Material Safety Data Sheet
Copper (I) Cyanide, 99%

ACC# 11079

Section 1 - Chemical Product and Company Identification

MSDS Name: Copper (I) Cyanide, 99%
Catalog Numbers: AC202080000, AC202080010, AC202080050, AC202082500, AC202085000
Synonyms: Cuprous Cyanide; Cupricin.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
544-92-3	Copper (I) Cyanide	99.0	208-883-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: beige to yellow green solid.
Warning! Harmful if swallowed. Causes eye and skin irritation. May be absorbed through intact skin. May cause respiratory and digestive tract irritation. May cause central nervous system effects. May cause blood abnormalities.
Target Organs: Blood, central nervous system.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation. May be absorbed through the skin in harmful amounts. If absorbed, causes symptoms similar to those of ingestion. If absorbed, causes symptoms similar to those of inhalation. May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing cellular respiration.
Ingestion: May cause irritation of the digestive tract. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause tissue anoxia, characterized by weakness, headache, dizziness, confusion, cyanosis (bluish skin due to deficient oxygenation of the blood), weak and irregular heart beat, collapse, unconsciousness, convulsions, coma and death. Ingestion of large amounts of copper salts may cause bloody stools and vomit, low blood pressure, jaundice and coma. Ingestion of copper compounds may produce systemic toxic effects to the kidney and liver and central nervous excitation followed by depression.
Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). May cause respiratory tract irritation. May cause anoxia, characterized by weakness, headache, dizziness, confusion, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), weak and irregular heart beat, collapse, unconsciousness, convulsions, coma and death. May cause effects similar to those described for ingestion. Exposure may cause blood abnormalities. May be metabolized to cyanide which in turns act by inhibiting cytochrome oxidase impairing cellular respiration.
Chronic: Repeated exposure may cause central nervous system damage. May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing cellular respiration. Individuals with Wilson's disease are unable to metabolize copper. Thus, copper accumulates in various tissues and may result in liver, kidney, and brain damage. Chronic copper poisoning in man is recognized in the form of Wilson's disease. Chronic exposure to cyanide solutions may lead to the development of a "cyanide" rash, characterized by itching, and by macular, papular, and vesicular eruptions, and may be accompanied by secondary infections. Chronic exposure may produce loss of appetite, headache, weakness, nausea, dizziness, and upper respiratory tract irritation.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Tre at patient as for inhalation.
Skin: Get medical aid immediately. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Remove all contaminated clothing immediately. Treat patient as for inhalation.
Ingestion: Do not induce vomiting. Get medical aid immediately. Do not give anything by mouth. Treat patient as for inhalation.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. Do NOT use mouth-to-mouth resuscitation. Keep warm and at rest. Administer oxygen. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. SPEED IS ESSENTIAL, OBTAIN MEDICAL AID IMMEDIATELY.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Extinguishing Media: Use water spray to cool fire-exposed containers. Do NOT use straight streams of water. For small fires, use dry

chemical, carbon dioxide, or water spray. For large fires, use water spray, fog or regular foam.
Flash Point: Not applicable.
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Do not flush into a sewer. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale.
Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Copper (I) Cyanide	none listed	1 mg/m3 TWA (as Cu except Copper fume) (listed under Copper compounds, n.o.s.).	5 mg/m3 TWA (listed under Cyanide anion).

OSHA Vacated PELs: Copper (I) Cyanide: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: beige to yellow green
Odor: None reported.
pH: Not available.
Vapor Pressure: Negligible.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Decomposes.
Freezing/Melting Point:473 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble in water.
Specific Gravity/Density:2.92
Molecular Formula:CCuN
Molecular Weight:89.5527

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: High temperatures, incompatible materials, dust generation.
Incompatibilities with Other Materials: Acids (mineral, non-oxidizing, e.g. hydrochloric acid, hydrofluoric acid, muriatic acid, phosphoric acid), acids (mineral, oxidizing, e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), acids (organic, e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), azo, diazo, and hydrazines (e.g. dimethyl hydrazine, hydrazine, methyl hydrazine), halogenated organics (e.g. dibromoethane, hexachlorobenzene, methyl chloride, trichloroethylene), isocyanates (e.g. methyl isocyanate), ketones (e.g. acetone, acetophenone, MEK, MIBK), metals (alkali and alkaline, e.g. cesium, potassium, sodium), nitrides (e.g. potassium nitride, sodium nitride), peroxides and hydroperoxides (organic, e.g. acetyl peroxide, benzoyl peroxide, butyl peroxide, methyl ethyl ketone peroxide), epoxides (e.g. butyl glycidyl ether), polymerizable compounds (e.g. butadiene, methyl acrylate, styrene, vinyl chloride), oxidizing agents (strong, e.g. bromine, hydrogen peroxide, nitrogen dioxide, potassium nitrate), water reactive substances (e.g. acetic anyhdride, alkyl aluminum chloride, calcium carbide, ethyl dichlorosilane).
Hazardous Decomposition Products: Hydrogen cyanide, nitrogen oxides, carbon monoxide, oxides of nitrogen, carbon dioxide,

nitrogen.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 544-92-3: GL7150000
LD50/LC50:
CAS# 544-92-3:
Oral, rat: LD50 = 1265 mg/kg;
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Carcinogenicity:
CAS# 544-92-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found.
Neurotoxicity: No information reported
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. This chemical has a high potential to affect aquatic organisms and terrestrial plants. It inhibits secondary waste treatment microorganisms. Acute aquatic effects: 96-hour LC50; Fathead minnow: 0.32mg/L Plant germination effects: No adverse effects at: ryegrass 10 mg/L; radish 0.1 mg/L; lettuce 1.0 mg/L.
Environmental: Will biodegrade if solutions are sufficiently dilute. However, dicharge of this material should be avoided if possible.
Physical: No information found.
Other: No information found.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: CAS# 544-92-3: waste number P029.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	COPPER CYANIDE	COPPER CYANIDE
Hazard Class:	6.1	6.1
UN Number:	UN1587	UN1587
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 544-92-3 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 544-92-3: 10 lb final RQ; 4.54 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 544-92-3: immediate.
Section 313
This material contains Copper (I) Cyanide (listed as Copper compounds, n.o.s.), 99.0%, (CAS# 544-92-3) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA. CAS# 544-92-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 544-92-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 544-92-3 can be found on the following state right to know lists: California, (listed as Cyanides, inorganic salts), California, (listed as Copper compounds, n.o.s.), New Jersey, Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T+

Risk Phrases:

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
R 32 Contact with acids liberates very toxic gas.

Safety Phrases:

S 1/2 Keep locked up and out of reach of children.
S 24/25 Avoid contact with skin and eyes.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 28 After contact with skin, wash immediately with...
S 29 Do not empty into drains.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 7 Keep container tightly closed.
S 28A After contact with skin, wash immediately with plenty of water .
S 28B After contact with skin, wash immediately with plenty of water and soap.

WGK (Water Danger/Protection)

CAS# 544-92-3: 3

Canada - DSL/NDSL

CAS# 544-92-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2B, D1B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 544-92-3 (listed as Cyanides, inorganic salts) is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 8/03/1998
Revision #5 Date: 10/03/2005