

Safety Data Sheet

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name	OPTOLINQ™ LE-2161HT PART A		
Applications	Clear liquid encapsulant		
Advised Against	No further relevant information is available		
Supplier Name	Krayden Europe BV		
	Krayden Europe B.V. Industrieweg 15E 1566JN Assendelft, The Netherlands +31 20 893 2224	Krayden Inc 1491 West 124th Ave, Denver, Colorado United States of America +1 (800) 448 0406	Krayden (M) Sdn. Bhd. Valdor Industrial Area, 14200, Sunga Jawi, Penang, Malaysia +60 (15) 460 00453

SECTION 2. HAZARDS IDENTIFICATION

CLASSIFICATION OF THE SUBSTANCE/MIXTURE

Classification according to Regulation (EC) No 1272/2008

Hazard Class	Hazard Category
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Skin Sensitization	Category 1A
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Hazardous to the aquatic environment, chronic	Category 1
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Other classification according to non-EU GHS

Serious eye damage/eye irritation	Category 2A
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LABEL ELEMENTS

Labeling according to Regulation (EC) No 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard Pictogram



Signal Word	Warning
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Hazard Statements

H315	Causes skin irritation
H317	May cause an allergic skin reaction

Other label elements according to non-EU GHS

H319	Causes serious eye irritation
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Prevention Precautionary Statements

P261	Avoid breathing dust.
P264	Wash skin thoroughly after handling
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves, protective clothing, eye protection, face protection.

Response Precautionary Statements

P362	Specific treatment (see information on the label and safety datasheet)
P363	IF ON SKIN: Wash with plenty of water.
P391	Collect spillage
P332+P313	If skin irritation occurs, seek medical attention.
P333+P313	If skin irritation or rash occurs: Get medical advice, attention.

P337+P313	If eye irritation persists:, seek medical attention.
P305+P351+P338	If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352	If on skin, wash with plenty of water.
Other classification according to non-EU GHS	
P501	Dispose of contents or container to approved waste disposal.
Other Hazards	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Ecological Information	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Toxicological Information	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3. INGREDIENT COMPOSITION

SUBSTANCES Not applicable. This product is a mixture.

MIXTURES

Product Description Clear liquid encapsulant component (Part A)

Chemical Nature Mixture of resin systems and additives.

COMPONENTS AND CONCENTRATION RANGES

No.	Components	CAS No.	Proportion (%) ¹
1	Epoxy resin	24969-06-0	70~90
2	Epoxy glycidyl ether	68609-97-2	0.1~9
3	Polyurethane	51852-81-4	0.1~10

¹ Specific chemical identity and/or exact concentration of certain components are withheld as confidential business information, where permitted. Hazard classifications, concentration ranges, and other information necessary for safe handling and emergency response are provided

SECTION 4. FIRST AID MEASURES

DESCRIPTION OF FIRST-AID MEASURES

General Advice First-aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled After inhalation, move the patient to fresh air until discomfort disappears, if breathing is difficult, provide oxygen; if breathing stops, perform artificial respiration and seek medical attention immediately.

In case of skin contact	In case of skin contact, rinse the affected skin with water and soap until the contaminant is removed. If allergic reactions or rashes occur, seek medical attention immediately.
In case of eye contact	After eye contact, hold the eyelid open and rinse with plenty of water until the contaminant is removed. Seek medical attention immediately.
If swallowed	If swallowed, seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in people who are wide awake and fully conscious) and consult a doctor as quickly as possible.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

The most important known symptoms and effects are described in the labelling (see section 2) and/or in Section 11.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

No data available,

SECTION 5. FIREFIGHTING MEASURES**EXTINGUISHING MEDIA**

Suitable Carbon dioxide foam, dry chemical powder, fire fighting sand.

Chemical Nature No information available

SPECIAL HAZARDS ARISING FROM SUBSTANCE OR MIXTURE

Fire Hazard When comes into contact with amine substances, an exothermic polymerization reaction will occur causing a significant increase in temperature of the material.

Hazardous decomposition Carbon monoxide, carbon dioxide and other toxic gases.

ADVICE FOR FIREFIGHTERS

Precautions during firefighting Evacuate personnel and isolate the fire area. Keep unauthorized individuals away from the fire area. Move the product to a safe location if possible and ensure the safety of personnel. When extinguishing the fire, maintain a safe position or distance. Water spray is effective in putting out the fire. After the fire is fully extinguished and there is no risk of re-ignition, use water spray to cool the fire area and the container holding the product.

