

Section 1 Identification

Product identifiers

Product name: Freeman 601 Epoxy Laminating Resin

Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Epoxy resin for industrial use only

Details of the supplier of the safety data sheet

Freeman Manufacturing and Supply Company
 1101 Moore Road, Avon, OH 44011
 Telephone (440) 934-1902

HMIS	
H	2
F	1
R	0
PPE	
Sec. 8	

24 Hour emergency telephone number: CHEMTREC (800) 424-9300

Section 2 Hazards Identification

GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

- Skin Corrosion/Irritation, Category 2
- Serious Eye Damage/Eye Irritation, Category 2A
- Skin Sensitization, Category 1
- Reproductive Toxicity, Category 1B
- Aquatic Hazard (Acute), Category 2
- Aquatic Hazard (Long-Term), Category 2

GHS Label elements, including precautionary statements



Signal word

Danger

Hazard Statements

- Causes serious eye irritation.
- Causes skin irritation.
- May cause an allergic skin reaction.
- May damage fertility or the unborn child.
- Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention

- Keep container tightly closed when not in use.
- Wear protective gloves/eye protection/face protection.
- Avoid breathing mist, vapors or spray.
- Do not eat, drink or smoke when using this product.
- Wash skin and face thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Contaminated work clothing must not be allowed out of the workplace.
- Avoid release to the environment.

Freeman 601 Epoxy Laminating Resin

Section 2 Hazards Identification continued

Response

If exposed or concerned: Get medical attention.
 If on skin: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention.
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage

Store in a well-ventilated place. Keep cool.

Disposal

Dispose of contents and container to an appropriate waste site in accordance with local and national regulations.

Hazards not otherwise classified (HNOC) or not covered by GHS

None known

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
Bisphenol A diglycidyl ether resin	1675-54-3	50 - 70
Limestone	1317-65-3	20 - 30
Dibutyl phthalate	84-74-2	10 - 20
Titanium dioxide	13463-67-7	1 - 5

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin.

Section 4 First Aid Measures

Description of first aid measures

If inhaled: Move person into fresh air and keep at rest in a position comfortable for breathing. If not breathing, provide artificial respiration. Get medical attention. If unconscious, place in recovery position and get medical attention immediately.

In case of skin contact: Wash off with soap and plenty of water. Take off contaminated clothing and shoes immediately. Get medical attention if symptoms occur.

In case of eye contact: 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. Get medical attention.

If swallowed: Clean mouth with water. If 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. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately.

Most important symptoms and effects, both acute and delayed

Eye contact: Causes serious eye irritation.

Inhalation: No known significant effects or critical hazards.

Skin contact: Causes skin irritation. May cause an allergic skin reaction.

Ingestion: Irritating to mouth, throat and stomach.

Notes to physician: Symptomatic treatment and supportive therapy as indicated.

Freeman 601 Epoxy Laminating Resin

Section 5 Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Unsuitable extinguishing media: High volume water jet.

Special hazards arising from the substance or mixture

Nature of decomposition products not known.

Hazardous thermal decomposition products

Carbon dioxide, carbon monoxide, nitrogen oxides, halogenated compounds, metal oxides

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

No data available.

Section 6 Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Avoid breathing vapors, mist or gas.
For personal protection see section 8.

Environmental precautions

Do not let product contact soil, waterways, drains or sewers. Inform the relevant authorities if the product has caused environmental pollution.

Methods and materials for containment and cleaning up

Dike and contain spill with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in suitable containers for disposal.

Section 7 Handling and Storage

Precautions for safe handling

Do not breathe fumes or vapor. Do not allow material to contact skin.
Provide appropriate exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Store at ambient temperatures in tightly closed containers. Protect from sunlight.

Section 8 Exposure Controls/Personal Protection

Components with workplace control parameters

Ingredient	CAS No.	Value type	Control parameters	Basis
Limestone	1317-65-3	TWA (respirable fraction)	5 mg/m ³	OSHA Z-1
Dibutyl phthalate	84-74-2	TWA	5 mg/m ³	ACGIH
Titanium dioxide	13463-67-7	TWA (total dust)	15 mg/m ³	OSHA Z-1

Exposure controls

Freeman 601 Epoxy Laminating Resin

Section 8 Exposure Controls/Personal Protection continued

Appropriate engineering controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of mists and/or vapors below the recommended exposure limits. An eye wash station and safety shower should be located near the workstation.

Personal protective equipment

Eye/face protection

Use safety glasses equipped with side shields, or goggles.

Skin protection

Hand protection

Use butyl-rubber, nitrile rubber, or other solvent-resistant gloves.

