

SECTION 1: Identification

1.1. Identification

Trade name : Armstrong C4

1.2. Recommended use and restrictions on use

Recommended use : Epoxy resin
 Restrictions on use : Product for industrial use only

1.3. Supplier

ResinLab, LLC
 N109 W13300 Ellsworth Drive
 Germantown, WI 53022 - United States
 T:1-877-259-1669

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1.4. Emergency telephone number

Emergency number : CHEMTREC:1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids, Category 4	H227	Combustible liquid
Skin corrosion/irritation, Category 2	H315	Causes skin irritation.
Serious eye damage/eye irritation, Category 2	H319	Causes serious eye irritation.
Skin sensitisation, Category 1	H317	May cause an allergic skin reaction.
Germ cell mutagenicity, Category 2	H341	Suspected of causing genetic defects.
Carcinogenicity, Category 2	H351	Suspected of causing cancer.

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labelling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Warning

Hazard statements (GHS US) : H227 - Combustible liquid
 H315 - Causes skin irritation.
 H317 - May cause an allergic skin reaction.
 H319 - Causes serious eye irritation.
 H341 - Suspected of causing genetic defects.
 H351 - Suspected of causing cancer.

Precautionary statements (GHS US) : P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 - Wash hands, forearms and face thoroughly after handling.
 P272 - Contaminated work clothing must not be allowed out of the workplace.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P302+P352 - If on skin: Wash with plenty of water.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308+P313 - If exposed or concerned: Get medical advice/attention.
 P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
 P337+P313 - If eye irritation persists: Get medical advice/attention.
 P362+P364 - Take off contaminated clothing and wash it before reuse.
 P370+P378 - In case of fire: Use media other than water to extinguish.
 P403+P235 - Store in a well-ventilated place. Keep cool.

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P405 - Store locked up.

P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
Epoxy Resin	(CAS-No.) 25068-38-6	75 – 90	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317
Butylglycidylether	(CAS-No.) 2426-08-6	10 – 30	Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 4 (Inhalation), H332 Skin Sens. 1, H317 Muta. 2, H341 Carc. 2, H351 STOT SE 3, H335

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact	: Irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Eye irritation.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
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5.2. Specific hazards arising from the chemical

Fire hazard	: Combustible liquid.
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5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.
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6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
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6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station, curing ovens must be ventilated to prevent emissions in the workplace. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray.
- Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool. Store locked up.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Butylglycidylether (2426-08-6)		
ACGIH	Local name	n-Butyl glycidyl ether (BGE)
ACGIH	ACGIH TWA (ppm)	3 ppm
ACGIH	Remark (ACGIH)	TLV® Basis: Reproduction; sens. Notations: Skin; DSEN
ACGIH	Regulatory reference	ACGIH 2019
OSHA	OSHA PEL (TWA) (mg/m³)	270 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	50 ppm
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
Epoxy Resin (25068-38-6)		
Not applicable		

8.2. Appropriate engineering controls

- Appropriate engineering controls : Ensure good ventilation of the work station, curing ovens must be ventilated to prevent emissions in the workplace.
- Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves

Eye protection:

Wear safety glasses with side shields.

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Yellow
Odour	: characteristic
Odour threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 73 °C
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.13 g/cm ³
Solubility	: No data available
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
VOC content	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Oxidizing agent.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Butylglycidylether (2426-08-6)	
LD50 dermal rabbit	778 mg/kg bodyweight (24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 inhalation rat (ppm)	1030 ppm (8 h, Rat, Male, Experimental value, Inhalation (vapours))
ATE US (oral)	1530 mg/kg bodyweight
ATE US (dermal)	778 mg/kg bodyweight

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Butylglycidylether (2426-08-6)	
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

Epoxy Resin (25068-38-6)	
LD50 oral rat	> 2000 mg/kg (OECD 420: Acute Oral toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitisation	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Suspected of causing genetic defects.
Carcinogenicity	: Suspected of causing cancer.

Butylglycidylether (2426-08-6)	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified

Butylglycidylether (2426-08-6)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure	: Not classified
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Aspiration hazard	: Not classified
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Symptoms/effects after skin contact	: Irritation. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
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Butylglycidylether (2426-08-6)	
LC50 fish 1	65 mg/l (96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Nominal concentration)
EC50 Daphnia 1	9.2 mg/l (48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 (algae)	35 mg/l (96 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)

Epoxy Resin (25068-38-6)	
LC50 fish 1	2.3 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Nominal concentration)
EC50 Daphnia 1	2 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value)

12.2. Persistence and degradability

Butylglycidylether (2426-08-6)	
Persistence and degradability	Not readily biodegradable in water.