Protections during firefighting Firefighting and rescue teams must wear appropriate protective equipment including gloves, glasses, and shoes. Stay in the danger area only with self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES**

Do not attempt to take any action without wearing the proper protective clothing and equipment, assess depending on dust concentration in the area. Follow emergency procedures and consult an expert. Only trained personnel should handle the cleanup of the spillage. For personal protection information, refer to Section 8.

ENVIRONMENTAL PRECAUTIONS

Do not let products enter drains, drinking water sources, surface water, and soil.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

Small Spill	Use sand to contain the material and allow it to be absorbed. You can also use cloth or other absorbent materials. Collect the absorbed material and store it in a labeled container..
Large Spill	Contact the fire department, emergency services, or the supplier for assistance. Follow any material restrictions as outlined in Sections 7 and 10. Handle the spill with care and dispose of it properly.

Dispose via licensed hazardous-waste contractor. See Section 13.

REFERENCE TO OTHER SECTIONS

For exposure controls/personal protection, see Section 8. For disposal considerations, see Section 13.

SECTION 7. HANDLING AND STORAGE**PRECAUTIONS FOR SAFE HANDLING**

Advice on Safe Handling	Ensure sufficient ventilation at the workstation to avoid duster accumulation during handling. Avoid contact with skin and eyes. Avoid material leakage.
Hygiene Measures	Contaminated work clothing should not be worn outside workplace premises. Work clothing should be washed before reuse. Wash hands and face after handling the product. For precautions, see Section 2.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Storage Conditions	Store tightly closed in a cool (25 °C), dry, well-ventilated place, protected from direct sunlight, rain and rapid temperature changes. Keep away from ignition sources. Shelf-life under recommended conditions is 183 days.
Storage Class	Storage class (TRGS 510): 10: Combustible liquids

SPECIFIC END USE(S)

Semiconductor liquid encapsulation used by manual or automatic dispensing equipment. Substrates must be clean, dry, and grease-free. Not for consumer use.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**CONTROL PARAMETERS****Exposure Limits**

No.	Components	Standards	Reference
1	Epoxy resin	Not Established	OSHA ¹ , ACGIH ²
2	Epoxy glycidyl ether	Not Established	OSHA, ACGIH
3	Polyurethane	Not Established	OSHA, ACGIH

¹Occupational Safety and Health Administration (OSHA) 8-hour total weight average (TWA) permissible exposure limit (PEL)

²American Conference of Governmental Industrial Hygienists (ACGIH) 8-hour total weight average (TWA) threshold limit value (TLV)

EXPOSURE CONTROLS

Engineering Controls	Use general exhaust ventilation to meet exposure limit requirements.
Individual Protection	The selection of protective equipment should at least comply with the local/applicable guidelines of selecting personal protective equipment.
Eye and Face Protection	Use appropriate goggles and face protection., if necessary.
Hand Protection	Wear suitable protective gloves
Body Protection	Wear appropriate clothing to minimize exposure. Remove/clean contaminated clothing.
Respiratory Protection	In case of insufficient ventilation, wear appropriate respiratory equipment

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	Colorless transparent liquid
Odor	None
pH	Not determined
Melting Point	30°C–50°C
Boiling Point	>200°C
Flash Point	252°C (Closed Cup)
Flammability	No data available
Vapor Pressure	<7.5E-5 mmHg at 20°C
Explosive Limit	Not applicable
Auto-Ignition	>300°C
Temperature	
Decomposition	No data available
Temperature	
Solubility	Not soluble in water
Viscosity	475 ±175 cP at 25°C
Specific Gravity	1.00–1.20
Partition coefficient (n-octanol/water)	3.242

OTHER INFORMATION

Information about physical hazard classes	No additional information available
Other safety characteristics	No additional information available

SECTION 10. STABILITY & REACTIVITY

Reactivity	Not self-reactive at ambient conditions.
Chemical Stability	Stable under recommended storage (25 °C, dry, sealed). Avoid moisture ingress and sunlight.
Possibility of Hazardous Reactions	Non-violent polymerisation occurs only at high temperatures and high pressure with incompatible materials.
Conditions To Avoid	Avoid prolonged heat exposure. See Section 7 for recommended storage and handling conditions.
Incompatible Materials	Acids, bases and amine compounds
Hazardous Decomposition Products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11. TOXICOLOGICAL INFORMATION

INFORMATION ON HAZARD CLASSES AS DEFINED (EC) No 1272/2008

No directly available laboratory toxicological data for this substance.

