow trout)	LC50	Unknown	Unknown

<b>Persistence and degradability:</b>	Cyanide biodegrades.
<b>Bioaccumulative potential:</b>	Cyanide biodegrades.
<b>Mobility in soil:</b>	Cyanide is water soluble.
<b>Results of PBT and vPvB Assessment:</b>	None known.
<b>Other adverse effects:</b>	None known.

**13. DISPOSAL CONSIDERATIONS**

<b>Waste treatment methods:</b>	Comply with all national, regional and local regulations for ultimate disposal of cyanide/brass waste solution. Do not flush cyanide compounds into sewers that may contain an acid. Use toxic material disposal service or hypochlorite detoxification.
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**14. TRANSPORT INFORMATION**

**Anode (Brass Anode #535, 545):**

Information List	US DOT	IATA
UN Number	N/A	N/A
Hazard Class	N/A	N/A
Packing Group	N/A	N/A
Proper Shipping Name	Not regulated by DOT	Not regulated by IATA.
Technical Name (if needed)		
Labels	N/A	N/A

<b>Marine Pollutant</b>	No
<b>Special Precautions</b>	None beyond those above.
<b>Transport in Bulk</b>	Not Applicable

**Coatalyte/Activator (Brass Coatalyte #315):**

Information List	US DOT	IATA
UN Number	UN 2922	UN 2922
Hazard Class	8 (6.1)	8 (6.1)
Packing Group	II	II
Proper Shipping Name	Corrosive Liquids, Toxic, n.o.s.	Corrosive Liquid, Toxic, n.o.s.
Technical Name (if needed)	(Sodium & Copper Cyanide Solution)	(Sodium & Copper Cyanide Solution)
Labels	Corrosive, Poison	Corrosive, Toxic

<b>Marine Pollutant</b>	Yes (Copper Cyanide; Sodium Cyanide, Solutions)
<b>Special Precautions</b>	None beyond those above.
<b>Transport in Bulk</b>	Not Applicable

**15. REGULATORY INFORMATION**

<b>Spill Notifications:</b>	Notify local Safety Coordinators. If spill quantity warrants, notify appropriate government officials.
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**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**US Federal:**

Chemical Name	CAS	CERCLA RQ (lbs)	Section 302 EHS TPQ (lbs)	Section 304 EHS RQ (lbs)	Section 313	RCRA Code
Copper	7440-50-8	5,000	Not Listed	Not Listed	313	Not Listed
Copper Compounds	N100	CERCLA Class (No RQ)	Not Listed	Not Listed	313	Not Listed
Copper cyanide	544-92-3	10	Not Listed	Not Listed	313c	P029
Cyanide Compounds	N106	CERCLA Class (No RQ)	Not Listed	Not Listed	313	Not Listed
Lead	7439-92-1	10	Not Listed	Not Listed	313	Not Listed
Lead Compounds	N420	CERCLA Class (No RQ)	Not Listed	Not Listed	313	Not Listed
Sodium cyanide (Na(CN))	143-33-9	10	100	10	313c	P106
Zinc	7440-66-6	1,000	Not Listed	Not Listed	Not Listed	Not Listed
Zinc (fume or dust)	7440-66-6	1,000	Not Listed	Not Listed	313	Not Listed
Zinc Compounds	N982	CERCLA Class (No RQ)	Not Listed	Not Listed	313	Not Listed

<b>FEDERAL: 'Superfund Amendments and Reauthorization Act (SARA) of 1986':</b>	This product contains a toxic chemical subject to Title III SARA, Section 313 and 40 CFR Part 372 toxic chemical release reporting requirements.
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**Canada:**

Chemical Name	CAS	WHMIS Note	WHMIS Class
Copper (Metal)	7440-50-8	Discl; 1%	Uncontrolled product according to WHMIS classification criteria
Copper Compounds	N100	Discl; 1%	-
Copper Cyanide	544-92-3	Toxic;D1A, D2B	-
Cyanide Compounds	N106	Discl; 1%	-
Lead (Metal)	7439-92-1	Toxic; D2A; 0.1%	carcinogenicity: IARC Group 2B; chronic toxic effect: saturnism; embryotoxicity in animals; injury during the postnatal period in humans; reproductive toxicity in humans
Lead Compounds	N420	Toxic; By specific Compounds	-
Sodium Cyanide	143-33-9	Very Toxic,Corrosive; D1A,E;1%	D1A Very Toxic Material Causing Immediate and Serious Toxic Effects 1 Transportation of Dangerous Goods: Class 6.1 Group I E Corrosive Material 2 strong base (pH calculated = 11.7)
Zinc (Metal)	7440-66-6	Not Listed	Not Listed
Zinc (Metal)	7440-66-6	Not Listed	Not Listed
Zinc Compounds	N982	Not Listed	Not Listed