Contaminated gloves should be replaced.

Body protection

Prevent skin contact when handling material.

Respiratory protection

The need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used.

Safety stations

Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

General hygienic practices

Avoid breathing vapor or mist. Avoid contamination of food, beverages, or smoking materials. Wash thoroughly after handling, and before eating, drinking or smoking. Remove contaminated clothing promptly and clean thoroughly before reuse.

Section 9 Physical and Chemical Properties

Appearance	White liquid
Odor	Slight
Odor threshold	No data available
pH	No data available
Boiling point	>260°C (>500°F)
Flash point (Seta closed cup)	>204°C (>399°F)
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability	No data available
Vapor Pressure	No data available
Vapor density	No data available
Relative density (g/cc)	1.4
Water Solubility	Insoluble
Coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
% Volatile	No data available

Freeman 601 Epoxy Laminating Resin

Section 10 Stability and Reactivity

Reactivity

Stable under recommended storage conditions.

Chemical stability

No decomposition if stored and applied as directed.

Possibility of hazardous reactions

None known.

Conditions to avoid

No specific data.

Incompatible materials

No specific data.

Hazardous decomposition products

Thermal oxidative decomposition can produce carbon oxides, and halogenated compounds.

Section 11 Toxicological Information

Information on toxicological effects

Acute Oral Toxicity Bisphenol A resin: LD50 (Rat) >2000mg/kg

Acute Inhalation Toxicity Dibutyl phthalate: LC50 (Rat) ≥15.68 mg/l

Acute Dermal Toxicity Bisphenol A resin: LD50 (Rat) >2000mg/kg

Skin Corrosion/Irritation Irritating to skin

Serious Eye Damage/Eye Irritation Irritating to eyes

Respiratory or Skin Sensitization Skin sensitizer and respiratory sensitizer

Germ Cell Mutagenicity Not expected to be mutagenic

Carcinogenicity

IARC Titanium Dioxide (13463-67-7) is considered a class 2B suspect human carcinogen.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.

OSHA No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

Reproductive Toxicity

May damage fertility

STOT - single exposure

(Specific target organ toxicity) No data available

STOT - repeated exposure

(Specific target organ toxicity) No data available

Aspiration Hazard

No data available

Section 12 Ecological Information

Toxicity

Harmful to aquatic life

Persistence and degradability

Not readily biodegradable

Bioaccumulative potential

Low potential

Mobility in soil

No data available

Results of PBT & vPvB assessment

No data available

Freeman 601 Epoxy Laminating Resin

Section 13 Disposal Considerations

Do not allow product to enter drains, water courses, or the soil. Contact a licensed waste management company for detailed recommendations. Dispose of as a hazardous waste in compliance with all local and national regulations.

Section 14 Transport Information

DOT: Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A Epoxy Resin, Dibutyl Phthalate)
Hazard Class: 9
ID No.: UN 3082
Packing Group: III
Label: Marine Pollutant

IATA: Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A Epoxy Resin, Dibutyl Phthalate)
Hazard Class: 9
ID No.: UN 3082
Packing Group: III
Label: Marine Pollutant

IMDG: Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A Epoxy Resin, Dibutyl Phthalate)
Hazard Class: 9
ID No.: UN 3082
Packing Group: III
Label: Marine Pollutant

Note: Under 49 CFR 171.4 (c) NONBULK shipments of marine pollutants are not regulated for transport by motor vehicles, rail cars or aircraft. NONBULK shipments of marine pollutants are regulated when transported by vessel (ship).


Section 15 Regulatory Information

US Federal Regulations

TSCA Inventory Status: All ingredients listed on TSCA inventory requirements.
 SARA 311/312 Codes: Immediate (acute) health hazard, Delayed (chronic) health hazard
 SARA 313 Toxic Chemical (40 CFR 372.65): Dibutyl Phthalate (84-74-2), 10-20%
 CERCLA Hazardous Substances Reportable Quantity

Components	CAS Number	RQ (lb)	Calculated product RQ (lb)
Dibutyl phthalate	84-74-2	10	76
1-chloro-2,3-epoxypropane	106-89-8	100	Calculated RQ exceeds reasonably attainable upper limit

US State Regulations

California Prop 65:  **WARNING:** This product can expose you to chemicals including titanium dioxide and dibutyl phthalate, which are known to the State of California to cause cancer, birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Freeman 601 Epoxy Laminating Resin

Section 15 Regulatory Information continued

Canadian Regulations

CEPA DSL: All components are listed or exempted

WHMIS Classes: Class D-2A: Material causing other toxic effects (Very toxic).

Class D-2B: Material causing other toxic effects (Toxic).

Section 16 Other Information

Disclaimer

The following supersedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential or indirect damages for alleged negligence, breach of warranty, strict of liability arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

Freeman 601 Epoxy Laminating Hardener

Section 1 Identification

Product identifiers

Product name: Freeman 601 Epoxy Laminating Hardener

Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Epoxy system hardener

Details of the supplier of the safety data sheet

Freeman Manufacturing and Supply Company
 1101 Moore Road, Avon, OH 44011
 Telephone (440) 934-1902

HMIS	
H	3
F	1
R	0
PPE	
Sec. 8	

24 Hour emergency telephone number: CHEMTREC (800) 424-9300

Section 2 Hazards Identification

GHS Classification in accordance with 29 CFR 1910.1200 (OSHA HCS)

- Acute Toxicity, Inhalation, Category 2
- Acute Toxicity, Dermal, Category 4
- Skin Corrosion, Category 1B
- Serious Eye Damage, Category 1
- Skin Sensitization, Category 1
- Reproductive Toxicity, Category 1B
- Specific Target Organ Toxicity, Single Exposure, Inhalation, Category 3 (Respiratory System)
- Acute Aquatic Hazard, Category 2
- Chronic Aquatic Hazard, Category 2

GHS Label elements, including precautionary statements



Signal word Danger

Hazard Statements

- Harmful in contact with skin.
- Causes severe skin burns and eye damage.
- May cause an allergic skin reaction.
- Fatal if inhaled.
- May cause respiratory irritation.
- May damage fertility.
- Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention

- Use personal protective equipment as required.
- Wear protective gloves/protective clothing/eye protection/face protection.

Freeman 601 Epoxy Laminating Hardener

Section 2 Hazards Identification continued

Avoid release to the environment.
 Do not breathe vapor. Do not eat, drink or smoke when using this product.
 Use only outdoors or in well-ventilated area.
 Wash skin thoroughly after handling.
 Contaminated work clothing should not be allowed out of the workplace.
 Wear respiratory protection.

Response

Get medical attention if you feel unwell.
 IF exposed or if you feel unwell: Call a POISON CENTER or physician.
 IF SWALLOWED: Rinse mouth. Do not induce vomiting. Get medical attention.
 IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse.
 If skin irritation or rash occurs: Get medical attention.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical attention.
 IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get medical attention immediately.
 Wash contaminated clothing before reuse.
 Collect spillage.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Disposal

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified (HNOC) or not covered by GHS

None known

Section 3 Composition/Information on Ingredients

Ingredient Name	CAS Number	Concentration (%)
2,2-iminodi(ethylamine)	111-40-0	60 - 100
4,4'-isopropylidenediphenol	80-05-7	30 - 60

Section 4 First Aid Measures

Description of first aid measures

If inhaled

Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 Get medical attention immediately.

In case of skin contact

Wash with plenty of soap and water. Remove contaminated clothing and shoes.
 Get medical attention immediately.

In case of eye contact

Flush eyes immediately with plenty of water, occasionally lifting the upper and lower eyelids. Get medical attention immediately. Continue rinsing eyes during transport to the hospital.

If swallowed

Keep respiratory tract clear. Do not induce vomiting. Do not give milk or alcoholic beverages.
 Never give anything by mouth to an unconscious person. Take victim immediately to the hospital.

Freeman 601 Epoxy Laminating Hardener

Section 5 Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Unsuitable extinguishing media: High volume water jet.

Special hazards arising from the substance or mixture

Do not allow run-off from firefighting to enter drains or water courses.

Hazardous thermal decomposition products

Carbon dioxide, carbon monoxide, nitrogen oxides

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

Further information

Collect contaminated fire extinguishing water separately. Do not discharge into drains. Dispose of in accordance with local regulations.

Section 6 Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Avoid breathing vapors, mist or gas.
For personal protection see section 8.

Environmental precautions

Do not let product enter drains. If product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up

Dike and contain spill. Soak up with inert absorbent material (e.g. sand, silica gel, sawdust).
Keep in suitable, closed containers for disposal.

Section 7 Handling and Storage

Precautions for safe handling

Do not breathe fumes or vapor. Provide appropriate exhaust ventilation. Do not allow material to contact skin or eyes. See section 8 for personal protective equipment.

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry and well-ventilated place. Carefully reseal opened containers after use. No known incompatible materials.

