

## SAFETY DATA SHEET

Preparation Date: 9/19/2017

Revision Date: 9/19/2017

Revision Number: G1

### 1. IDENTIFICATION

#### Product identifier

**Product code:** C1445  
**Product Name:** CUPROUS CYANIDE, POWDER, PURIFIED

#### Other means of identification

**Synonyms:** Copper cyanide; Copper (II) cyanide  
**CAS #:** 544-92-3  
**RTECS #** GL7150000  
**CI#:** Not available

#### Recommended use of the chemical and restrictions on use

**Recommended use:** Catalyst.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>  
**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Martin LaBenz (West Coast)  
**Contact Person:** Ibad Tirmiz (East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 1
Acute toxicity - Dermal	Category 2
Acute toxicity - Inhalation (Gases)	Category 1
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

#### Label elements

##### Danger

##### Hazard statements

Fatal if swallowed  
 Fatal in contact with skin  
 Fatal if inhaled  
 Causes serious eye irritation

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Causes skin irritation



**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

Contact with acid liberates toxic gas

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Do not get in eyes, on skin, or on clothing  
Wear protective gloves/protective clothing/eye protection/face protection  
Do not breathe dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area  
Wear respiratory protection

**Precautionary Statements - Response**

*Specific treatment (see .? on this label)*

*Specific measures (see .? on this label)*

*Specific treatment is urgent (see .? on this label)*

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Immediately call a POISON CENTER or doctor/physician

IF ON SKIN: Gently wash with plenty of soap and water

Remove/Take off immediately all contaminated clothing

Wash contaminated clothing before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Rinse mouth

**Precautionary Statements - Storage**

Store locked up

Store in a well-ventilated place. Keep container tightly closed

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight %
Cuprous Cyanide	544-92-3	100

**4. FIRST AID MEASURES**

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## First aid measures

- General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.
- Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If skin irritation persists, call a physician.
- Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention.
- Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
- Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Fatal if swallowed. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

## Most important symptoms and effects, both acute and delayed

- Symptoms** Causes skin irritation. Causes eye irritation. Central nervous system effects. Nausea. Vomiting. Bitter almond odor from mouth. May cause cardiovascular effects. Central nervous system depression. May affect respiration. Respiratory arrest. Dyspnea (Shortness of breath and difficulty breathing). May cause cyanosis. May affect the liver. It may affect the thyroid.

## Indication of any immediate medical attention and special treatment needed

- Notes to Physician:** Antidote: Always have a Cyanide Antidote Kit (Package) when working with cyanide compounds. Get medical advice on how to use it and when it should be used. If cyanide gas is inhaled, break an Amyl nitrate pearl in a cloth and hold it lightly under the nose for 15 seconds. Repeat 5 times at about 15 second intervals. Use artificial respiration if breathing has stopped. If cyanide is swallowed, use Amyl nitrate as previously stated for 15 seconds. Nithidote Kit or Hydroxocobalamin (Cyanokit) are an alternate approved treatments. Oxygen therapy may be useful in combination with the above.

## Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

## **5. FIRE-FIGHTING MEASURES**

### Extinguishing Media

- Suitable Extinguishing Media:** The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.
- Unsuitable Extinguishing Media:** No information available.
- Specific hazards arising from the chemical**
- Hazardous Combustion Products:** If it is involved in a fire the following can be released:  
Hydrogen cyanide.

**Specific hazards:** No information available.

### **Special Protective Actions for Firefighters**

**Specific Methods:** For large fires, flood fire area with water from a distance. Cool affected containers with flooding quantities of water.

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## **6. ACCIDENTAL RELEASE MEASURES**

### **Personal precautions, protective equipment and emergency procedures**

**Personal Precautions:** Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

### **Methods and material for containment and cleaning up**

**Methods for containment** Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up** Sweep up and shovel into suitable containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.

## **7. HANDLING AND STORAGE**

### **Precautions for safe handling**

#### **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

#### **Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not ingest. Do not breathe vapors/dust. Avoid dust formation. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

### **Conditions for safe storage, including any incompatibilities**

#### **Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials.

#### **Incompatible Materials:**

Strong oxidizing agents  
Acids

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Control parameters**

#### **National occupational exposure limits**

## United States

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
Cuprous Cyanide	544-92-3	None	1 mg/m <sup>3</sup> TWA (dust and mist , as Cu)	1 mg/m <sup>3</sup> TWA (dust and mist , as CU - for copper compounds)	None

## Canada

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Cuprous Cyanide	544-92-3	None	None	None	11 mg/m <sup>3</sup> or 10 ppm Ceiling (as CN)

## Australia and Mexico

Components	CAS-No.	Australia	Mexico
Cuprous Cyanide	544-92-3	5 mg/m <sup>3</sup> Ceiling (as CN)	None

## Appropriate engineering controls

### Engineering measures to reduce exposure:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

## Individual protection measures, such as personal protective equipment

### Personal Protective Equipment

**Eye protection:** Safety glasses with side-shields

**Skin and body protection:** Long sleeved clothing  
Chemical resistant apron  
Gloves

**Respiratory protection:** Wear respirator with dust filter.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical state:**

Solid

**Appearance:**

Crystalline powder.