**California:**

Chemical Name	CAS	CA Prop 65 Toxicity	CA Acutely Hazardous TQ	CA Hazardous Substance	CA Hazardous Note
Copper (Metal)	7440-50-8	Not Listed	Not Listed	Listed	3. An MSDS must be provided under the following circumstances: a) The metal is supplied as a fine powder. b) The metal is in welding or brazing rods. c) The metal may be melted with the generation of toxic fume. d) Under normal use toxic dust or fume is likely to be generated by any manufacturing process.
Copper Compounds	N100	Not Listed	Not Listed	Listed	39. Except Copper phthalocyanine crudes and pigments.-
Copper Cyanide	544-92-3	Not Listed	Not Listed	Not Listed	--
Cyanide Compounds	N106	Toxicity	Not Listed	Listed	--
Cyanide Compounds	N106	Toxicity, male	Not Listed	Listed	--
Lead (Metal)	7439-92-1	Not Listed	Not Listed	Listed	3. An MSDS must be provided under the following circumstances: a) The metal is supplied as a fine powder. b) The metal is in welding or brazing rods. c) The metal may be melted with the generation of toxic fume. d) Under normal use toxic dust or fume is likely to be generated by any manufacturing process.
Lead (Metal)	7439-92-1	developmental, female, male	Not Listed	Listed	3. An MSDS must be provided under the following circumstances: a) The metal is supplied as a fine powder. b) The metal is in welding or brazing rods. c) The metal may be melted with the generation of toxic fume. d) Under normal use toxic dust or fume is likely to be generated by any manufacturing process.
Lead Compounds	N420	cancer	Not Listed	Listed	--
Sodium Cyanide	143-33-9	Toxicity	Not Listed	Listed	--
Zinc (Metal)	7440-66-6	Not Listed	Not Listed	Listed	3. An MSDS must be provided under the following circumstances: a) The metal is supplied as a fine powder. b) The metal is in welding or brazing rods. c) The metal may be melted with the generation of toxic fume. d) Under normal use toxic dust or fume is likely to be generated by any manufacturing process.
Zinc (Metal)	7440-66-6	Not Listed	Not Listed	Listed	3. An MSDS must be provided under the following circumstances: a) The metal is supplied as a fine powder. b) The metal is in welding or brazing rods. c) The metal may be melted with the generation of toxic fume. d) Under normal use toxic dust or fume is likely to be generated by any manufacturing process.
Zinc Compounds	N982	Not Listed	Not Listed	Listed	28. Exempt when present in motor oils at 2.5% or below. Zinc oxide is exempt except when present as dust or when generated as a fume. Zinc stearate is exempt except when present as dust.-

<b>CALIFORNIA: 'Safe Drinking Water and Toxic Enforcement Act of 1986' (Proposition 65):</b>	<b>WARNING:</b> This product contains a chemical known to the State of California to cause cancer, and/or cause birth defects or other developmental/reproductive harm, and/or be toxic. Other listed chemicals may be present in the new/used product from trace amounts in the raw materials or by virtue of product use and contact with other materials.
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**16. OTHER INFORMATION**

**Key literature references and sources for data:**

Centers for Disease Control and Prevention, NIOSH Pocket Guide to Chemical Hazards (05/18/2016)

Dudavari, Susan, Editor, The Merk Index (01/01/1989)

Sax, N. Irving, Dangerous Properties of Industrial Materials (01/01/1979)

ACGIH, 2013 TLVs and BEIs- (Threshold Limit Values for Chemical Substances in Work Air Adopted by ACGIH) (03/01/2013)

National Toxicology Program (USHHS/PHS), 14th Report on Carcinogens (11/03/2016)

IARC, Overall Evaluations of Carcinogenicity to Humans As evaluated in IARC Monographs Volumes 1-120 (05/17/2017)

EPA, Title III List of Lists: Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act, As Amended (03/01/2015)

Code of Federal Regulations 29, Labor, Parts 1910.1000, SubPart Z

Code of Federal Regulations 40, Protection of the Environment

Code of Federal Regulations 49, Transportation

California Code of Regulations 22 Division 2, Safe Drinking Water and Toxic Enforcement Act of 1986", "Chemicals known to the State to Cause Cancer and Reproductive Toxicity (12/29/2017)

Toxicological Index Service, CSST, Classification according to WHMIS 1988 (12/13/2013)

<b>Key literature references and sources for data:</b>
Toxicological Index Service, CSST, WHMIS Disclosure list (Repealed 2/11/2015) (04/15/2014)
Canadian Centre for Occupational Health and Safety, Information Elements Required on a WHMIS 2015 Safety Data Sheet (SDS) (02/11/2015)
IATA, Dangerous Goods Regulations, 59th Edition (01/01/2018)
Various Chemical Suppliers, MSDS's which did not identify chemicals as hazardous
Canadian centre for Occupational Health and Safety, First Aid for Chemical Exposures (01/09/2017)
National Library of Medicine, TOXNET
National Capital Poison Center, First Aid for Poisons (12/31/2017)
Canadian Centre for Occupational Health and Safety, The Safety Data Sheet -- A Guide to First Aid Recommendations (01/02/2018)
SDS for Copper(I) Cyanide
SDS for Sodium Cyanide
SDS for Zinc Oxide

<b>Disclaimer:</b>	<p>This Material Data Sheet was prepared in accordance with US/Canadian guidelines. All information, recommendations and suggestions appearing herein concerning our product are based upon information and data believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity and suitability of the product described herein for his/her own use. Since the actual use by others is beyond our control, no guarantees expressed or implied are made by Rapid Electroplating Process, Inc. as to the effects of such use, the results to be obtained, or the safety and toxicity of the product, nor does Rapid Electroplating Process, Inc. assume any liability arising out of use by others of the product referred to herein. Nor is the information herein to be construed absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.</p> <p>Versions of this MSDS in languages other than English may have been translated by automated means (e.g., GOOGLE Translate™). Content of the non-English version should be confirmed by the user against the English version to ensure correct translation.</p>
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