

## SAFETY DATA SHEET

Preparation Date: 04/01/2015

Revision date 1/23/2019

Revision Number: G2

### 1. IDENTIFICATION

#### Product identifier

**Product code:** C1305  
**Product Name:** COBALT CHLORIDE, HEXAHYDRATE, CRYSTAL, REAGENT, ACS

#### Other means of identification

**Synonyms:** Cobalt (II) chloride, hexahydrate (8CI, 9CI)  
 Chlorek kobaltawy (Polish)  
 Cobalt dichloride hexahydrate  
 Cobaltous chloride, hexahydrate

**CAS #:** 7791-13-1  
**RTECS #** GG0200000  
**CI#:** Not available

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

**Recommended use:** Analytical reagent. Analytic Chemistry.  
**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:** Tom Tyner (USA - West Coast)  
**Contact Person:** Ibad Tirmiz (USA - East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

This chemical is considered hazardous by 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 4
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Reproductive toxicity	Category 1A

#### Label elements

Danger

**Hazard statements**

Harmful if swallowed  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
May cause an allergic skin reaction  
Suspected of causing genetic defects  
Suspected of causing cancer  
May damage fertility or the unborn child

**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

Not available

**Precautionary Statements - Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Avoid breathing dust/fume/gas/mist/vapors/spray  
In case of inadequate ventilation wear respiratory protection  
Contaminated work clothing must not be allowed out of the workplace  
Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary Statements - Response**

*IF exposed or concerned: Get medical advice/attention*  
IF ON SKIN: Wash with plenty of water  
If skin irritation or rash occurs: Get medical advice/attention  
Wash contaminated clothing before reuse  
IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.  
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
Rinse mouth

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS No	Weight-%
Cobalt Chloride, Hexahydrate	7791-13-1	100

**4. FIRST AID MEASURES****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

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1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

- Skin Contact:** Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention if irritation develops. Consult a physician if necessary.
- Eye Contact:** Flush eyes with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.
- Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
- Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

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

- Symptoms**
- May cause an allergic skin reaction
  - May cause allergy or asthma symptoms or breathing difficulties if inhaled
  - May cause eye/skin irritation
  - May cause irritation of respiratory tract

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

**Notes to Physician:** Treat symptomatically.

**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: Cobalt/cobalt oxides, hydrogen chloride gas.

**Specific hazards** No information available.

**Special Protective Actions for Firefighters**

**Specific Methods:** No information available

**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. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Avoid breathing dust.

**Environmental precautions** Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Cover with plastic sheet to prevent spreading. Keep in suitable, closed containers for disposal.

**Methods for cleaning up** Use appropriate tools to put the spilled solid in a suitable waste disposal container. Prevent dust cloud.

## 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 breathe dust. Do not ingest. Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

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

Hygroscopic. Protect from moisture. 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:**

Oxidizing agents  
Alkali Metals  
Potassium  
Sodium

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

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

##### **United States**

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Cobalt Chloride, Hexahydrate	7791-13-1	None	None	0.02 mg/m <sup>3</sup> TWA (as Co)	None

##### **Canada**

Component	CAS No	Canada - Alberta	Canada - British	Canada - Ontario	Canada - Quebec
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			<b>Columbia</b>		
Cobalt Chloride, Hexahydrate	7791-13-1	0.02 mg/m <sup>3</sup> TWA (as Co)	0.02 mg/m <sup>3</sup> TWA (as Co)	0.02 mg/m <sup>3</sup> TWA (as Co)	0.02 mg/m <sup>3</sup> TWAEV (as Co)

### Australia and Mexico

Component	CAS No	Australia	Mexico
Cobalt Chloride, Hexahydrate	7791-13-1	None	None

### Appropriate engineering controls

#### Engineering measures to reduce exposure:

Ensure adequate ventilation. 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:** Goggles or Safety glasses with side-shields.
- Skin and body protection:** Chemical resistant apron  
Long sleeved clothing  
Gloves
- Respiratory protection:** Effective dust mask. or. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b> Solid	<b>Appearance:</b> Crystalline solid.	<b>Color:</b> Ruby Red.
<b>Odor:</b> No information available.	<b>Taste</b> No information available.	<b>Formula</b> CoCl <sub>2</sub> ·6H <sub>2</sub> O
<b>Molecular/Formula weight (g/mole):</b> 237.93 g/mol	<b>Flammability (solid, gas)</b> no data available	<b>Flashpoint (°C/°F):</b> No information available
<b>Flash Point Tested according to:</b> Not available	<b>Autoignition Temperature (°C/°F):</b> No information available	<b>Lower Explosion Limit (%):</b> No information available
<b>Upper Explosion Limit (%):</b> No information available	<b>Melting point/range(°C/°F):</b> 87.0°C/ 188.6°F	<b>Decomposition temperature(°C/°F):</b> > 110°C
<b>Boiling point/range(°C/°F):</b> 1920°C/ 3488°F	<b>Bulk density:</b> No information available	<b>Density (g/cm<sup>3</sup>):</b> No information available

