

SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

HELOXY™ Modifier 67

Section 1. Product and company identification

GHS product identifier	:	HELOXY™ Modifier 67
MSDS Number	:	L1506
Product type	:	Modifier
Material uses	:	Epoxy Resin Systems
Manufacturer/Supplier/Importer	:	Westlake Epoxy Inc. 12650 DIRECTORS DR STE 100 Stafford, Texas 77477 USA
Contact person	:	epoxyservice@westlake.com
Telephone	:	For additional health and safety or regulatory information, call 1 380 251 9900
Emergency telephone number	:	For Emergency Medical Assistance Call Health & Safety Information Services 1-866-303-6949 For Emergency Transportation Information CHEMTREC US Domestic (800) 262-8200 CANUTEC CA Domestic (613) 996-6666

Section 2. Hazards identification

Classification of the substance or mixture	:	ACUTE TOXICITY oral - Category 4 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 1B
---	---	---

GHS label elements

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H302 Harmful if swallowed. H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H360 May damage fertility or the unborn child.

Precautionary statements

General	:	Not applicable.
----------------	---	-----------------

- Prevention** :
- Obtain special instructions before use.
 - Do not handle until all safety precautions have been read and understood.
 - Wear protective gloves, protective clothing and eye or face protection.
 - Avoid breathing vapor.
 - Do not eat, drink or smoke when using this product.
 - Wash thoroughly after handling.
- Response** :
- IF exposed or concerned:
 - Get medical advice or attention.
 - IF SWALLOWED:
 - Call a POISON CENTER or doctor if you feel unwell.
 - Rinse mouth.
 - Wash contaminated clothing before reuse.
 - IF ON SKIN:
 - Wash with plenty of water.
 - If skin irritation or rash occurs:
 - Get medical advice or attention.
 - 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.
- Storage** :
- Store locked up.
- Disposal** :
- Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Other hazards which do not result in classification** : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

CAS number/other identifiers

CAS number : 2425-79-8
EC number : Not available

Ingredient name	% by weight	CAS number
1,4-Butanedioldiglycidyl Ether	100	2425-79-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

Description of necessary first aid measures

- | | | |
|---------------------|---|---|
| Eye contact | : | Get medical attention immediately. Call a poison center or physician. 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 10 minutes. Chemical burns must be treated promptly by a physician. |
| Inhalation | : | Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| Skin contact | : | Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| Ingestion | : | Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |

Indication of immediate medical attention and special treatment needed, if necessary

- | | | |
|--|---|---|
| Notes to physician | : | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| Specific treatments | : | No specific treatment. |
| Protection of first aid personnel | : | No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- | | | |
|---|---|---|
| Suitable extinguishing media | : | Use dry chemical, CO ₂ , alcohol-resistant foam or water spray (fog). |
| Unsuitable extinguishing media | : | Do not use water jet. |
| Specific hazards arising from the chemical | : | In a fire or if heated, a pressure increase will occur and the container may burst. |
| Hazardous thermal decomposition products | : | Decomposition products may include the following materials:
carbon dioxide
carbon monoxide |
| Special protective actions for fire-fighters | : | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Special protective equipment for fire-fighters | : | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- | | | |
|------------------------------------|---|---|
| For non-emergency personnel | : | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| For emergency responders | : | If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| Environmental precautions | : | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |

Methods and material for containment and cleaning up

- | | | |
|--------------------|---|--|
| Small spill | : | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| Large spill | : | Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13 of SDS). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 of SDS for emergency contact information and section 13 of SDS for waste disposal. |

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- 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.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Store locked up. 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.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
1,4-Butanedioldiglycidyl Ether	None.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental

protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : liquid
- Color** : Colorless/Colourless
- Odor** : Mild
- Odor threshold** : Not available
- pH** : Not available
- Melting point/ Freezing point** : Not available

