

SAFETY DATA SHEET

Preparation Date: 04/10/2015

Revision date 06/19/2019

Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: P1115
Product Name: PHOSPHORUS OXYCHLORIDE, REAGENT

Other means of identification

Synonyms: Phosphorus oxytrichloride
 Phosphoryl trichloride
 Trichlorophosphine oxide
 Trichlorophosphorus oxide

CAS #: 10025-87-3
RTECS # TH4897000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
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
Acute toxicity - Inhalation (Gases)	Category 1
Acute toxicity - Inhalation (Vapors)	Category 1
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Corrosive to metals	Category 1

Label elements

Danger

Hazard statements

Harmful if swallowed

Fatal if inhaled

Causes severe skin burns and eye damage

Causes damage to organs through prolonged or repeated exposure

May cause respiratory irritation

May be corrosive to metals



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

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 breathe dust/fume/gas/mist/vapors/spray

Use only outdoors or in a well-ventilated area

Wear respiratory protection

Wear protective gloves/protective clothing/eye protection/face protection

Keep only in original container

Precautionary Statements - Response

Immediately call a POISON CENTER or physician

Absorb spillage to prevent material damage

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or physician.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water

Wash contaminated clothing before reuse

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

Call a POISON CENTER or physician if you feel unwell.

IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell

Rinse mouth

Do NOT induce vomiting

Precautionary Statements - Storage

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

Store locked up

Store in corrosive resistant/ .? container with a resistant inner liner

Precautionary Statements - Disposal

Dispose of contents and container to an approved waste disposal plant in accordance with local, regional, national and international regulations as applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight-%
Phosphorus Oxychloride	10025-87-3	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 1-800-222-1222.
Skin Contact:	Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.
Eye Contact:	Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.
Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. 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. Immediate medical attention is required.

Most important symptoms and effects, both acute and delayed

Symptoms	Severe skin and eye irritation or burns May cause irritation of respiratory tract
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Indication of any immediate medical attention and special treatment needed

Notes to Physician:	Treat symptomatically.
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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.

Unsuitable Extinguishing Media: No information available.

Specific hazards arising from the chemical

Hazardous combustion products No information available.

Specific hazards Reacts with water to evolve heat and poisonous and corrosive gases. When heated to decomposition it emits

toxic fumes.

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:

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Do not get water inside containers.

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. Absorb spill with inert material (e.g. vermiculite, dry sand or earth). In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up

Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. 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. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice:

Wear personal protective equipment. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not breathe vapors or spray mist. Do not ingest. When using do not smoke. 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. Keep away from heat and sources of ignition. Moisture sensitive. May corrode metallic surfaces. Do not store in uncoated metallic containers.

Incompatible Materials:

Acids
Alkalis
Metals
Moisture
Organic materials

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Phosphorus Oxychloride	10025-87-3	None	0.1 ppm TWA 0.6 mg/m ³ TWA 0.5 ppm STEL 3 mg/m ³ STEL	0.1 ppm TWA	None

Canada

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Phosphorus Oxychloride	10025-87-3	0.1 ppm TWA 0.6 mg/m ³ TWA	0.1 ppm TWA	None	None

Australia and Mexico

Component	CAS No	Australia	Mexico
Phosphorus Oxychloride	10025-87-3	0.1 ppm TWA 0.63 mg/m ³ TWA	0.1 ppm TWA

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

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
Gloves
Long sleeved clothing
- Respiratory protection:** Vapor respirator. 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

Physical state:
Liquid

Appearance:
Fuming. Mobile.

Color:
Clear. Colorless.

Odor:
Pungent. Musty.

Taste
No information available.

Formula
POCl₃

Molecular/Formula weight (g/mole): 153.33

Flammability (solid, gas)
no data 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
Upper Explosion Limit (%): No information available	Melting point/range(°C/°F): 1.25°C/34.3°F	Decomposition temperature(°C/°F): No information available
Boiling point/range(°C/°F): 105.8°C/222.4°F	Bulk density: No information available	Density (g/cm3): No information available
Specific gravity: 1.675	pH No information available	Vapor pressure @ 20°C (kPa): 3.7
Evaporation rate: No information available	Vapor density: 5.3	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: Reacts with water	

10. STABILITY AND REACTIVITY

Reactivity

Moisture sensitive. Reacts violently with water or steam, or moisture producing hydrochloric and phosphoric acids, heat, toxic and corrosive fumes.

Reacts exothermically with alcohol.

Reacts violently with acids, alkalies, alkali metals.

Reacts with carbon disulfide, dimethylformamide.