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**Specific gravity:**  
1.924

**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:**  
Soluble in Water  
Soluble in Ether  
Soluble in Glycerol  
Soluble in Acetone

## 10. STABILITY AND REACTIVITY

### Reactivity

Hygroscopic. It absorbs moisture from the air  
Reactive with oxidizing agents  
Reacts with potassium or sodium with explosion

### Chemical stability

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

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

**Conditions to avoid:** Heat. On heating at 52-56 deg. C, it loses 4 H<sub>2</sub>O forming the dihydrate. The remaining water is lost when heating at 120-140 deg. C. Avoid dust formation. Incompatible materials. Exposure to moisture. Exposure to moist air.

**Incompatible Materials:** Oxidizing agents  
Alkali Metals  
Potassium  
Sodium

**Hazardous decomposition products:** When heated to decomposition it emits very toxic fumes. Hydrogen chloride. Cobalt oxides.

### 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.

### Acute Toxicity

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## Component Information

Cobalt Chloride, Hexahydrate	
CAS No	7791-13-1

**LD50/oral/rat** = 766 mg/kg Oral LD50 Rat  
**LD50/oral/mouse** = No information available  
**LD50/dermal/rabbit** = No information available  
**LD50/dermal/rat** = > 2 g/kg Dermal LD50  
**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** = 766 mg/kg

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

**LD50/dermal/rabbit**  
**Value - Acute Tox** = No information available

**LD50/dermal/rat**  
**VALUE - Acute Tox Dermal** = > 2000 mg/kg

**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:** May cause skin irritation. May cause sensitization by skin contact.

**Eye Contact:** May cause eye irritation. May cause corneal opacity.

**Inhalation** May cause respiratory tract irritation. Symptoms may including coughing. May cause dyspnea (difficulty breathing or shortness of breath). It may cause pulmonary edema. May cause decreased pulmonary function.

**Ingestion** Harmful if swallowed. May cause gastrointestinal tract irritation, anorexia, nausea, vomiting, hypermotility, diarrhea, malaise, weakness. May affect behavior (somnolence, convulsions, tremor, fatigue), heart/cardiovascular system (hypotension, cardiac failure, congestive heart failure), thyroid gland (goiter), blood (polycythemia, decreased red blood cell count, impair aggregation of platelets, changes in blood clotting time, changes in thromboplastic activity), liver kidneys. May cause tinnitus, nerve deafness. May affect vision (slight clouding of the lenses, edema of the retina) and may cause degenerative changes in the retina and optic nerve.

**Aspiration hazard** No information available.

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

**Chronic Toxicity** Repeated or prolonged skin contact may cause skin sensitization. Prolonged or repeated skin contact may cause dermatitis. Chronic exposure via ingestion may affect behavior, blood and lungs, thyroid gland ( reduced thyroid activity, goiter), pancreas (hyperglycemia), liver, heart. Prolonged or repeated inhalation may cause a delayed allergic or hypersensitivity reaction. Inhalation: May cause allergic respiratory reaction (occupational asthma).

**Sensitization:** May cause sensitization by inhalation and skin contact.

**Mutagenic Effects:** Suspected of causing genetic defects  
Mutagenic effects in mammalian somatic cells  
Experiments with bacteria and/or yeast have shown mutagenic effects

**Carcinogenic effects:** May cause cancer based on animal test data. Tumorigenic agent by RTECS criteria. Possibly carcinogenic to humans.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Cobalt Chloride, Hexahydrate	7791-13-1	Group 2B - Possibly carcinogenic to humans - Monograph 52 [1991] Cobalt and Cobalt compounds	A3 - Confirmed animal carcinogen with unknown relevance to humans (cobalt inorganic compounds)	Not listed	Present	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)  
Group 2B - Possibly Carcinogenic to Humans  
NTP (National Toxicology Program)*

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

**Reproductive toxicity** May damage fertility or the unborn child

**Reproductive Effects:** May cause adverse reproductive effects based on animal data  
**Developmental Effects:** May cause adverse developmental effects based on animal data  
**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** No information available.  
**STOT - repeated exposure** No information available.  
**Target Organs:** Blood. Respiratory system. Lungs. Pancreas. Thyroid. Skin.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** Aquatic environment.