Epoxy Resin (25068-38-6)	
Persistence and degradability	Not readily biodegradable in water.

12.3. Bioaccumulative potential

Butylglycidylether (2426-08-6)	
Partition coefficient n-octanol/water (Log Pow)	0.63 (Literature)
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).

Epoxy Resin (25068-38-6)	
BCF other aquatic organisms 1	31 (Estimated value, Fresh weight)
Partition coefficient n-octanol/water (Log Pow)	3 (Estimated value, 25 °C)

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Epoxy Resin (25068-38-6)	
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).

12.4. Mobility in soil

Butylglycidylether (2426-08-6)	
Surface tension	No data available (test not performed)
Partition coefficient n-octanol/water (Log Koc)	1.092 – 1.167 (log Koc, SRC PCKOCWIN v2.0, Calculated value)
Ecology - soil	Highly mobile in soil.

Epoxy Resin (25068-38-6)	
Surface tension	59 mN/m (20 °C, 0.09 g/l)
Partition coefficient n-octanol/water (Log Koc)	2.65 (log Koc, SRC PCKOCWIN v2.0, QSAR)
Ecology - soil	Low potential for adsorption in soil.

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : NA1993 Combustible liquid, n.o.s. (Butylglycidylether), 3, III
 UN-No.(DOT) : NA1993
 Proper Shipping Name (DOT) : Combustible liquid, n.o.s.
 Butylglycidylether
 Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120
 Packing group (DOT) : III - Minor Danger
 DOT Packaging Non Bulk (49 CFR 173.xxx) : 203
 DOT Packaging Bulk (49 CFR 173.xxx) : 241
 DOT Symbols : D - Proper shipping name for domestic use only, or to and from Canada, G - Identifies PSN requiring a technical name
 DOT Special Provisions (49 CFR 172.102) : 148 - Except for transportation by aircraft, when transported as a limited quantity or a consumer commodity, the maximum net capacity specified in §173.150(b)(2) of this subchapter for inner packagings may be increased to 5 L (1.3 gallons).
 IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).
 T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)
 TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / (1 + a (tr - tf))$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.
 DOT Packaging Exceptions (49 CFR 173.xxx) : 150
 DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 60 L
 DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 220 L
 DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
 Other information : No supplementary information available.

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Transportation of Dangerous Goods

Not applicable

Transport by sea

Transport document description (IMDG) : UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., 9, III
UN-No. (IMDG) : 3082
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Class (IMDG) : 9 - Miscellaneous dangerous substances and articles
Packing group (IMDG) : III - substances presenting low danger
Limited quantities (IMDG) : 5 L

Air transport

Transport document description (IATA) : UN 3082 Environmentally hazardous substance, liquid, n.o.s., 9, III
UN-No. (IATA) : 3082
Proper Shipping Name (IATA) : Environmentally hazardous substance, liquid, n.o.s.
Class (IATA) : 9 - Miscellaneous Dangerous Goods
Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Butylglycidylether (2426-08-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag TP - TP - indicates a substance that is the subject of a proposed TSCA section 4 test rule.

Epoxy Resin (25068-38-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

15.2. International regulations

CANADA

Butylglycidylether (2426-08-6)

Listed on the Canadian DSL (Domestic Substances List)

Epoxy Resin (25068-38-6)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Contains no substance on the REACH candidate list

National regulations

Butylglycidylether (2426-08-6)

Listed on IARC (International Agency for Research on Cancer)

15.3. US State regulations

⚠ WARNING: This product can expose you to 1-chloro-2,3-epoxypropane, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Component	State or local regulations
Butylglycidylether(2426-08-6)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List

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SECTION 16: Other information

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Full text of H-statements:

H227	Combustible liquid
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H351	Suspected of causing cancer.

Hazard Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability

: 2 Moderate Hazard - Materials which must be moderately heated or exposed to high ambient temperatures before ignition will occur. Includes liquids having a flash point at or above 100 F but below 200 F. (Classes II & IIIA)

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

SDS US - ResinLab

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.