

Safety Data Sheet

Section 1: Identification

GHS product identifier: Enercoat® Thermally Conductive Moisture Curing Polyurethane
Other means of identification:

Relevant identified uses of the substance or mixture and uses advised against: For industrial and commercial use only.

Supplier/Manufacturer: Ener.co, LLC
854 Third Avenue, 6th Floor
New York, NY 10022
USA
(212) 572-0784

Emergency telephone number: (201) 233-6363 (Inside the US)

E-mail address of person responsible for this SDS: info@ener.co

Date of issue/Date of revision: June 8, 2019

Ener.co, Inc. expects you to read and understand this entire Safety Data Sheet, as there is important information throughout the document. Further, Ener.co, Inc. expects you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

To promote safe handling, each customer or recipient should: 1) Notify its employees, agents, contractors, and others whom it knows or believes will use this material of the information contained in this SDS and any other information regarding hazards and safety; 2) Furnish this same information to each of its customers for the product; 3) Request its customers to notify their employees, customers, and other users of the product of this information; and 4) Notify its employees, agents, contractors, and others that the precautions identified for this product and any other products with which mixtures may be created are transferable and cumulative to the mixture.

Section 2: Hazards Identification

OSHA/HAZCOM/HCS Status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Classification of the substance or mixture
Health - Category 3
Flammability - Category 3
Reactivity - Category 2

GHS Label Elements

Hazard Pictograms:



Section 2: Hazards Identification

Signal Word:	Danger
Precautionary Statements:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing, eye protection and face protection. Do not breathe dust, fume, gas, mist, vapors or spray. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Keep cool. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. If exposed or concerned: Get medical advice. Get medical advice if you feel unwell. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents and containers in accordance with local, regional, national and international regulations.

Section 3: Composition/Information on Ingredients

Substance/Mixture: Mixture

Ingredient name	% by WT.	CAS #
Xylene	1 - 3%	1330-20-07
Methyl Ethyl Ketone	3 - 5%	78-93-3
Methyl n-Amyl Ketone	7 - 10%	110-43-0
Light Aromatic Hydrocarbons	2 - 3%	64742-95-6
1, 2, 4-Trimethylbenzene	2 - 5%	95-63-6
Ethyl Orthoformate	1 - 3%	122-51-0
Ethylbenzene	0.4 - 1%	100-41-4
n-Butyl Acetate	1 - 2%	123-86-4
Hexamethylene Diisocyanate	0.1 - 0.3%	822-06-0
Hexamethylene Diisocyanate Polymer	30 - 50%	28182-81-2
p-Toluenesulfonyl Isocyanate	2 - 3%	4083-64-1
Cumene	0.8 - 1%	98-82-9
Diethylene Glycol	1 - 2%	111-46-1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

Section 4: First Aid Measures

EYES:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Get medical attention.
SKIN:	Wash affected area thoroughly with soap and water. Remove contaminated clothing and launder before re-use.
INHALATION:	If any breathing problems occur during use, leave the area and get fresh air. If problems remain or occur later, get medical attention IMMEDIATELY.
INGESTION:	Do not induce vomiting. Get medical attention immediately. In case of emergency, contact your local poison center.

Section 5: Fire-fighting Measures

FLAMMABILITY CLASSIFICATION:	Combustible, Flash above 99 and below 200 °F
EXTINGUISHING MEDIA:	Carbon Dioxide, Dry Chemical, Foam
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Closed containers may explode when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.
SPECIAL FIRE FIGHTING PROCEDURES:	Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section 6: Accidental Release Measures

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:	Remove all sources of ignition. Ventilate the area. All personnel in the area should be protected as in Section 8. Cover spill with absorbent material. Deactivate spilled material with a 10% ammonium hydroxide solution (household ammonia). After 10 minutes, collect in open containers and add more ammonia. Cover loosely. Wash spill area with soap and water.
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Section 7: Handling and Storage