Chemical stability

Stability: Moisture Sensitive. Stable under recommended storage conditions.

Possibility of Hazardous Reactions: The product may undergo hazardous decomposition, condensation or polymerization, it may react violently with water to emit toxic gases or it may become self-reactive under conditions of shock or increase in temperature or pressure

Conditions to avoid: Heat. Ignition sources. Exposure to moisture. Incompatible materials.

Incompatible Materials:

- Acids
- Alkalis
- Metals
- Moisture
- Organic materials

Hazardous decomposition products: No information available.

Other Information

Corrosivity: Extremely corrosive in presence of zinc

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**

Phosphorus Oxychloride	
CAS No	10025-87-3

LD50/oral/rat = = 380 mg/kg Oral LD50 Rat**LD50/oral/mouse** = 327 mg/kg Oral LD50 Mouse**LD50/dermal/rabbit** = > 250 mg/kg Dermal LD50 Rabbit**LD50/dermal/rat** = No information available**LC50/inhalation/rat** = 32 ppm Inhalation LC50 Rat 4 h = 308 mg/m³ Inhalation LC50 4 h**LC50/inhalation/mouse** = 404 mg/m³ Inhalation LC50 Mouse 2H**Other LD50 or LC50 information** = No information available**Product Information****LD50/oral/rat** =**Value - Acute Toxicity** = 36 mg/kg**LD50/oral/mouse** =**Value - Acute Tox** = 327 mg/kg**LD50/dermal/rabbit****Value - Acute Toxicity** = No information available**LD50/dermal/rat****VALUE - Acute Tox** = No information available**LC50/inhalation/rat****VALUE-Vapor** = 32 ppm (4-hr)**VALUE-Gas** = No information available**VALUE-Dust/Mist** = No information available**LC50/Inhalation/mouse****VALUE-Vapor** = 404 mg/m³ 2H**VALUE - Gas** = No information available**VALUE - Dust/Mist** = No information available**Symptoms****Skin Contact:**

Causes severe irritation and burns.

Eye Contact:

Causes severe eye irritation and possible burns.

Inhalation

Fatal if inhaled. Causes severe irritation and possible chemical burns of the respiratory tract. Exposure to vapor also causes irritation of the eyes and lacrimation. Other symptoms of exposure include dizziness, headache, weakness, anorexia, nausea, vomiting, chest pain, pain in the throat, wheezing, coughing, difficulty breathing and shortness of breath (dyspnea) respiratory depression, bronchitis, bronchopneumonia, pulmonary edema. May also cause corneal damage, metabolic acidosis, and affect the kidneys (kidney damage, nephritis), and the liver, behavior/central nervous system(somnolence).

Ingestion Harmful if swallowed. May cause anorexia. May affect liver. May cause ulceration or bleeding from the stomach.

Aspiration hazard No information available.

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

Chronic Toxicity Chronic phosphorus poisoning may cause osteomyelitis of the jaw bones ("phossy jaw"), most frequently of the mandible and less often of the maxilla which commonly begins as a dental disturbance. May also cause osteoporosis. Chronic ingestion may also affect the liver and kidneys.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Phosphorus Oxychloride	10025-87-3	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: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organs: Central nervous system. Eyes. Kidneys. Lungs. Respiratory system. Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

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
Phosphorus Oxychloride	10025-87-3	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1810
Proper Shipping Name: Phosphorus oxychloride
Hazard Class 6.1
Subsidiary Class 8
Packing group: I
Emergency Response Guide Number 137
Marine Pollutant No data available
DOT RQ (lbs): No information available
Special Provisions 2, T20, TP13, TP2, TP38, TP45, B9, N34, B14, B32, B77
Symbol(s): [DOT]: (+) - Fixes the proper shipping name, hazard class and packing group for that entry without regard to whether the material meets the definition of that class, packing group or any other hazard class. [DOT]: (R4) - Identifies a material that is a hazardous substance that has a reportable quantity (RQ) of 1000 pounds (454 Kilograms).
Description: UN1810, Phosphorus oxychloride, 6.1 (8), I

TDG (Canada)

UN-No: UN1810
Proper Shipping Name: Phosphorus oxychloride
Hazard Class 8
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No Information available
Description: UN1810, Phosphorus oxychloride, 8, II

ADR

UN Number UN1810
Proper Shipping Name: Phosphorus oxychloride
Transport hazard class(es) 6.1
Packing group I
Subsidiary Risk: 8
Special Provisions 354
Description: UN1810, Phosphorus oxychloride, 6.1 (8), I