CAS No.	Value Type	Value	Route of Exposure
24969-06-0	LD50	>10,000 mg/kg (Rat)	Oral
	LC50	> 1.75 mg/l/96h (Fish)	Inhalation

Acute Toxicity (Oral)	Not classified, based on available data
Acute Toxicity (Dermal)	Not classified, based on available data
Acute Toxicity (Inhalation)	Not classified, based on available data
Skin Corrosion/Irritation	May cause skin irritation
Serious Eye Damage/Irritation	May cause eye irritation
Respiratory or Skin Sensitization	Not classified, based on available data
Germ Cell Mutagenicity	Not classified, based on available data
Carcinogenicity	Not classified, based on available data
Reproductive Toxicity	Not classified, based on available data
STOT (Single And Repeated Exposure)	Not classified, based on available data
Aspiration Hazard	Not classified, based on available data
Acute Toxicity (Oral)	Not classified, based on available data

INFORMATION ON OTHER HAZARDS

Endocrine-disrupting properties	None of the components are listed as endocrine disrupting under current EU criteria.
Adverse health effects caused by endocrine disrupting properties	No data available. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Potential adverse human health effects and symptoms	No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecological Toxicity	Prevent from spreading or entering into drains, surface water, groundwater and rivers The product is considered toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
Hazardous to the aquatic environment, short term (acute)	No available data
Hazardous to the aquatic environment, long-term (chronic)	No available data
Bioaccumulation potential	No significant bioaccumulation potential
Mobility in soil	No available data
Persistence and biodegradability	Persistence is unlikely. Epoxy resin are not easily biodegradable but can degrade over time under appropriate environmental conditions.
PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Endocrine-disrupting properties	No components are listed as endocrine disruptors in current EU databases.
Other adverse effects	No available data

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal of waste needs to be carried out at the city, state, or federally permitted disposal facility. Handle in accordance with applicable regulations and/or local authorities.

WASTE NATURE

Hazardous waste

WASTE TREATMENT METHODS

Uncured and cured compound	Disposal of waste needs to be carried out at the city, state, or federally permitted disposal facility. Handle in accordance with applicable regulations and/or local
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authorities. Do not pour into sewers or surface water, and avoid random disposal. Dispose of all containers or absorbents containing resin as hazardous waste.

Contaminated absorbents, wipes and PPE

Treat as non-hazardous industrial solid waste, incinerate with the product..

Empty packaging

Dispose as non-hazardous industrial solid waste following local regulations.

WASTE TREATMENT PRECAUTIONS

Warning: Generated waste is hazardous. Wear appropriate PPE. Avoid random disposal; comply with city, state, or national regulations.

SECTION 14. TRANSPORT INFORMATION**UN NUMBER OR ID NUMBER**

ADR/RID/ADN, IMDG, IATA None

Following guidelines from the United Nations Model Recommendations on the Transport of Dangerous Goods (TDG) and the International Maritime Dangerous Goods Code, this product is not classified as dangerous goods.

TRANSPORTATION PRECAUTIONS

- Ensure the container is leak-proof.
- During transport, prevent falling, tipping, collisions, and exposure to direct sunlight.
- Pack and transport in a sealed container.
- Transportation must adhere to applicable national and international regulations.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized safety officer. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15. REGULATORY INFORMATION**SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE****Regulation (EC) No. 1907/2006 (REACH) – Annex XVII (Restriction):**

This mixture does not contain any substances subject to restrictions under Annex XVII.

Regulation (EC) 1907/2006 (REACH) – Annex XIV (Authorisation):

This mixture does not contain any substances subject to authorization under Annex XIV.

Regulation (EC) No. 1907/2006 (REACH) – Candidate List of Substances of Very High Concern (SVHC):

None of the ingredients are listed as SVHCs established under REACH Article 59.

Directive 2012/18/EU (Seveso III Directive) – Annex I:

This mixture is not classified as a named dangerous substance under the Seveso III Directive.

Directive 2011/65/EU (RoHS Directive) – Annex II:

The substance is not listed as a restricted material under the RoHS Directive.

National Regulations:

Observe national and local worker-protection and environmental release rules

CHEMICAL SAFETY ASSESSMENT

No chemical-safety assessment has been carried out for this mixture.

SECTION 16. OTHER INFORMATION

The information in this safety data sheet was obtained from reputable sources and to the best of our knowledge is accurate and current at the mentioned date. Neither Krayden Inc. nor Krayden Europe BV accept any liability arising out of the use of the information provided here or the use, application or processing of the product described herein.

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