STORAGE CATEGORY DOL Storage Class II PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE Contents are COMBUSTIBLE. Keep away from heat and open flame. Consult NFPA Code. Use approved Bonding and Grounding procedures. Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

ADVICE ON GENERAL OCCUPATIONAL HYGIENE:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
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CONDITIONS FOR SAFE STORAGE:	Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
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Section 8: Exposure Controls/Personal Protections

STORAGE CATEGORY DOL Storage Class II PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE Contents are COMBUSTIBLE. Keep away from heat and open flame. Consult NFPA Code. Use approved Bonding and Grounding procedures. Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

- VENTILATION: Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.
- RESPIRATORY PROTECTION: Where overspray is present, a positive pressure air supplied respirator (TC19C NIOSH/MSHA approved) should be worn. If unavailable, a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2 may be effective. Follow respirator manufacturers directions for use. Wear the respirator for the whole time of spraying and until all vapors and mists are gone. NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EQUIPPED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS. When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.
- PROTECTIVE GLOVES: To prevent skin contact, wear gloves which are recommended by glove supplier for protection against materials in Section 2.
- EYE PROTECTION: Wear safety spectacles with unperforated sideshields.
- OTHER PROTECTIVE EQUIPMENT: Use barrier cream on exposed skin.
- OTHER PRECAUTIONS: Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section 8: Exposure Controls/Personal Protection

Substance	CAS #	Regulatory Limits			Recommended Limits	
		OSHA PEL		Cal/OSHA PEL (as of 4/4/2018)	NIOSH REL (as of 7/7/2016)	ACGIH 2018 TLV
		ppm	mg/m ³	8 hour TWA ST (STEL) C (Ceiling)	Up to 10-hour TWA ST (STEL) C (Ceiling)	8 hour TWA ST (STEL) C (Ceiling)
Xylene	1330-20-07	100	435	100 ppm (ST) 150 ppm (C) 300 ppm	100 ppm (ST) 150 ppm	100 ppm (ST) 150 ppm
Methyl Ethyl Ketone	78-93-3	200	590	200 ppm (ST) 300 ppm	200 ppm (ST) 300 ppm	200 ppm (ST) 300 ppm
Methyl n-Amyl Ketone	110-43-0	100	465	50ppm	100ppm	50ppm
Light Aromatic Hydrocarbons	64742-95-6	none	none			
1, 2, 4-Trimethylbenzene	95-63-6	none	none		25 ppm TWA 125mg/m ³ TWA	25 ppm
Ethyl Orthoformate	122-51-0	none	none			
Ethyl benzene	100-41-4	100	435	5 ppm (ST) 30 ppm	100 ppm (ST) 125 ppm	20 ppm
n-Butyl Acetate	123-86-4	150	710	150 ppm (ST) 200 ppm	150 ppm (ST) 200 ppm	
Hexamethylene Diisocyanate	822-06-0	none				
Hexamethylene Diisocyanate Polymer	28182-81-2	none				
p-Toluenesulfonyl Isocyanate	4083-64-1	none				
Cumene	98-82-9	50	245	50ppm	50ppm	50ppm
Diethylene Glycol	111-46-1	none				

Section 9: Physical and Chemical Properties

PRODUCT WEIGHT: 9.98 lb/gal 1196 g/l
 SPECIFIC GRAVITY: 1.20
 BOILING POINT: 255 - 360 °F (123 - 182 °C)
 MELTING POINT: Not Available
 VOLATILE VOLUME: 32%
 EVAPORATION RATE: Slower than ether
 VAPOR DENSITY: Heavier than air
 SOLUBILITY IN WATER: Not Available
 VOLATILE ORGANIC COMPOUNDS: (VOC Theoretical - As Packaged) 2.30 lb/gal 276 g/l
 Less Water and Federally Exempt Solvents 2.30 lb/gal 276 g/l Emitted VOC

Section 10: Stability & Reactivity

STABILITY: Stable

CONDITIONS TO AVOID: None known.

