

# Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 15, 2019

## 1 Identification

- **Product identifier**
- **Trade name:** Thermalbond™ Part B
- **Other means of identification:**
  - 4949G (25 g / 0.88 oz)
  - 4951G (100 g / 3.5 oz)
  - 4952G (200 g / 7 oz)
  - 4953G (1474 g / 52 oz)
- **Recommended use and restriction on use**
- **Recommended use:** Epoxy curing agent
- **Restrictions on use:** For professional use only.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
  - Aavid, Thermal Division of Boyd Corporation
  - 1 Aavid Circle
  - Laconia, NH 03246
  - USA
  - (603) 528-3400
  - customerservice@boydcorp.com
- **Emergency telephone number:**
  - ChemTel Inc.
  - (800)255-3924 (North America)
  - +1 (813)248-0585 (International)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**
  - Skin Corr. 1B H314 Causes severe skin burns and eye damage.
  - Eye Dam. 1 H318 Causes serious eye damage.
  - Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  - Skin Sens. 1 H317 May cause an allergic skin reaction.
  - Repr. 1B H360 May damage fertility or the unborn child.

### · Label elements

#### · GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

#### · Hazard pictograms:



GHS05 GHS08

#### · Signal word: Danger

#### · Hazard statements:

- H314 Causes severe skin burns and eye damage.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H360 May damage fertility or the unborn child.

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**Precautionary statements:**

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P272 Contaminated work clothing must not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection.
- P284 [In case of inadequate ventilation] wear respiratory protection.
- P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a poison center/doctor.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
- P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Other hazards** There are no other hazards not otherwise classified that have been identified.

## 3 Composition/information on ingredients

**Chemical characterization: Mixtures**

**Components:**

9046-10-0	polyetheramine ⚠ Skin Corr. 1C, H314; Eye Dam. 1, H318	45-50%
4246-51-9	3,3'-oxybis(ethyleneoxy)bis(propylamine) ⚠ Skin Corr. 1B, H314; Eye Dam. 1, H318 ⚠ Skin Sens. 1B, H317	35-40%
111-40-0	2,2'-iminodiethylamine ⚠ Skin Corr. 1B, H314 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H312; Skin Sens. 1, H317	1-5%
110-85-0	piperazine (liquid) ⚠ Resp. Sens. 1B, H334; Repr. 2, H361 ⚠ Skin Corr. 1B, H314 ⚠ Acute Tox. 4, H302; Skin Sens. 1B, H317	1-5%
31326-29-1	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with N-(2-aminoethyl)-1,2-ethanediamine and (chloromethyl)oxirane ⚠ Skin Corr. 1A, H314; Eye Dam. 1, H318 ⚠ Acute Tox. 4, H302; Skin Sens. 1A, H317	1-5%
80-05-7	bisphenol A ⚠ Repr. 1B, H360 ⚠ Eye Dam. 1, H318 ⚠ Skin Sens. 1, H317; STOT SE 3, H335	1-5%

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140-31-8	2-piperazin-1-ylethylamine  Acute Tox. 3, H311 Skin Corr. 1B, H314; Eye Dam. 1, H318 Acute Tox. 4, H302; Skin Sens. 1, H317 Flam. Liq. 4, H227	<1%
111-46-6	diethylene glycol  STOT RE 2, H373 Acute Tox. 4, H302	<1%

**Additional information:**

For the wording of the listed Hazard Statements, refer to section 16.  
 For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.

## 4 First-aid measures

**Description of first aid measures**

**After inhalation:**

Supply fresh air; consult doctor in case of complaints.  
 Provide oxygen treatment if affected person has difficulty breathing.  
 In case of unconsciousness place patient stably in side position for transportation.

**After skin contact:**

Immediately remove any clothing soiled by the product.  
 Do not pull solidified product away from the skin.  
 Immediately wash with water and soap and rinse thoroughly.  
 If skin irritation continues, consult a doctor.  
 Seek immediate help for blistering or open wounds.

**After eye contact:**

Protect unharmed eye.  
 Remove contact lenses if worn, if possible.  
 Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing:**

Rinse out mouth and then drink plenty of water.  
 Do not induce vomiting; immediately call for medical help.

**Most important symptoms and effects, both acute and delayed:**

Breathing difficulty  
 Cramp  
 Coughing  
 Nausea  
 Strong caustic effect on skin and mucous membranes.  
 Gastric or intestinal disorders when ingested.  
 Allergic reactions

**Danger:**

Danger of disturbed cardiac rhythm.  
 Danger of gastric perforation.  
 Causes serious eye damage.  
 May be harmful if inhaled.  
 Suspected of damaging fertility or the unborn child.

**Indication of any immediate medical attention and special treatment needed:**

Medical supervision for at least 48 hours.  
 Contains 3,3'-oxybis(ethyleneoxy)bis(propylamine), 2,2'-iminodiethylamine, piperazine (liquid), Phenol,

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4,4'-(1-methylethylidene)bis-, polymer with N-(2-aminoethyl)-1,2-ethanediamine and (chloromethyl) oxirane, bisphenol A, 2-piperazin-1-ylethylamine. May produce an allergic reaction.  
Treat skin and mucous membrane with antihistamine and corticoid preparations.  
If necessary oxygen respiration treatment.  
Monitor circulation.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
Water fog / haze  
Foam  
Fire-extinguishing powder  
Carbon dioxide
- **For safety reasons unsuitable extinguishing agents:**  
Water stream.  
Water spray
- **Special hazards arising from the substance or mixture**  
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
- **Protective equipment:**  
Wear self-contained respiratory protective device.  
Wear fully protective suit.
- **Additional information:** Cool endangered containers with water fog.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Use respiratory protective device against the effects of fumes/dust/aerosol.  
Ensure adequate ventilation.  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions**  
Do not allow to enter sewers/ surface or ground water.  
Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Clean the affected area carefully; suitable cleaners are:  
Warm water and cleansing agent.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Handling**
- **Precautions for safe handling:**

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- Keep receptacles tightly sealed.
- Use only in well ventilated areas.
- Avoid contact with the eyes and skin.
- Open and handle receptacle with care.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**  
Store only in the original receptacle.  
Avoid storage near extreme heat, ignition sources or open flame.
- **Information about storage in one common storage facility:**  
Store away from foodstuffs.  
Do not store together with oxidizing and acidic materials.
- **Further information about storage conditions:** Store receptacle in a well ventilated area.
- **Specific end use(s)** No relevant information available.

## 8 Exposure controls/personal protection

### · Control parameters

#### · Components with limit values that require monitoring at the workplace:

##### 110-85-0 piperazine (liquid)

TLV (USA)	Long-term value: 0.1* mg/m <sup>3</sup> , 0.03* ppm *inh. fraction+vapor, DSEN, RSEN; as piperazine
EL (Canada)	Short-term value: 1 mg/m <sup>3</sup> Long-term value: 0.3 mg/m <sup>3</sup> as Piperazine; S(D), S(R)
LMPE (Mexico)	Long-term value: 0.03 ppm Fracción inhalable&vapor;A4,Sen; como piperacina

##### 111-40-0 2,2'-iminodiethylamine

REL (USA)	Long-term value: 4 mg/m <sup>3</sup> , 1 ppm Skin
TLV (USA)	Long-term value: 4.2 mg/m <sup>3</sup> , 1 ppm Skin
EL (Canada)	Long-term value: 1 ppm Skin
EV (Canada)	Long-term value: 4 mg/m <sup>3</sup> , 1 ppm Skin
LMPE (Mexico)	Long-term value: 1 ppm PIEL

##### 111-46-6 diethylene glycol

WEEL (USA)	Long-term value: 10 mg/m <sup>3</sup>
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### · Exposure controls

#### · General protective and hygienic measures:

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing.
- Wash hands before breaks and at the end of work.

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- Avoid contact with the eyes and skin.
- Do not inhale gases / fumes / aerosols.
- Pregnant women should strictly avoid inhalation or skin contact.
- **Engineering controls:** No relevant information available.
- **Breathing equipment:** Suitable respiratory protective device recommended.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

- **Eye protection:**



Safety glasses

- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment**  
No relevant information available.
- **Risk management measures** No relevant information available.

### 9 Physical and chemical properties

#### · Information on basic physical and chemical properties

##### · Appearance:

- **Form:** Liquid
- **Color:** Amber colored
- **Odor:** Ammonia-like
- **Odor threshold:** Not determined.

- **pH-value:** Not determined.
- **Melting point/Melting range:** Not determined.
- **Boiling point/Boiling range:** Not determined.

- **Flash point:** >93 °C (>199.4 °F)

- **Flammability (solid, gaseous):** Not applicable.

- **Auto-ignition temperature:** Not determined.

- **Decomposition temperature:** Not determined.

- **Danger of explosion:** Product does not present an explosion hazard.

##### · Explosion limits

- **Lower:** Not determined.
- **Upper:** Not determined.

- **Oxidizing properties:** Non-oxidizing.

- **Vapor pressure:** Not determined.

- **Density:**  
Relative density at 20 °C (68 °F): 0.99

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<b>Vapor density:</b>	Not determined.
<b>Evaporation rate:</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Not determined.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.
· <b>Other information</b>	No relevant information available.

## 10 Stability and reactivity

- **Reactivity:** No relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:**  
Stable at ambient temperature.  
No decomposition if used according to specifications.
- **Possibility of hazardous reactions**  
Reacts with strong acids and oxidizing agents.  
Reacts with peroxides and other radical forming substances.  
Exothermic polymerization.
- **Conditions to avoid** Excessive heat.
- **Incompatible materials** Oxidizers
- **Hazardous decomposition products**  
Carbon monoxide and carbon dioxide  
Nitrogen oxides

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

· **LD/LC50 values that are relevant for classification:**

**4246-51-9 3,3'-oxybis(ethyleneoxy)bis(propylamine)**

Oral	LD50	4290 mg/kg (rat)
Dermal	LD50	2515 mg/kg (rabbit)

**111-40-0 2,2'-iminodiethylamine**

Oral	LD50	1080 mg/kg (rat)
Dermal	LD50	1090 mg/kg (rabbit)

