

SAFETY DATA SHEET

Preparation Date: 11/14/2016

Revision Date: 11/14/2016

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: M1179
Product Name: MERCURIC OXIDE, YELLOW, POWDER, TECHNICAL

Other means of identification

Synonyms: Mercury monoxide; Mercury (II) oxide; Mercury (2+) oxide
CAS #: 21908-53-2
RTECS # OW8750000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: For manufacturing or laboratory use only. Chemical intermediate.
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 2
Acute toxicity - Dermal	Category 1
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1
Reproductive toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 2

Label elements

Danger

Hazard statements

Fatal if swallowed
 Fatal if inhaled

Product code: M1179

Product name: MERCURIC OXIDE,
 YELLOW, POWDER, TECHNICAL

1 / 13

Fatal in contact with skin
Causes skin irritation
Causes serious eye irritation
May cause an allergic skin reaction
May damage fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Very toxic to aquatic life with long lasting effects
Very toxic to aquatic life

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Do not eat, drink or smoke when using this product
Wear respiratory protection
Wear protective gloves/protective clothing/eye protection/face protection
Do not get in eyes, on skin, or on clothing
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wash face, hands and any exposed skin thoroughly after handling
Contaminated work clothing must not be allowed out of the workplace

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician

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

Take off contaminated clothing and wash it before reuse

If skin irritation or rash occurs: Get medical advice/attention

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

IF SWALLOWED: 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 %
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Product code: M1179

Product name: MERCURIC OXIDE,
YELLOW, POWDER, TECHNICAL

2 / 13

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. 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. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a physician or Poison Control Centre immediately. Fatal in contact with skin.
- Eye Contact:** Flush eyes with water for 15 minutes. Call a physician or Poison Control Centre immediately. 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. Call a physician or Poison Control Center immediately. Fatal if swallowed.

Most important symptoms and effects, both acute and delayed

- Symptoms** Fatal if swallowed, in contact with skin or if inhaled. Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Mercury poisoning also causes sore gums, stomatitis, foul breath, loss of teeth, metallic taste in mouth, increased salivation, personality changes, tremors, fatigue, insomnia, dizziness, headache, muscle weakness, muscle or joint pain, memory loss, peripheral neuropathy. May affect the kidneys(renal failure), liver, blood, and brain.

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: Mercury oxides.
Specific hazards:	No information available.
<u>Special Protective Actions for Firefighters</u>	
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. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Avoid breathing dust. Remove all sources of ignition.
<u>Environmental precautions</u>	Prevent further leakage or spillage if safe to do so. Do not let product enter 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 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 in a segregated and approved area. Store away from incompatible materials. Protect from light. Sensitive to light. Store in light-resistant containers.

Incompatible Materials:

Strong oxidizing agents
Chlorine
Hydrogen peroxide
Metals

Reducing agents
 Powdered metals
 Phenols
 Strong acids
 Hydrazine hydrate
 Hydrogen trisulfide
 Acetyl nitrate
 Ethanol
 Combustible materials
 Alcohols
 Phosphine
 Acetylene
 Sulfur
 Organic materials

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WHEEL
Mercuric Oxide Yellow	21908-53-2	None	None	None	None

Canada

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Mercuric Oxide Yellow	21908-53-2	None	None	None	None

Australia and Mexico

Components	CAS-No.	Australia	Mexico
Mercuric Oxide Yellow	21908-53-2	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation, especially in confined areas. 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

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

Respiratory protection: Effective dust mask. or. Wear respirator with dust filter. 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. 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: Powder.	Color: Yellow.
Odor: Odorless.	Taste No information available.	Formula: HgO
Molecular/Formula weight: 216.59	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
Upper Explosion Limit (%): No information available	Melting point/range(°C/°F): 500°C (932°F)	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: 11.03	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: Very slightly soluble in cold water Insoluble in Ether Insoluble in Alcohol Insoluble in Acetone	

10. STABILITY AND REACTIVITY

Reactivity

Reactive with strong oxidizing agents

Chemical stability

Stability: Sensitive to light. Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Exposure to light. Avoid dust formation. Incompatible materials.

Incompatible Materials: Strong oxidizing agents
Chlorine
Hydrogen peroxide
Metals

Reducing agents
Powdered metals
Phenols
Strong acids
Hydrazine hydrate
Hydrogen trisulfide
Acetyl nitrate
Ethanol
Combustible materials
Alcohols
Phosphine
Acetylene
Sulfur
Organic materials

Hazardous decomposition products: Mercury/mercury 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:
Skin. Eyes. Ingestion. Inhalation.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document
Component Information

Mercuric Oxide Yellow	
CAS-No.	21908-53-2

LD50/oral/rat = = 18 mg/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = =18mg/kgOral LD50Rat
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 18 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = 16 mg/kg

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = 315 mg/kg

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 if absorbed through skin. Causes skin irritation. May cause allergic skin reaction.
Eye Contact:	Causes serious eye irritation.
Inhalation	Fatal if inhaled. May cause irritation of respiratory tract. May cause metallic taste. May cause nausea, vomiting. May cause abdominal pain.
Ingestion	Fatal if swallowed. High or repeated exposure can cause Mercury poisoning. Mercury poisoning causes sore gums, personality changes, tremor/"shakes" (often with shaky handwriting), clumsiness, fatigue, irritability and increased saliva. Other changes may include serious personality changes memory loss, extreme shyness, weakness, stomatitis, gingivitis, loss of teeth, gastrointestinal disturbances, metallic taste, poor appetite/anorexia, this, abdominal discomfort, nausea, vomiting, weight loss, central nervous system effects, "pins and needles" (peripheral neuropathy). Exposures can also affect the liver, cause kidney damage, and may cause decreased visual acuity, and affect peripheral vision (the ability to see to the side). Brain damage can occur, especially if exposure continues. There may be similar effects in cases of acute inhalation.
Aspiration hazard	No information available.

