

SAFETY DATA SHEET

Preparation Date: 06/03/2015

Revision date 11/30/2018

Revision Number: G4

1. Identification

Product identifier

Product code: BS770
Product Name: 1-METHYL-2-PYRROLIDINONE, BIOSOLV(R)

Other means of identification

Synonyms: 1-Methyl-2-pyrrolidinone
 1-Methyl-2-pyrrolidone
 1-Methyl-5-pyrrolidinone
 M-Pyrol
 1-Methylazacyclopentan-2-one
 N-Methyl-gamma-Butyrolactam
 1-Methylpyrrolidinone
 1-Methylpyrrolidone
 2-Pyrrolidinone, 1-methyl-
 Methylpyrrolidone
 Methyl Pyrrolidone
 N-Methyl-2-pyrrolidinone
 N-Methyl-2-pyrrolidone
 N-Methyl-alpha-pyrrolidone
 N-Methylpyrrolidinone
 N-Methylpyrrolidone
 NMP

CAS #: 872-50-4
RTECS # UY5790000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Solvent.
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 by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

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

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Reproductive toxicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Flammable liquids	Category 4

Label elements

Danger

Hazard statements

Causes skin irritation
Causes serious eye irritation
May damage fertility or the unborn child
May cause respiratory irritation
Combustible liquid



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

May be harmful in contact with skin

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
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep cool

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

In case of fire: Use CO₂, dry chemical, or foam to extinguish.

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.

IF ON SKIN: Wash with plenty of water

If skin irritation occurs: Get medical advice/attention

Take off contaminated clothing and wash it before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula:	CAS No	Weight-%
N-Methyl-2-pyrrolidinone	872-50-4	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 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 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	Irritating to eyes and skin Irritating to respiratory system May cause an allergic skin reaction May be absorbed through the skin in harmful amounts Ingestion may cause gastrointestinal irritation, nausea, vomiting, and diarrhea
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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:	Dry chemical. Carbon dioxide (CO ₂). Water spray mist or foam.
Unsuitable Extinguishing Media:	High volume water jet. Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous combustion products	Carbon Monoxide, Carbon Dioxide. Nitrogen oxides (NO _x).
Specific hazards	Combustible material. May be ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along the ground and collect in low or confined areas (sewers,

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basements, tanks). Container explosion may occur under fire conditions or when heated. It is combustible when exposed to powerful oxidizers.

Special Protective Actions for Firefighters

Specific Methods:

Water mist may be used to cool closed containers. For larger fires, use water spray or fog. Cool containers with flooding quantities of water until well after fire is out.

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 touch damaged containers or spilled material unless wearing appropriate protective clothing. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Remove all sources of ignition.

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), then place in a suitable chemical waste container.

Methods for cleaning up

Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Use clean non-sparking tools to collect absorbed material. 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. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Keep away from incompatible materials.

Safe Handling Advice

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

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Hygroscopic. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials. Store under inert gas.

Incompatible Materials:

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Oxidizing agents
 Reducing agents
 Acids
 Bases

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Formula:	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
N-Methyl-2-pyrrolidinone	872-50-4	None	None	None	10 ppm TWA

Canada

Formula:	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
N-Methyl-2-pyrrolidinone	872-50-4	None	None	400 mg/m ³ TWA	None

Australia and Mexico

Formula:	CAS No	Australia	Mexico
N-Methyl-2-pyrrolidinone	872-50-4	75 ppm STEL 309 mg/m ³ STEL 25 ppm TWA 103 mg/m ³ TWA	None

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
- Skin and body protection:** Long sleeved clothing
Chemical resistant apron
Gloves
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Respiratory protection is not necessary for normal handling. Good room ventilation or use of local exhaust (fume hood) is sufficient. Use a vapor respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentrations of mist or vapor, 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. 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: Liquid	Appearance: No information available.	Color: Colorless. Light yellow.
Odor: Mild. Amine-like.	Taste No information available.	Formula: C5-H9-N-O
Molecular/Formula weight (g/mole): 99.14	Flammability (solid, gas) Combustible	Flashpoint (°C/°F): 92.778 °C/199 °F 95.556 °C/204 °F
Flash Point Tested according to: Closed cup Open cup	Autoignition Temperature (°C/°F): 346.11 °C/655 °F	Lower Explosion Limit (%): 1.3%
Upper Explosion Limit (%): 9.5%	Melting point/range(°C/°F): -24 °C/-11.2 °F	Decomposition temperature(°C/°F): No information available
Boiling point/range(°C/°F): 202 °C/395.6 °F	Bulk density: No information available	Density (g/cm3): No information available
Specific gravity: 1.026	pH No information available	Vapor pressure @ 20°C (kPa): 0.032-0.039 at 20 deg. C 0.05 at 25 deg. C
Evaporation rate: 0.06 (Butyl acetate = 1)	Vapor density: 3.4	VOC content (g/L): 1026
Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): -0.54	Viscosity: No information available
Miscibility: Miscible with water Miscible with Castor Oil Miscible with lower alcohols Miscible with ketones Miscible with Ethyl Acetate Miscible with Chloroform Miscible with Benzene	Solubility: Moderately soluble in aliphatic hydrocarbons and dissolves many organic and inorganic compounds	

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents

Reactive with acids

Reacts with strong bases

Reacts with reducing agents

Hygroscopic. It absorbs moisture from the air

It reacts with chlorinating agents (e.g. cobalt chloride, thionyl chloride, phosphorous oxychloride, pentachlorophosphorous) to form the amide

It reacts with sulfur and carbon disulfide at high temperatures and pressures

Chemical stability

Stability: Hygroscopic. Stable under recommended storage conditions.

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Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials. Exposure to moist air.

Incompatible Materials: Oxidizing agents
Reducing agents
Acids
Bases

Hazardous decomposition products: Carbon monoxide. Carbon dioxide. 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:

Skin. Eyes. Inhalation. Ingestion.

Acute Toxicity

Component Information

N-Methyl-2-pyrrolidinone

CAS No | 872-50-4

LD50/oral/rat = 3914 mg/kg Oral LD50 Rat (LOLI; RTECS)
3598 mg/kg (EU Chemicals Bureau IUCLID dataset)_

LD50/oral/mouse = 5130 mg/kg (RTECS)
7725 mg/kg (EU Chemicals Bureau IUCLID dataset)

LD50/dermal/rabbit = 8 g/kg (RTECS; LOLI)
2000-4000 mg/kg (EU Chemicals Bureau IUCLID dataset)

LD50/dermal/rat = 2500-5000 mg/kg

LC50/inhalation/rat = 3.1 mg/L Inhalation LC50 Rat 4 h (LOLI)
3.1-8.8 mg/l 4 h (EU Commission Chemicals Bureau IUCLID dataset)

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =

Value - Acute Tox Dermal = 3914 mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = 5130 mg/kg

LD50/dermal/rabbit

Value - Acute Tox Dermal = 2000-4000 mg/kg

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LD50/dermal/rat

VALUE - Acute Tox Dermal = 2500-5000 mg/kg

LC50/inhalation/rat

VALUE-Vapor = No information available

VALUE-Gas = No information available

VALUE-Dust/Mist = 3.1 mg/l

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation.

Eye Contact: Causes serious eye irritation. Moderately irritating to the eyes.

Inhalation Irritating to respiratory system.

Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause abdominal pain.

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 inhalation may cause difficulty breathing, shortness of breath, and pulmonary edema. Prolonged or repeated inhalation may affect the kidneys. Prolonged or repeated inhalation may affect metabolism (weight loss). Prolonged or repeated inhalation may affect the blood (changes in white blood cell count). Prolonged or repeated ingestion may affect the spleen. Prolonged or repeated ingestion may affect the liver, and kidneys. Prolonged or repeated ingestion may affect the blood (changes in serum composition). Prolonged or repeated ingestion may affect the blood (changes in platelet count). Prolonged or repeated inhalation or ingestion may affect the central nervous system (somnolence, muscle weakness, headache, dizziness). Prolonged skin contact may cause skin irritation and/or dermatitis. Symptoms of skin irritation may include skin rash, blisters, and redness. Prolonged or repeated skin contact may cause dryness of the skin.

Sensitization: No information available.

Mutagenic Effects: May affect genetic material
Experiments with bacteria and/or yeast have shown mutagenic effects

Carcinogenic effects: Not considered carcinogenic.