**Color:**

White-to-cream. Greenish.

**Odor:**

No information available.

**Taste**

No information available.

**Formula:**

CuCN

**Molecular/Formula weight:**

89.56

**Flammability:**

No information available

**Flashpoint (°C/°F):**

No information available.

**Flash Point Tested according to:**

Not available

**Autoignition Temperature (°C/°F):**

No information available

**Lower Explosion Limit (%):**

No information available

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**Upper Explosion Limit (%):**  
No information available

**Melting point/range(°C/°F):**  
473-474 °C/883-885 °C

**Decomposition temperature(°C/°F):**  
No information available

**Boiling point/range(°C/°F):**  
No information available

**Bulk density:**  
No information available

**Density (g/cm3):**  
No information available

**Specific gravity:**  
2.92

**pH:**  
No information available

**Vapor pressure @ 20°C (kPa):**  
No information available

**Evaporation rate:**  
No information available

**Vapor density:**  
No information available

**VOC content (g/L):**  
No information available

**Odor threshold (ppm):**  
No information available

**Partition coefficient  
(n-octanol/water):**  
No information available

**Viscosity:**  
No information available

**Miscibility:**  
No information available

**Solubility:**  
Insoluble in water

## 10. STABILITY AND REACTIVITY

### Reactivity

Reactive with acids

Decomposed by acids to give off hydrogen cyanide

Fusion of mixtures of metal cyanides with metal chlorates, perchlorated or nitrates causes a violent explosion

### Chemical stability

**Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Avoid dust formation. Incompatible materials.

**Incompatible Materials:** Strong oxidizing agents  
Acids

**Hazardous decomposition products:** Hydrogen cyanide (hydrocyanic acid). Nitrogen oxides (NOx).

### Other Information

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### **Principal Routes of Exposure:**

Ingestion. Inhalation. Skin.

### Acute Toxicity

### **Component Information**

Cuprous Cyanide

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LD50/oral/rat = 1265 mg/kg Oral LD50 Rat  
LD50/oral/mouse = No information available  
LD50/dermal/rabbit = No information available  
LD50/dermal/rat = No information available  
LC50/inhalation/rat = No information available  
LC50/inhalation/mouse = No information available  
Other LD50 or LC50 information = No information available

#### Product Information

LD50/oral/rat =  
VALUE- Acute Tox Oral = 1265 mg/kg

LD50/oral/mouse =  
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit  
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat  
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat  
VALUE-Vapor = No information available  
VALUE-Gas = No information available  
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse  
VALUE-Vapor = No information available  
VALUE - Gas = No information available  
VALUE - Dust/Mist = No information available

#### Symptoms

**Skin Contact:** Fatal in contact with skin. Causes skin irritation.

**Eye Contact:** Causes serious eye irritation.

**Inhalation** May be fatal if inhaled. May cause irritation of respiratory tract. It may be metabolized to cyanide which inhibits cytochrome oxidase thus impairing cellular respiration. It may cause symptoms similar to cyanide poisoning (see acute ingestion for symptoms).

**Ingestion** Fatal if swallowed. Ingestion may cause symptoms similar to cyanide poisoning. It may be metabolized to cyanide which inhibits cytochrome oxidase thus impairing cellular respiration. Cyanide poisoning is characterized by central nervous system, cardiovascular system, and respiratory system effects such as general weakness, giddiness, confusion, sleepiness, headache, dizziness, vertigo, seizures, ataxia, tetany, irritability, stupor, anxiety, hallucinations, agitation, tremors, unconciouness, coma, palpitations, cardiac arrhythmias, slow or rapid heartbeat, hypertension or hypotension, perceived breathing difficulty and shortness of breath, hyperventilation, asphyxiation/respiratory failure.

**Ingestion:** The odor of bitter almonds may be noted on the breath or vomitus

**Aspiration hazard** No information available.

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Chronic Toxicity** Prolonged or repeated contact may cause skin allergy. Repeated exposure may cause enlargement of the thyroid gland. Chronic exposure may affect the liver.

**Sensitization:** No information available.

**Mutagenic Effects:** No information available

**Carcinogenic effects:** Not considered carcinogenic.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Cuprous Cyanide	544-92-3	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

*NTP (National Toxicology Program)*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

**Reproductive toxicity** No data is available

**Reproductive Effects:** Evidence of reproductive in animals is limited and is only reported in the Registry of Toxic Effects of Chemical Substances (RTECS)

**Developmental Effects:** It has not been shown to affect reproduction in humans  
Evidence of developmental effects in animals is limited and is only reported in the Registry of Toxic Effects of Chemical Substances (RTECS)

**Teratogenic Effects:** No information on developmental toxicity effects on humans was found  
No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Target Organs:** No information available.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility:** No information available.

**13. DISPOSAL CONSIDERATIONS**

**Disposal Methods**

**Waste from residues / unused products:**

Waste must be disposed of in accordance with Federal, State and Local regulation.

