



SAFETY DATA SHEET

Issue Date 13-February-2002

Revision Date 26-February-2013

Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier**Product Name** LINDRIDE 32**Other Means of Identification****SDS #** LC-017**Recommended Use of the Chemical and Restrictions on Use****Recommended Use** Epoxy curing agent for high performance composites and electronics**Details of the Supplier of the Safety Data Sheet****Supplier Address**Lindau Chemicals, Inc.
731 Rosewood Drive
Columbia, SC 29201**Emergency Telephone Number****Company Phone Number**

Phone: 1-803-799-6863

Fax: 1-803-256-3639

Emergency TelephoneINFOTRAC 01-352-323-3500 (International)
1-800-457-4280 (North America)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: The information below relates to repeated and prolonged exposure, particularly where exposure is to the vapor form of the substance. The supplier has indicated that eye exposure normally results in eye irritation.**Classification**

| | |
|-----------------------------------|------------|
| Acute Toxicity: Inhalation | Category 4 |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Respiratory Sensitization | Category 1 |
| Skin Sensitization | Category 1 |

Signal Word**Danger****Hazard Statements**

Causes serious eye damage

Harmful if inhaled

May cause allergy or asthma symptoms or breathing difficulties if inhaled

May cause an allergic skin reaction

**Appearance** Amber liquid**Physical State** Liquid**Odor** Characteristic**Precautionary Statements - Prevention**

Avoid breathing fumes or vapors.
 Use only outdoors or in a well-ventilated area.
 Wear protective gloves, protective clothing and eye protection.
 In case of inadequate ventilation wear respiratory protection.
 Contaminated work clothing should not be allowed out of the workplace.

Precautionary Statements - Response

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 doctor/physician.
 IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash 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. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

Hazards Not Otherwise Classified (HNOC)

Causes mild skin irritation

Other Hazards

Harmful to aquatic life with long lasting effects
 Harmful to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No | Weight-% |
|------------------------------------|------------|----------|
| Methyltetrahydrophthalic anhydride | 34090-76-1 | > 55 |
| Tetrahydrophthalic anhydride | 85-43-8 | 10–20 |
| Methylhexahydrophthalic anhydride | 19438-60-9 | 10–20 |
| Phthalic anhydride | 85-44-9 | 1–5 |

** If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.**

4. FIRST AID MEASURES

First Aid Measures**Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist, call a physician.

Eye Contact

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get immediate medical advice/attention.

Ingestion

Call immediately a physician or your local Poison Control Center.

Skin Contact

Wash with soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Most Important Symptoms and Effects, both Acute and Delayed**Symptoms**

Contact may cause irritation and redness. Direct eye contact may cause stinging, tearing and redness. May cause irritation to the mucous membranes and upper respiratory tract.

Indication of any Immediate Medical Attention and Special Treatment Needed**Note to Physicians**

Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Extinguishing Media****Suitable Media**

Dry chemical, carbon dioxide (CO₂), water spray (fog)

Unsuitable Media

Not determined

Specific Hazards Arising from the Chemical

Burning may produce irritating vapors, carbon monoxide and/or carbon dioxide.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide

Protective Equipment and Precautions 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**

Use personal protective equipment as required. Remove all sources of ignition. Ensure adequate ventilation.

Environmental Precautions

Avoid subsoil penetration. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

Methods and Material for Containment and Cleaning Up**Methods for Containment**

Provide ventilation and respirator if needed. Flush area with water/soda ash. Keep flames away. Avoid subsoil penetration. Do not let product enter drains or contaminate surface water.

Methods for Cleaning Up

Absorb spillage with non-combustible, absorbent material. Dispose of in accordance with federal, state and local regulations. Flush area with water and soda ash.

7. HANDLING AND STORAGE**Precautions for Safe Handling****Advice on Safe Handling**

Use only in well-ventilated areas. Use personal protection recommended in Section 8. Avoid breathing vapors. Do not take contaminated clothing out of the workplace.

Conditions for Safe Storage, Including any Incompatibilities**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Store at temperatures above 50°F (10°C) to prevent crystallization.

Packaging Materials

Do not transfer to unmarked containers.

Incompatible Materials

Alcohols, alkalis, water

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH REL |
|-------------------------------|--|---|--|
| Phthalic anhydride 85-44-9 | TWA: 1 ppm TWA: 6.1 mg/m ³ | TWA: 2 ppm TWA: 12 mg/m ³ (vacated) TWA: 1 ppm (vacated) TWA: 6 mg/m ³ | IDLH: 60 mg/m ³ TWA: 1 ppm TWA: 6 mg/m ³ |

Control Parameters

Engineering Controls Apply technical measures to comply with the occupational exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Wear approved safety goggles.

Skin and Body Protection Wear chemical resistant, impermeable gloves. Wear suitable protective clothing.

Respiratory Protection Ensure adequate ventilation, especially in confined areas.