Formula:	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
N-Methyl-2-pyrrolidinone	872-50-4	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)

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Reproductive toxicity May damage fertility or the unborn child

Reproductive Effects: May impair fertility
Developmental Effects: May cause adverse developmental effects based on animal data
Teratogenic Effects: May cause birth defects (teratogenic effects) based on animal test data
 Showed teratogenic effects in animal experiments

Specific Target Organ Toxicity

STOT - single exposure STOT - single exposure. respiratory system.
STOT - repeated exposure No information available.
Target Organs: Central nervous system. Skin. Liver. Kidneys. Blood. Respiratory system. Spleen. Bone Marrow. Thymus.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

N-Methyl-2-pyrrolidinone - 872-50-4

Algae/aquatic plants 500 mg/L EC50 Desmodesmus subspicatus 72 h
Fish 1072 mg/L LC50 Pimephales promelas 96 h static 1
 1400 mg/L LC50 Poecilia reticulata 96 h static 1
 4000 mg/L LC50 Leuciscus idus 96 h static 1
Crustacea 832 mg/L LC50 Lepomis macrochirus 96 h static 1
 4897 mg/L EC50 Daphnia magna 48 h

Persistence and degradability: Readily biodegradable (90%)

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.

Formula:	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
N-Methyl-2-pyrrolidinone	872-50-4	None	None	None	None

14. TRANSPORT INFORMATION

Product code: BS770

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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	-
Proper Shipping Name:	No information available
Transport hazard class(es)	No information available
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

Product code: BS770**Product name:**
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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

Formula:	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia AICS	EINECS-No.
<i>N-Methyl-2-pyrrolidinone</i>	872-50-4	PresentACTIVE	Present KE-25324	Present	(5)-113	Present	Present	Present 212-828-1

U.S. Regulations

N-Methyl-2-pyrrolidinone


Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 3716
New Jersey (EHS) List: 3716 500 lb TPQ
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Present

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 contains a chemical known to the State of California to cause birth defects or other reproductive harm (See table below)

Formula:	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>N-Methyl-2-pyrrolidinone</i>	872-50-4	Not Listed	developmental toxicity	Not Listed	Not Listed

CERCLA/SARA

Formula:	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
<i>N-Methyl-2-pyrrolidinone</i>	872-50-4	None	None	None	None	1.0 % de minimis concentration

U.S. TSCA

Formula:	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
<i>N-Methyl-2-pyrrolidinone</i>	872-50-4	Not Applicable	Not Applicable

Canada

WHIMIS 2015 - GHS Classifications

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WHMIS 2015 Hazard Classification
Information:

Component
N-Methyl-2-pyrrolidinone
872-50-4 (100)

WHMIS 2015 Hazard Classification
Flammable liquids - Category 4: H227 Combustible liquid.;
Serious Eye Damage/Eye Irritation - Category 2B: H320 Causes
eye irritation.; Reproductive Toxicity - Category 1: H360 May
damage fertility or the unborn child.

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

Formula:	CAS No	Canada (DSL)	Canada (NDSL)
N-Methyl-2-pyrrolidinone	872-50-4	Present	Not Listed

Formula:	CAS No	CEPA Schedule I - Toxic Substances
N-Methyl-2-pyrrolidinone	872-50-4	Not listed
Formula:	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
N-Methyl-2-pyrrolidinone	872-50-4	Not listed

EU Classification

EU GHS - SV - CLP 1272/2008

Formula:	CAS No	EU GHS - SV - CLP (1272/2008)
N-Methyl-2-pyrrolidinone	872-50-4	

EU - CLP (1272/2008)

R-phrase(s)

R61 - May cause harm to the unborn child
R36/37/38 - Irritating to eyes, respiratory system and skin

S -phrase(s)

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

Formula:	CAS No	Classification	Concentration Limits:	Safety Phrases
N-Methyl-2-pyrrolidinone	872-50-4	Xi; R36/37/38 Repr.Cat.2; R61	5%<=C: Repr.Cat.2; R61 10%<=C: Xi; R36/37/38	S53 S45

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

Indication of danger:

Xi - Irritant

Xi



16. OTHER INFORMATION

Preparation Date: 06/03/2015
Revision date 11/30/2018
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