Boiling point	:	148 °C (298 °F)
Flash point	:	Setaflash Closed Cup: Greater than 93.4 °C (200.1 °F) (ASTM D 3828)
Burning time	:	Not available
Burning rate	:	Not available
Evaporation rate	:	Not available
Flammability (solid, gas)	:	Not available
Lower and upper explosive (flammable) limits	:	Lower: Not available Upper: Not available
Vapor pressure	:	Less than 1.33 mbar @ 20 °C (68 °F)
Vapor density	:	Greater than > 1 [Air = 1]
Relative density	:	1.1
Solubility	:	Not available
Solubility in water	:	Insoluble
Partition coefficient: n-octanol/water	:	Not applicable.
Auto-ignition temperature	:	Not available
Decomposition temperature	:	Not available
SADT	:	Not available
Viscosity	:	Dynamic: Not available Kinematic: Not available

Other information

No additional information.

Section 10. Stability and reactivity

Reactivity	:	Stable under normal conditions.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	No specific data.
Incompatible materials	:	No specific data.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Other hazards	:	Polymerises exothermically with amines, mercaptans and Lewis acids at ambient temperature and above.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
1,4-Butanedioldiglycidyl Ether				
	LD50 Oral	Rat	1,163 mg/kg OECD-Guideline 401 (Acute Oral Toxicity)	-
	LC50 Inhalation	Rat	> 11.3 mg/l	4 h
	LD50 Dermal	Rabbit	1,130 mg/kg	-

Conclusion/Summary : Not available

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
1,4-Butanedioldiglycidyl Ether	Skin - Erythema/E schar 404 Acute Dermal Irritation/Co rrosion	Rabbit	0		24 - 72 hrs
	Skin - Edema 404 Acute Dermal Irritation/Co rrosion	Rabbit	0		24 - 72 hrs
	Skin - Erythema/E schar OPP 81-5 Acute Dermal Irritation	Rabbit	2.5		24 hrs
	Skin - Edema OPP 81-5 Acute Dermal Irritation	Rabbit	2.3		24 hrs
	Eyes - Cornea opacity 405 Acute Eye Irritation/Co rrosion	Rabbit	1.22		24 - 72 hrs
	Eyes - Iris lesion 405 Acute Eye Irritation/Co rrosion	Rabbit	0.78		24 - 72 hrs
	Eyes - Edema of the conjunctiva	Rabbit	2.33		24 - 72 hrs

	e 405 Acute Eye Irritation/Co rosion				
	Eyes - Redness of the conjunctiva e 405 Acute Eye Irritation/Co rosion	Rabbit	2.22		24 - 72 hrs
	Eyes - Moderate irritant	Rabbit			-
	Skin - Moderate irritant	Rabbit		24 hrs	-

Conclusion/Summary

Skin : Not available
Eyes : Not available
Respiratory : Not available

Sensitization

Product/ingredient name	Route of exposure	Species	Result
1,4-Butanedioldiglycidyl Ether	Skin	Guinea pig	Sensitizing OECD Test Guideline 406
Remarks:	In an O.E.C.D. test guideline no. 406 guinea pig Maximization GLP study, 75 - 85% of the animals had positive dermal reactions suggesting a strong skin sensitizer.		

Conclusion/Summary

Skin : Not available
Respiratory : Not available

Mutagenicity

Conclusion/Summary : Not available

Carcinogenicity

Conclusion/Summary : Not available

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
1,4-Butanedioldiglycidyl Ether	-	Positive	-	Rat	Oral: 55 mg/kg/d 443 Extended One-Generation Reproductive Toxicity Study	-
Remarks:	Read-across from another registered substance.					

Conclusion/Summary : Not available

Teratogenicity

Conclusion/Summary : Not available

Specific target organ toxicity (single exposure)

Not available

Specific target organ toxicity (repeated exposure)

Not available

Aspiration hazard

Not available

Information on likely routes of exposure : Not available

Potential acute health effects

Eye contact : Causes serious eye damage.
Inhalation : No known significant effects or critical hazards.
Skin contact : May cause an allergic skin reaction.
Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness
Inhalation : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
reduced fetal weight
increase in fetal deaths
skeletal malformations
Ingestion : Adverse symptoms may include the following:
stomach pains
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