General Hygiene Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

| | | | |
|------------------------------|-----------------------|-----------------------|----------------|
| Physical State | Liquid | Odor | Characteristic |
| Appearance | Amber liquid | Odor Threshold | Not determined |
| Color | Amber | | |
| Property | Values | Remarks/Method | |
| pH | Not determined | | |
| Melting Point/Freezing Point | Not determined | | |
| Boiling Point/Boiling Range | > 307 °C / > 585 °F | ASTM D-86 | |
| Flash Point | > 135 °C / > 275 °F | (PM) | |
| Evaporation Rate | zero | (butyl acetate = 1) | |
| Flammability (Solid, Gas) | n/a-liquid | | |
| Upper Flammability Limit | Not applicable | | |
| Lower Flammability Limit | Not applicable | | |
| Vapor Pressure | 0 mm Hg | @ 15 °C | |
| Vapor Density | 5.7 | (air = 1) | |
| Specific Gravity | 1.21 | (water = 1) @ 25 °C | |
| Water Solubility | Negligible | | |
| Solubility in Other Solvents | Not determined | | |
| Partition Coefficient | Not determined | | |
| Autoignition Temperature | Not determined | | |
| Decomposition Temperature | Not determined | | |
| Kinematic Viscosity | Not determined | | |
| Dynamic Viscosity | Not determined | | |
| Explosive Properties | Not determined | | |
| Oxidizing Properties | Not determined | | |
| Additional Information | Volatile by volume 0% | | |

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions

Chemical Stability

Stable under recommended storage conditions

Possibility of Hazardous Reactions

None under normal processing

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to Avoid

Slowly hydrolyzed by water. Reacts with incompatible materials.

Incompatible Materials

Alcohols, alkalis, water

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation

Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Eye Contact

Causes serious eye damage

Ingestion

May cause burns of the mouth, throat and gastrointestinal tract. Normal handling and hygiene precautions should always be taken to avoid ingestion.

Skin Contact

May cause mild skin irritation. May cause allergic skin reaction.

Component Information

| Chemical Name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|--|--------------------|----------------------|-------------------------|
| Methyltetrahydrophthalic anhydride 34090-76-1 | 2140 mg/kg (Rat) | | |
| Tetrahydrophthalic anhydride 85-43-8 | 5410 mg/kg (Rat) | | > 0.294 mg/L (Rat) |
| Phthalic anhydride 85-44-9 | 1530 mg/kg (Rat) | > 10 g/kg (Rabbit) | > 0.21 mg/L (Rat) 1 h |

Information on Physical, Chemical and Toxicological Effects

Symptoms

Please see Section 4 of this SDS for symptoms.

Delayed and Immediate Effects as well as Chronic Effects from Short-term and Long-term Exposure

Sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Carcinogenicity

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life. Harmful to aquatic life with long-lasting effects.

| Chemical Name | Algae/aquatic plants EC50 | Fish LC50 | Crustacea EC50 |
|---|--|--|--------------------------------|
| Tetrahydrophthalic anhydride 85-43-8 | Desmodesmus subspicatus 65.7 mg/L 72 h | Leuciscus idus 610 mg/L 48 h (static) | Daphnia magna 117 mg/L 24 h |
| Phthalic anhydride 85-44-9 | | Leuciscus idus 313 mg/L 48 h (static) | |

Persistence and Degradability

Not determined

Bioaccumulation

Not determined

Mobility

| Chemical Name | Partition Coefficient |
|-------------------------------|-----------------------|
| Phthalic anhydride 85-44-9 | 0.73 |

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes

Dispose of in accordance with federal, state and local regulations. Incinerate in a suitable furnace or bury with lime in an approved landfill.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

| Chemical Name | RCRA | RCRA - Basis for Listing |
|-------------------------------|------|--|
| Phthalic anhydride 85-44-9 | U190 | Included in waste streams: F039, K023, K024, K093, K094 |

14. TRANSPORT INFORMATION

Regulatory Entity

DOT Not regulated

IATA Not regulated

IMDG Not regulated

Note

Please see current shipping paper for most up-to-date shipping information, including exemptions and special circumstances.

15. REGULATORY INFORMATION

International Inventories

| | |
|---------------|--------|
| TSCA | Listed |
| EINECS | Listed |

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECI - Korea Existing Chemicals Inventory

PICCS - Philippines Inventory of Chemicals and Chemical Substances

United States Federal Regulations

SARA 313

| Chemical Name | CAS No | Weight-% | SARA 313 Threshold Value % |
|--------------------|---------|----------|-------------------------------|
| Phthalic anhydride | 85-44-9 | 1-5 | 1.0 |

CERCLA

| Chemical Name | Hazardous Substances Reportable Quantity (RQ) |
|-------------------------------|---|
| Phthalic anhydride 85-44-9 | RQ 5000 lb final RQ RQ 2270 kg final RQ |

United States State Regulations

California Proposition 65 This product does not contain any Proposition 65 chemicals.

United States State Right-to-Know Regulations

| Chemical Name | California | Florida | Massachusetts | Minnesota | New Jersey | Pennsylvania |
|-------------------------------|------------|---------|---------------|-----------|------------|--------------|
| Phthalic anhydride 85-44-9 | X | X | X | X | X | X |

16. OTHER INFORMATION

NFPA

Health Hazards
Not determined

Flammability
Not determined

Instability
Not determined

Special Hazards
Not determined

HMIS

Health Hazards
1

Flammability
1

Physical Hazards
0

Personal Protection
Not determined

Issue Date 13-February-2002
Revision Date 26-February-2013
Revision Note New format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet