SAFETY DATA SHEET

Issue Date 16-June-2010 **Revision Date** 02-November-2020 **Version** 5

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name LINDRIDE 22

Other Means of Identification
SDS # LC-003

Recommended Use of the Chemical and Restrictions on Use
Recommended Use Curing agent

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 Telephone INFOTRAC 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: Oral	Category 4
Acute Toxicity: Inhalation	Category 3
Skin Corrosion/Irritation	Category 2
Specific Target Organ Toxicity (Repeated Exposure)	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1

Signal Word
Danger

Hazard Statements
H302: Harmful if swallowed
H331: Toxic if inhaled
H315: Causes skin irritation
H373: May cause damage to organs through prolonged or repeated exposure
H318: Causes serious eye damage
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
H317: May cause an allergic skin reaction

Appearance Light yellow liquid **Physical State** Liquid **Odor** Mild organic

Precautionary Statements - Prevention
P260: Do not breathe fumes or vapors.
P264: Wash face, hands and any exposed skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P271: Use only outdoors or in a well-ventilated area.
P272: Contaminated work clothing should not be allowed out of the workplace.
P280: Wear protective gloves, protective clothing and eye protection.
P284: In case of inadequate ventilation wear respiratory protection.

Precautionary Statements - Response
P305 + P351: IF IN EYES: Rinse cautiously with water for several minutes.
P338: Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/physician.

P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364: Take off contaminated clothing and wash it before reuse.

P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

P301 + P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330: Rinse mouth.

P314: Get medical advice/attention if you feel unwell.

Precautionary Statements - Storage
P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up.

Precautionary Statements - Disposal
P501: Dispose of contents/container to an approved waste disposal plant.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Methyl-5-norbornene-2,3-dicarboxylic anhydride	25134-21-8	> 75
5-Norbornene-2,3-dicarboxylic anhydride	826-62-0	< 25

** 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

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. Immediately call a Poison Control Center or doctor/physician.

Skin Contact Take off contaminated clothing and wash it before reuse. Wash thoroughly with soap and water until no traces of the chemical remain. If skin irritation occurs: Get medical advice/attention.

Inhalation Remove to fresh air. If not breathing, give artificial respiration by trained personnel. If breathing is difficult, give oxygen by trained personnel. Get medical attention immediately.

Ingestion Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink two to four full cups of milk or water. DO NOT attempt to neutralize with chemical agents.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms Causes serious eye damage. Causes skin irritation. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.

Indication of any Immediate Medical Attention and Special Treatment Needed

Note to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Media Foam, carbon dioxide (CO_2), dry powder, dry sand

Unsuitable Media Not determined

Specific Hazards Arising from the Chemical

Combustible material. Material reacts with water or steam to produce heat and free acid.

Hazardous Combustion Products Aldehydes, organic acids, 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. Material reacts with water or steam to produce heat and free acid. Flood fire area with water from a distance.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Personal Precautions Use personal protective equipment as required. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation, especially in confined areas. Keep personnel upwind from leak. Avoid inhalation of vapors and contact with skin and eyes.

Environmental Precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information, and see Section 13, Disposal Considerations, for additional information.

Methods and Material for Containment and Cleaning Up

Methods for Containment Cover spill with dry ground vermiculite, mix and transfer to a properly marked container. Close container tightly and retain or submit for disposal. For large spills, dike well ahead of liquid. Transfer recovered liquid and solid diking material to separate containers (if practical) for recovery or disposal.

Methods for Cleaning Up Absorb spillage with non-combustible, absorbent material. Collect and keep material in suitable, sealed containers for disposal. Dispose of in accordance with federal, state and local regulations. Flush area with water and soda ash. Rinse area with clean water and allow to dry before permitting traffic.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Advice on Safe Handling Handle in accordance with good industrial hygiene and safety practice. Use personal protection recommended in Section 8. Avoid contact with skin, eyes or clothing. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid breathing vapors or fumes. Use only with adequate ventilation. Contaminated work clothing should not be allowed out of the workplace. Remove contaminated clothing and shoes. Discard shoes that become saturated with product.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions Keep container tightly closed and store in a cool, dry and well-ventilated place. Recommended storage temperature is between 15°C (59°F) and 30°C (86°F). Thaw frozen material below 40°C (104°F) and mix well before using. Store away from incompatible materials. Protect from moisture.

Packaging Materials Reuse of empty drums or containers is not recommended. Dispose of all empty containers properly, in accordance with federal, state and local regulations.

Incompatible Materials Strong acids, strong bases, oxidizing agents, water

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Control Parameters

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection Wear approved chemical safety goggles. Use full-face shield when splashing is possible.

Skin and Body Protection Wear chemical resistant, impermeable gloves. Use chemical resistant apron or other impermeable clothing, if needed, to avoid contaminating regular clothing, which could result in prolonged or repeated skin contact. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with the product. Do not reuse them. Keep PPE separate from other laundry and wash separately.