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**Contaminated packaging:**

Empty containers should be taken for local recycling, recovery or waste disposal

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Cuprous Cyanide	544-92-3	None	None	P029	None

<b>14. TRANSPORT INFORMATION</b>
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**DOT**

**UN-No:** UN1587  
**Proper Shipping Name:** Copper cyanide  
**Hazard Class:** 6.1  
**Subsidiary Class:** No information available  
**Packing group:** II  
**Emergency Response Guide Number:** 151  
**Marine Pollutant:** Marine Pollutant  
**DOT RQ (lbs):** No information available  
**Special Provisions:** IB8, IP2, IP4, T3, TP33  
**Symbol(s):** No information available  
**Description:** UN1587, Copper cyanide, 6.1, II

**TDG (Canada)**

**UN-No:** UN1587  
**Proper Shipping Name:** Copper cyanide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant:** No Information available  
**Description:** UN1587, Copper cyanide, 6.1, II

**ADR**

**UN-No:** UN1587  
**Proper Shipping Name:** Copper cyanide  
**Hazard Class:** 6.1  
**Packing Group:** II  
**Subsidiary Risk:** No information available  
**Description:** UN1587, Copper cyanide, 6.1, II

**IMO / IMDG**

**UN-No:** UN1587  
**Proper Shipping Name:** Copper cyanide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant:** No information available  
**EMS:** F-A  
**Description:** UN1587, Copper cyanide, 6.1, II

**RID**

**UN-No:** UN1587  
**Proper Shipping Name:** Copper cyanide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Description:** UN1587, Copper cyanide, 6.1, II

**ICAO**

**UN-No:** UN1587  
**Proper Shipping Name:** Copper cyanide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Description:** UN1587, Copper cyanide, 6.1, II

**IATA**

**UN-No:** UN1587  
**Proper Shipping Name:** Copper cyanide  
**Hazard Class:** 6.1  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**ERG Code:** 6L  
**Special Provisions** No information available  
**Description:** UN1587, Copper cyanide, 6.1, II

<b>15. REGULATORY INFORMATION</b>
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**International Inventories**

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Cuprous Cyanide</i>	544-92-3	Present	Present KE-08919	Present	Present (1)-376	Present	Present	Present 208-883-6


**U.S. Regulations***Cuprous Cyanide*

**Massachusetts RTK:** Present  
**New Jersey RTK Hazardous Substance List:** 0533  
**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present  
**Pennsylvania RTK:** Environmental hazard  
**Pennsylvania RTK - Environmental Hazard List** Present  
**Pennsylvania RTK - Special Hazardous Substances** Present  
**New York Release Reporting - List of Hazardous Substances:**  
 = 10 lb RQ  
**Louisiana Reportable Quantity List for Pollutants:** Listed

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.****Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

 **WARNING:** This product can expose you to chemicals including (see table below) which is (are) known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov).

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Cuprous Cyanide	544-92-3	Not Listed	Not Listed	male reproductive toxicity (for Hydrogen cyanide salts)	Not Listed

**CERCLA/SARA**

Components	CAS-No.	CERCLA - Hazardous	Section 302 Extremely	Section 302 Extremely	Section 313 - Chemical Category	Section 313 - Reporting

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		Substances and their Reportable Quantities	Hazardous Substances and TPQs	Hazardous Substances and RQs		de minimis
Cuprous Cyanide	544-92-3	= 10 lb final RQ = 4.54 kg final RQ	None	None	None	None

## U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Cuprous Cyanide	544-92-3	Not Applicable	Not Applicable

## Canada

### WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information: The WHMIS 2015 classification of this product has not been validated or reviewed yet.

**Canada Hazardous Products Regulation** This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

### WHMIS 1988 Hazard Class

D1A Very toxic materials  
E Corrosive material

### Components Cuprous Cyanide

WHMIS 1988  
D1A

### Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

## Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Cuprous Cyanide	544-92-3	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Cuprous Cyanide	544-92-3	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Cuprous Cyanide	544-92-3	Not listed

## EU Classification

### EU GHS - SV - CLP 1272/2008

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Cuprous Cyanide	544-92-3	

### EU - CLP (1272/2008)

### R-phrase(s)

R32 - Contact with acids liberates very toxic gas.

R26/27/28 - Very toxic by inhalation, in contact with skin and if swallowed.

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### S -phrase(s)

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S 7 - Keep container tightly closed.

S28 - After contact with skin, wash immediately with plenty of water

S29 - Do not empty into drains.

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S60 - This material and its container must be disposed of as hazardous waste.

S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.

S 1/2 - Keep locked up and out of the reach of children.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Cuprous Cyanide	544-92-3	T+; R26/27/28 R32 N; R50-53(except ferrocyanides, ferricyanides, mercuric oxycyanide and those specified elsewhere in the annex)	No information	S: (1/2)-7-28-29-45-60-61

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

T+ - Very toxic.

T+



## 16. OTHER INFORMATION

**Preparation Date:** 9/19/2017  
**Revision Date:** 9/19/2017  
**Prepared by:** Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**