Potential immediate effects : Not available
Potential delayed effects : Not available

Long term exposure

Potential immediate effects : Not available
 Potential delayed effects : Not available

Potential chronic health effects

Conclusion/Summary : Not available

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
 Carcinogenicity : No known significant effects or critical hazards.
 Mutagenicity : No known significant effects or critical hazards.
 Teratogenicity : No known significant effects or critical hazards.
 Developmental effects : No known significant effects or critical hazards.
 Fertility effects : May damage fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral	Dermal	Inhalation (gases)	Inhalation (vapors)	Inhalation (dusts and mists)
HELOXY™ Modifier 67	500 mg/kg	N/A	N/A	N/A	N/A
Oxirane, 2,2'-[1,4-butanediylbis(oxyethylene)] bis-	1163 mg/kg	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
1,4-bis(2,3 epoxypropoxy)butane			
Remarks - Acute - Fish:	No applicable toxicity data.		
Remarks - Acute - Aquatic invertebrates.:	No applicable toxicity data.		
	Acute EC50 110 mg/l 201 Alga, Growth Inhibition Test	Aquatic plants - Algae	72 h
Remarks - Acute - Aquatic plants:	Acute		
Remarks - Chronic - Fish:	No applicable toxicity data.		
Remarks - Chronic - Aquatic invertebrates.:	No applicable toxicity data.		

Conclusion/Summary : Not available

Persistence/degradability

Conclusion/Summary : Not available

Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
1,4-bis(2,3 epoxypropoxy)butane	-0.269-0.15	-	low

Mobility in soil

Soil/water partition coefficient (KOC)	:	Not available
Other adverse effects	:	No known significant effects or critical hazards.

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. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
------------------	---	--

Section 14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

Regulatory information	UN/NA number	Proper shipping name	Classes/*PG	Reportable Quantity (RQ)
CFR		Non-regulated		
TDG		Non-regulated		
IMO/IMDG		Non-regulated		
IATA (Cargo)		Non-regulated		

*PG : Packing group

Special precautions for user	:	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
------------------------------	---	--

Section 15. Regulatory information

United States

U.S. Federal regulations : TSCA 12(b) - Chemical export notification: None required.
 TSCA 5a2 - Final significant new use rules: Not listed
 TSCA 5a2 - Proposed significant new use rules: Not listed
 TSCA 5(e) - Substances consent order: Not listed
 SARA 311/312 Classification - ACUTE TOXICITY, oral, Category 4
 SARA 311/312 Classification - SERIOUS EYE DAMAGE, Category 1
 SARA 311/312 Classification - SKIN SENSITIZATION, Category 1
 SARA 311/312 Classification - TOXIC TO REPRODUCTION, Category 1B
 SARA 311/312 Classification - Not applicable

California Prop. 65:

WARNING: This product may contain one or more chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

United States inventory (TSCA 8b) : All components are active or exempted.

International regulations

International lists : Australia inventory (AICS). All components are listed or exempted.
 Canada. DSL - Domestic Substances List, part of CEPA (Canadian Environmental Protection Act) All components are listed or exempted.
 Japan inventory (CSCL) Not determined.
 China. IECSC - Inventory of Existing Chemical Substances in China All components are listed or exempted.
 Korea inventory (KECI) All components are listed or exempted.
 New Zealand Inventory (NZIoC) All components are listed or exempted.
 Philippines. PICCS - Philippines Inventory of Chemicals and Chemical Substances All components are listed or exempted.
 US. Toxic Substances Control Act as amended 15 U.S.C. 2606 Sec. 8 (b) All components are active or exempted.
 Taiwan Chemical Substances Inventory (TCSI) All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System III (U.S.A.) :

Health	*	2
Flammability		1
Physical hazards		0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented

HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Full text of abbreviated H statements : Not applicable.

History

Date of printing : 10/16/2025
Date of issue/Date of revision : 04/21/2025
Date of previous issue : 09/22/2022
Version : 7.0
Prepared by : Product Safety Stewardship
Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
UN = United Nations
References : Not available

Notice to reader

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 guidance 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.