IMDG

UN-No: UN1810
Proper Shipping Name: Phosphorus oxychloride
Hazard Class: 6.1

Subsidiary Risk: 8
Packing Group: I
Marine Pollutant No information available
EMS: F-A
Special Provisions 354
Description UN1810, Phosphorus oxychloride, 6.1 (8), I

RID

UN Number UN1810
Proper Shipping Name: Phosphorus oxychloride
Transport hazard class(es) 6.1
Subsidiary Risk: 8
Packing group I
Special Provisions 354
Description: UN1810, Phosphorus oxychloride, 6.1 (8), I

ICAO (air)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class No information available
Subsidiary Risk: 8
Packing Group: No information available
Description: Forbidden

IATA

UN Number Not Regulated
Proper Shipping Name: No information available
Transport hazard class(es) No information available
Subsidiary Risk: 8
Packing group No information available
Precautionary Statements - Response No information available
Special Provisions No information available
Description: Forbidden

15. REGULATORY INFORMATION

International Inventories

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia (AICS)	EINECS-No.
Phosphorus Oxychloride	10025-87-3	PresentACTIV E	Present KE-28728	Present	Present (1)-244	Present	Present	Present 233-046-7

U.S. Regulations

Phosphorus Oxychloride

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 1523
New Jersey (EHS) List: 1523 500 lb TPQ
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
New Jersey TCPA - EHS: 800lbTQ
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List Present
Minnesota - Hazardous Substance List: Present
New York Release Reporting - List of Hazardous Substances:
 1000 lb RQ
 100 lb RQ
Louisana Reportable Quantity List for Pollutants: Listed

California Directors List of Hazardous Substances: Present

FDA - Direct Food Additives 21 CFR 172.892 (<=0.1%); 21 CFR 172.892 (<=0.1% followed by either Acetic anhydride <=8% or Vinyl acetate <=7.5%)

FDA - 21 CFR - Total Food Additives 172.892

- List Sourced from EAFUS

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:

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:
Phosphorus Oxychloride	10025-87-3	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
Phosphorus Oxychloride	10025-87-3	1000 lb final RQ 454 kg final RQ	1000 lb EPCRA RQ	None	None	None

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
Phosphorus Oxychloride	10025-87-3	Not Applicable	Not Applicable

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Phosphorus Oxychloride
10025-87-3 (100)

WHMIS 2015 Hazard Classification
Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Oral - Category 3: H301 Toxic if swallowed.; Acute toxicity - Inhalation - Category 1: H330 Fatal if inhaled.; Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.

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)

Phosphorus Oxychloride	10025-87-3	Present	Not Listed
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Component	CAS No	CEPA Schedule I - Toxic Substances
Phosphorus Oxychloride	10025-87-3	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Phosphorus Oxychloride	10025-87-3	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Phosphorus Oxychloride	10025-87-3	Acute toxicity - Oral - Acute Tox. 4: H302 Harmful if swallowed. (Minimum classification); Acute toxicity - Inhalation - Acute Tox. 2: H330 Fatal if inhaled. (Minimum classification); Skin corrosion/irritation - Skin Corr. 1A: H314 Causes severe skin burns and eye damage.; Specific target organ toxicity - Repeated exposure - STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure. (No information to prove exclusion of certain routes of exposure); Supplemental Hazards - EUH014 Reacts violently with water. (H372: No information to prove exclusion of certain routes of exposure); Supplemental Hazards - EUH029 Contact with water liberates toxic gas. (H372: No information to prove exclusion of certain routes of exposure)015-009-00-5

EU - CLP (1272/2008)

R-phrase(s)

R14 - Reacts violently with water
R22 - Harmful if swallowed
R26 - Very toxic by inhalation
R29 - Contact with water liberates toxic gas
R35 - Causes severe burns
R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation

S-phrase(s)

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S 7/8 - Keep container tightly closed and dry.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection

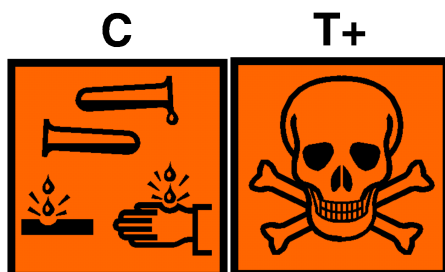
Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Phosphorus Oxychloride	10025-87-3	R14 Xn; R22 T+; R26 R29 C; R35 T; R48/23	No information	S(1/2) S7/8 S26 S36/37/39 S45

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

Indication of danger:

C - Corrosive

T+ - Very toxic



16. OTHER INFORMATION

Preparation Date: 04/10/2015
Revision date 06/19/2019
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