Respiratory Protection No protection is ordinarily required under normal conditions of use with adequate ventilation. In case of inadequate ventilation, wear respiratory protection.

General Hygiene Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	Liquid		
Appearance	Light yellow liquid	**Odor**	Mild organic
Color	Light yellow	**Odor Threshold**	Not determined

Property	**Values**	**Remarks/Method**
pH	Not determined	Hydrolyzes to diacid
Melting Point/Freezing Point	< 18 °C (< 64 °F)	
Boiling Point/Boiling Range	120 °C (248 °F)	(2 mm Hg)
Flash Point	150 °C (302 °F)	COC
Evaporation Rate	Not determined	
Flammability (Solid, Gas)	Liquid-not determined	
Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	1.5 mm Hg	@ 30 °C (86 °F) (estimated)
Relative Vapor Density	6.1 g / L	@ 20 °C (68 °F) (air = 1)
Specific Gravity	1.20 – 1.25	@ 25 °C (77 °F) (water = 1)
Water Solubility	Negligible	Hydrolyzes to diacid
Solubility in Other Solvents	Not determined	
Partition Coefficient	2.28 – 2.62	
Autoignition Temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	165 – 250 cSt	@ 25 °C (77 °F)
Dynamic Viscosity	200 – 300 cP	@ 25 °C (77 °F)
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	
Bulk Density	9.98 – 10.04 lb / gal	@ 25°C (77 °F)
Refractive Index	1.500 – 1.506	

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions

Chemical Stability
Stable under recommended storage conditions

Possibility of Hazardous Reactions
Reacts with water or steam to produce free acid and heat

Hazardous Polymerization Polymerizes @ 200°C or higher

Conditions to Avoid
Avoid high temperatures and exposure to water and other incompatible materials.

Incompatible Materials
Strong acids, strong bases, oxidizing agents, water

Hazardous Decomposition Products
Aldehydes, organic acids, carbon monoxide, carbon dioxide

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation May cause allergy or asthma symptoms or breathing difficulties if inhaled

Eye Contact Causes serious eye damage

Ingestion May cause nausea or irritation to the gastrointestinal tract

Skin Contact Causes skin irritation and may cause an allergic skin reaction or sensitization

Information on Acute Toxicological Effects

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Lindride 22	1625 mg/kg (Rat) (estimated)	> 2500 mg/kg (Rabbit) (estimated)	0.94 mg/L (Rat) 4 h (dusts/mists) (estimated)
Methyl-5-norbornene-2,3-dicarboxylic anhydride 25134-21-8	1300 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	0.75 mg/L (Rat) 4 h (dusts/mists)

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, ACGIH or NTP.

12. ECOLOGICAL INFORMATION

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and Degradability
Not expected to be inherently biodegradable. Will react with water to produce free acid and heat.

Bioaccumulation
Bioaccumulation is unlikely to be significant due to the low water solubility of this product (partition coefficient is 2.28 to 2.62). Main hydrolysis product (Methyl-5-norbornene-2,3-dicarboxylic acid) does not significantly bioaccumulate (Bioconcentration Factor is less than 5.5).

Mobility
Not determined

Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

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

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

14. TRANSPORT INFORMATION

Shipping Name by Regulatory Entity

DOT Toxic liquid, organic, n. o. s. (Methyl-5-norbornene-2,3-dicarboxylic anhydride)

IMDG Toxic liquid, organic, n. o. s. (Methyl-5-norbornene-2,3-dicarboxylic anhydride)

IATA Toxic liquid, organic, n. o. s. (Methyl-5-norbornene-2,3-dicarboxylic anhydride)

Regulatory Information	UN Number	Classes	Packing Group	Label
DOT Classification	UN-2810	6 (1)	III	
IMDG Classification	UN-2810	6 (1)	III	
IATA Classification	UN-2810	6 (1)	III	

Note

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

15. REGULATORY INFORMATION

International Inventories

Components Listed	TSCA, DSL/NDSL, EINECS/ELINCS, ENCS, IECSC, KECI, PICCS, TCSI, AICS, NZIoC

Legend:

TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*
DSL/NDSL *- 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*
TCSI *- Taiwan Chemical Substances Inventory*
AICS *- Australian Inventory of Chemical Substances*
NZIoC *- New Zealand Inventory of Chemicals*

United States Federal Regulations

CERCLA	This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) of the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).
EPCRA	This product does not contain any chemicals with known CAS numbers that are subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-know Act of 1986 (40 CFR 372).
SARA 302	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
CWA (Clean Water Act)	This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

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	New Jersey	Pennsylvania
Methyl-5-norbornene-2,3-dicarboxylic anhydride 25134-21-8	X	X
5-Norbornene-2,3-dicarboxylic anhydride 826-62-0	X	X

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	Not determined	Not determined	Not determined	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	2	1	0	Not determined

Issue Date	16-June-2010
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Revision Note	Classification update
GHS Version	5

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