Section 8 Exposure Controls/Personal Protection

Components with workplace control parameters

Ingredient	OSHA		ACGIH	
	PEL	STEL	TWA	STEL
2,2'-iminodi(ethylamine)	1 ppm	None established	1 ppm	None established

Exposure controls

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.

Section 8 Exposure Controls/Personal Protection continued

Personal protective equipment

Eye/face protection

Use safety goggles.

Skin protection

Hand protection

Use impervious gloves. Discuss suitability with manufacturer of gloves.

Contaminated gloves should be replaced.

Body protection

Prevent skin contact when handling material. Wear impervious clothing.

Respiratory protection

The need for respiratory protection is not anticipated under normal use conditions and with adequate ventilation. If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter should be used.

Safety stations

Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

General hygienic practices

Avoid breathing vapor or mist. Avoid contamination of food, beverages, or smoking materials. Wash thoroughly after handling, and before eating, drinking or smoking. Remove contaminated clothing promptly and clean thoroughly before reuse.

Section 9 Physical and Chemical Properties

Appearance	Clear amber liquid
Odor	Amine-like
Odor threshold	No data available
pH	No data available
VOC	0.058% (w/w)
Freezing point	No data available
Boiling point	206°C (404°F)
Flash point (Seta closed cup)	> 93°C (> 199°F)
Evaporation rate	< 1
Flammability (solid, gas)	No data available
Upper/lower flammability	No data available
Vapor pressure	< 0.1333 hPa (20°C)
Relative vapor density	1
Relative density	1.02
Water solubility	Slightly soluble
Coefficient: n-octanol/ water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

Freeman 601 Epoxy Laminating Hardener

Section 10 Stability and Reactivity

Reactivity

No known dangerous reaction if stored and applied as directed.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None known.

Conditions to avoid

None known.

Incompatible materials

None known.

Hazardous decomposition products

Thermal oxidative decomposition can produce carbon oxides, and nitrogen oxides.

Section 11 Toxicological Information

Information on toxicological effects

Acute oral toxicity	2,418 mg/kg (calculated)
Acute inhalation toxicity	0.28 mg/l, 4 h (calculated)
Acute dermal toxicity	1,560 mg/kg (calculated)
Skin corrosion/irritation	Extremely corrosive and destructive to tissue
Serious eye damage/eye irritation	May cause irreversible eye damage
Respiratory or skin sensitization	Causes skin sensitization
Germ cell mutagenicity	Not expected
Carcinogenicity	
IARC	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.
OSHA	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.
Reproductive toxicity	4,4'-isopropylidenediphenol and 2,2'-iminodi(ethylamine) have tested positive for both reproductive toxicity and causing birth defects (animal data only)
STOT - single exposure	(Specific Target Organ Toxicity) Respiratory tract irritation
STOT - repeated exposure	(Specific Target Organ Toxicity) No data available
Aspiration toxicity	No data available

Section 12 Ecological Information

Toxicity	No data available
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Results of PBT & vPvB assessment	No data available

Freeman 601 Epoxy Laminating Hardener

Section 13 Disposal Considerations

Contact a licensed disposal company for detailed recommendations.
Follow applicable Federal, State, and local regulations.

Section 14 Transport Information

DOT: **Shipping Name:** Polyamines, liquid, corrosive, n.o.s. (diethylene triamine)
Hazard Class: 8
ID No.: UN 2735
Packing Group: II
Label: Corrosive
ERG Code: 153
Marine pollutant: yes (4,4'-isopropylidenediphenol)

IATA: **Shipping Name:** Polyamines, liquid, corrosive, n.o.s. (diethylene triamine)
Hazard Class: 8
ID No.: UN 2735
Packing Group: II
Label: Corrosive
Packing instruction (cargo aircraft): 855
Packing instruction (passenger aircraft): 851

IMDG: **Shipping Name:** Polyamines, liquid, corrosive, n.o.s.
(diethylene triamine, 4,4'-isopropylidenediphenol)
Hazard Class: 8
ID No.: UN 2735
Packing Group: II
Label: 8
EmS Code: F-A, S-B
Marine pollutant: yes

Section 15 Regulatory Information

US Federal Regulations

SARA 311/312 Codes: No SARA Hazards


SARA 313 Toxic Chemical (40 CFR 372.65): 4,4'-isopropylidenediphenol (CAS# 80-05-7) 33%

TSCA Inventory Status: All ingredients listed on TSCA inventory requirements.

Clean Air Act: This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

(40 CFR 61): Dibutyl phthalate

State Regulations

California Proposition 65:  **WARNING:** This product can expose you to chemicals including 4,4'-isopropylidenediphenol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Section 16 Other Information

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