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Cobalt Chloride, Hexahydrate - 7791-13-1

**Fish** LC50- Cyprinus Carpio (Carp) 96h: 0.33 mg/l  
**Crustacea** EC50- Daphnia Magna (Water Flea) 48h: 1.4 mg/l

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility in soil** No information available

**Other adverse effects** 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.

**Contaminated packaging:**

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

Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Cobalt Chloride, Hexahydrate	7791-13-1	None	None	None	None

### 14. TRANSPORT INFORMATION

#### DOT

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class** No information available  
**Subsidiary Class** No information available  
**Packing group:** No information available  
**Emergency Response Guide Number** No information available  
**Marine Pollutant** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions** No Information available  
**Symbol(s):** No information available  
**Description:** No information available

#### TDG (Canada)

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Marine Pollutant** No Information available  
**Description:** No information available

#### ADR

**UN Number** Not regulated  
**Proper Shipping Name:** No information available  
**Transport hazard class(es)** No information available

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**Packing group** No information available  
**Subsidiary Risk:** No information available

#### IMDG

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class:** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available  
**Marine Pollutant** No information available

#### RID

**UN Number** Not Regulated  
**Proper Shipping Name:** No information available  
**Transport hazard class(es)** No information available  
**Subsidiary Risk:** No information available  
**Packing group** No information available

#### ICAO (air)

**UN-No:** Not Regulated  
**Proper Shipping Name:** No information available  
**Hazard Class** No information available  
**Subsidiary Risk:** No information available  
**Packing Group:** No information available

#### IATA

**UN Number** Not Regulated  
**Proper Shipping Name:** No information available  
**Transport hazard class(es)** No information available  
**Subsidiary Risk:** No information available  
**Packing group** No information available  
**Precautionary Statements - Response** IF exposed or concerned  
**Special Provisions** No information available

### 15. REGULATORY INFORMATION

#### International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia AICS	EINECS-No.
<i>Cobalt Chloride, Hexahydrate</i>	7791-13-1	Not Listed	Not present	Present	Not present	Present	Present	Not present

#### U.S. Regulations

##### *Cobalt Chloride, Hexahydrate*

**New Jersey RTK Hazardous Substance List:** sn 2222 (cobalt compounds)  
**New Jersey (EHS) List:** SN2222 500lb TPQ (cobalt compounds)  
**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present (cobalt compounds)  
**Pennsylvania RTK:** Present (cobalt compounds)  
**Pennsylvania RTK - Environmental Hazard List** Present (cobalt compounds)

#### 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)

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

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

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Cobalt Chloride, Hexahydrate	7791-13-1	Not Listed	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Cobalt Chloride, Hexahydrate	7791-13-1	None	None	None	Cobalt inorganic compounds	0.1% de minimus concentration

**U.S. TSCA**

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Cobalt Chloride, Hexahydrate	7791-13-1	Not Applicable	Not Applicable

**Canada****WHIMIS 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

**DSL/NDSL**

Component	CAS No	Canada (DSL)	Canada (NDSL)
Cobalt Chloride, Hexahydrate	7791-13-1	Not Listed	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Cobalt Chloride, Hexahydrate	7791-13-1	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Cobalt Chloride, Hexahydrate	7791-13-1	Not listed

**EU Classification****EU GHS - SV - CLP 1272/2008**

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Cobalt Chloride, Hexahydrate	7791-13-1	No information

**EU - CLP (1272/2008)****R-phrase(s)**

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R22 - Harmful if swallowed  
R49 - May cause cancer by inhalation  
R68 - Possible risk of irreversible effects  
R42/43 - May cause sensitization by inhalation and skin contact  
R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**S -phrase(s)**

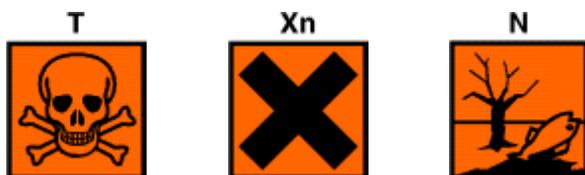
S22 - Do not breathe dust  
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)  
S53 - Avoid exposure - obtain special instructions before use  
S60 - This material and its container must be disposed of as hazardous waste  
S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Cobalt Chloride, Hexahydrate	7791-13-1		No information	

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

**Indication of danger:**

T - Toxic  
Xn - Harmful  
N - Dangerous for the environment



**16. OTHER INFORMATION**

Preparation Date: 04/01/2015  
Revision date 1/23/2019  
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**