**110-85-0 piperazine (liquid)**

Oral	LD50	1900 mg/kg (rat)
Dermal	LD50	4000 mg/kg (rabbit)

**80-05-7 bisphenol A**

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Oral	LD50	3250 mg/kg (rat)
Dermal	LD50	3000 mg/kg (rabbit)

- **Primary irritant effect:**
- **On the skin:** Strong caustic effect on skin and mucous membranes.
- **On the eye:** Strong caustic effect.
- **Sensitization:** May cause sensitization by inhalation and skin contact.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **NTP (National Toxicology Program):**

None of the ingredients are listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

· **Probable route(s) of exposure:**

Ingestion.  
Inhalation.  
Eye contact.  
Skin contact.

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** May damage fertility or the unborn child.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity** Toxic to aquatic life with long lasting effects.
- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:** Do not allow product to reach ground water, water course or sewage system.
- **Other adverse effects** No relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Can be disposed of with household garbage after solidification following consultation with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

- **Uncleaned packagings**

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· **Recommendation:** Disposal must be made according to official regulations.

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## 14 Transport information

· **UN-Number**

· DOT, ADR/RID/ADN, IMDG, IATA UN2735

· **UN proper shipping name**

· DOT, ADR/RID/ADN, IMDG, IATA AMINES, LIQUID, CORROSIVE, N.O.S. (3,3'-oxybis(ethyleneoxy)bis(propylamine), Polyetheramine)

· **Transport hazard class(es)**

· DOT



· Class 8

· Label 8

· ADR/RID/ADN



· Class 8 (C7)

· Label 8

· IMDG, IATA



· Class 8

· Label 8

· **Packing group**

· DOT, ADR/RID/ADN, IMDG, IATA III

· **Environmental hazards**

Product contains environmentally hazardous substances: Phenol, 4,4'-(1-methylethylidene)bis-, polymer with N-(2-aminoethyl)-1,2-ethanediamine and (chloromethyl)oxirane

· **Marine pollutant:**



Yes

· **Special precautions for user**

Warning: Corrosive substances

· **Danger code (Kemler):**

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· **EMS Number:** F-A,S-B  
· **Segregation groups** Alkalis

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

· **DOT**



Limited Quantity for packages less than 30 kg gross and inner packagings less than 5 L each.

Labeling as a Marine Pollutant is only required for bulk single package shipments. Bulk packaging consists of a maximum capacity of greater than 450 L (119 gallons) for a liquid and a maximum net mass greater than 400 kg (882 pounds) for a solid. (See 171.4(c))

· **ADR/RID/ADN**



Limited Quantity for packages less than 30 kg gross and inner packagings less than 5 L each.

Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to provisions relevant to marine pollutants. (See 5.2.1.8.1)

· **IMDG**



Limited Quantity for packages less than 30 kg gross and inner packagings less than 5 L each.

Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to provisions relevant to marine pollutants. (See 2.10.2.7)

· **IATA**



Limited Quantity for packages less than 30 kg gross and inner packagings less than 0.5 L each / 1 L net.

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

· **Section 302 (extremely hazardous substances):**

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None of the ingredients are listed.

· **Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients are listed.

· **TSCA (Toxic Substances Control Act)**

All ingredients are listed or exempt.

· **Proposition 65 (California)**

· **Chemicals known to cause cancer:**

Present in trace quantities.

71-43-2	Benzene
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· **Chemicals known to cause developmental toxicity for females:**

Present in trace quantities.

108-88-3	Toluene
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· **Chemicals known to cause developmental toxicity for males:**

Present in trace quantities.

71-43-2	Benzene
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· **Chemicals known to cause developmental toxicity:**

Present in trace quantities.

71-43-2	Benzene
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108-88-3	Toluene
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· **EPA (Environmental Protection Agency):**

None of the ingredients are listed.

· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

All ingredients are listed or exempt.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

OSHA: Occupational Safety & Health Administration

Fam. Liq. 4: Flammable liquids – Category 4

Acute Tox. 4: Acute toxicity – Category 4

Acute Tox. 3: Acute toxicity – Category 3

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

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Skin Corr. 1C: Skin corrosion/irritation – Category 1C  
Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
Resp. Sens. 1: Respiratory sensitisation – Category 1  
Resp. Sens. 1B: Respiratory sensitisation – Category 1B  
Skin Sens. 1: Skin sensitisation – Category 1  
Skin Sens. 1A: Skin sensitisation – Category 1A  
Skin Sens. 1B: Skin sensitisation – Category 1B  
Repr. 1B: Reproductive toxicity – Category 1B  
Repr. 2: Reproductive toxicity – Category 2  
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3  
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

### • Sources

Website, European Chemicals Agency ([echa.europa.eu](http://echa.europa.eu))  
Website, US EPA Substance Registry Services ([ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do))  
Website, Chemical Abstracts Registry, American Chemical Society ([www.cas.org](http://www.cas.org))  
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6  
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN: 978-0-07-176923-5.  
Safety Data Sheets, Individual Manufacturers

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