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

Chronic Toxicity	Skin: Prolonged or repeated skin contact may cause allergic skin reaction. Prolonged or repeated inhalation may affect the kidneys. Chronic exposure may cause central nervous system effects. Prolonged or repeated exposure may affect the eyes and vision. Inhalation/Ingestion: High or repeated exposure can cause Mercury poisoning. Mercury poisoning causes gastrointestinal upset/disturbances, inflammation of the mouth and gums, sore gums, metallic taste in the mouth, personality changes, tremors/shakes, clumsiness, fatigue, headache, dizziness or faintness, insomnia, irritability and increased saliva. Other changes may include memory loss, trouble concentrating, extreme shyness, joint or muscle pain, muscle weakness, stomatitis, gingivitis, loose teeth or loss of teeth, loss of appetite and weight. Exposure can also affect the liver, cause kidney damage, and may decrease visual activity. Brain damage can occur if exposure continues. Eye contact: brown staining in the eye without visual impairmentSkin: Repeated skin contact can make the skin gray. Dermatitis can also occur.
Sensitization:	May cause sensitization by skin contact.
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
Mercuric Oxide Yellow	21908-53-2	Group 3 - Monograph 58 [1993] Mercury and Mercury compounds	A4- Not Classifiable as a Human Carcinogen	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)
A4 - Not Classifiable as a Human Carcinogen
IARC (International Agency for Research on Cancer)
Group 3 - Not classifiable as to its carcinogenicity 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: Experiments have shown reproductive toxicity effects on laboratory animals
May impair fertility

Developmental Effects: May cause harm to the unborn child

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Target Organs: Kidneys. Nervous system. Central nervous system. Eyes/vision.

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.

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
Mercuric Oxide Yellow	21908-53-2	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1641
Proper Shipping Name: Mercury oxide
Hazard Class: 6.1
Subsidiary Class: No information available
Packing group: II
Emergency Response Guide Number: 151
Marine Pollutant: Severe Marine Pollutant
DOT RQ (lbs): No information available
Special Provisions: IB8, IP2, IP4, T3, TP33
Symbol(s): No information available
Description: UN1641, Mercury oxide, 6.1, II

TDG (Canada)

UN-No: UN1641
Proper Shipping Name: Mercury oxide
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: No Information available
Description: UN1641, Mercury oxide, 6.1, II

ADR

UN-No: UN1641
Proper Shipping Name: Mercury oxide
Hazard Class: 6.1
Packing Group: II
Subsidiary Risk: No information available
Description: UN1641, Mercury oxide, 6.1, II

IMO / IMDG

UN-No: UN1641
Proper Shipping Name: Mercury oxide
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: Marine Pollutant
EMS: F-A
Description: UN1641, Mercury oxide, 6.1, II

RID

UN-No: UN1641
Proper Shipping Name: Mercury oxide
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: II
Description: UN1641, Mercury oxide, 6.1, II

ICAO

UN-No: UN1641
Proper Shipping Name: Mercury oxide
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: II
Description: UN1641, Mercury oxide, 6.1, II

Product code: M1179

Product name: MERCURIC OXIDE,
YELLOW, POWDER, TECHNICAL

10 / 13

IATA

UN-No: UN1641
Proper Shipping Name: Mercury oxide
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 6L
Special Provisions No information available
Description: UN1641, Mercury oxide, 6.1, II

15. REGULATORY INFORMATION

International Inventories

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Mercuric Oxide Yellow</i>	21908-53-2	Present	Present KE-23130	Present	Present (1)-436	Present	Present	Present 244-654-7

U.S. Regulations*Mercuric Oxide Yellow*

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 2537
New Jersey (EHS) List: 2537 500 lb TPQ
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:
 = 1 lb RQ

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)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>Mercuric Oxide Yellow</i>	21908-53-2	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	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>Mercuric Oxide Yellow</i>	21908-53-2	None	500 lb lower TPQ 10000 lb upper TPQ 500	None	None	None

U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules	TSCA 8(d) -Health and Safety Reporting

Product code: M1179**Product name:** MERCURIC OXIDE,
YELLOW, POWDER, TECHNICAL**11 / 13**

		(SNURS)	
Mercuric Oxide Yellow	21908-53-2	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

D1A Very toxic materials

D2A Very toxic materials

Components

Mercuric Oxide Yellow

WHIMHAZ

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.

Components	WHMIS Ingredient Disclosure List -
Mercuric Oxide Yellow	0.1 %

Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Mercuric Oxide Yellow	21908-53-2	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Mercuric Oxide Yellow	21908-53-2	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Mercuric Oxide Yellow	21908-53-2	Not listed

EU Classification

R-phrase(s)

R33 - Danger of cumulative effects.

R50 - Very toxic to aquatic organisms.

R53 - May cause long-term adverse effects in the aquatic environment.

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

S -phrase(s)

S13 - Keep away from food, drink and animal feedingstuffs.

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

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.

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Mercuric Oxide Yellow	21908-53-2		No information	

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

Indication of danger:

T+ - Very toxic.

N - Dangerous for the environment.

T+



N



16. OTHER INFORMATION

Preparation Date: 11/14/2016
Revision Date: 11/14/2016
Prepared by: Roumann Pangilinan

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