INCOMPATIBILITY: Contamination with Water, Alcohols, Amines and other compounds which react with isocyanates, may result in dangerous pressure in, and possible bursting of, closed containers.

HAZARDOUS DECOMPOSITION PRODUCTS: By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Nitrogen, possibility of Hydrogen Cyanide

HAZARDOUS POLYMERIZATION: Will not occur

Section 11: Toxicological Information

Ingredient name	CAS #	LC50	LD50
Xylene	1330-20-7	> 5,000 ppm (inhalation, rat, 4h)	> 4,300 mg/kg (oral, rat)
Methyl Ethyl Ketone	78-93-3	>5,000 ppm (inhalation, rat, 8h)	> 2,000 - ≤5,000 mg/kg (oral, rat) >5,000 mg/kg (dermal, rabbit)
Methyl n-Amyl Keton	110-43-0	not available	>1,600mg/kg (oral, rat)
Light Aromatic Hydrocarbons	64742-95-6	not available	8,400 mg/kg (oral, rat)
1, 2, 4-Trimethylbenzene	95-63-6	18,000 mg/m ³ (inhalation, rat, 4H)	5g/kg (oral, rat)
Ethyl Orthoformate	122-51-0	not available	7,060 mg/kg (oral, rat) 5,000 mg/kg (oral, rat)
Ethylbenzene	100-41-4	not available	3,500 mg/kg (oral, rat) >5,000 mg/kg (dermal, rabbit)
n-Butyl Acetate	123-86-4	not available	10,768 mg/kg (oral, rat) >17,600 mg/kg (dermal, rabbit)
Hexamethylene Diisocyanate (max)	822-06-0	124 mg/m ³ (inhalation, dusts & mists, rat, 4H)	not available
Hexamethylene Diisocyanate Polymer	28182-81-2	18,500 mg/m ³ (inhalation, vapor, rat, 1H)	not available
p-Toluenesulfonyl Isocyanate	4083-64-1	not available	2,234 mg/kg (oral, rat)
Cumene	98-82-8	39,000 mg/m ³ (inhalation, vapor, rat, 4h)	1,400 mg/kg (oral, rat)
Diethylene Glycol	111-46-6	not available	12,000 mg/kg (oral, rat) 11,980 mg/kg (dermal, rabbit)

CHRONIC HEALTH HAZARDS Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

Section 12: Ecological Information

ECOTOXICOLOGICAL INFORMATION: No data available.

Section 13: Disposal Considerations

DISPOSAL METHODS: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14: Transportation Information

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT): 5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. OR ORM-D. Larger Containers are Regulated as: UN1263, PAINT, 3, PG III, (ERG#128). DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities: Xylenes (isomers and mixture) 100 lb RQ. Bulk Containers may be Shipped as (check reportable quantities): UN1263, PAINT, 3, PG III, (ERG#128), Canada (TDG), UN1263, PAINT, CLASS 3, PG III, LIMITED QUANTITY, (ERG#128).

IMO: 5 Liters (1.3 Gallons) and Less may be shipped as Limited Quantity. UN1263, PAINT, CLASS 2, PG III, (35 C c.c.), EmS F-E, S-E, ADR (D/E)

IATA/ICAO: UN1263, PAINT, 2, PG III

Section 15: Regulatory Information

SARA 313 SUPPLIER NOTIFICATION (40 CFR 372.65C)

Ingredient, CAS #, % by WT.

Ethylbenzene, 100-41-4, 0.4%

Xylene, 1330-20-7, 2.0%

1,2,4-Trimethylbenzene, 95-63-6, 3.0%

CALIFORNIA PROPOSITION 65 WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. TSCA CERTIFICATION All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

Section 16: Other information, includes the date of preparation or last revision.

TELEPHONE NUMBER: (212) 572-0784

PREPARED BY: Ener.co

PREPARATION DATE: This version of the Enercoat® Thermally Conductive Moisture Curing Polyurethane Safety Data Sheet was executed June 8, 2019.