1. Identification

1.1. Product identifier

Product Identity	Bisphenol F Liquid Epoxy Resin BFE-170
Alternate Names	Bisphenol F Liquid Epoxy Resin BFE 170

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

Intended use	Adhesives Casting, potting, encapsulation for electrical components. Protective coating, laminating and civil engineering.

1.3. Details of the supplier of the safety data sheet

Company Name	Silver Fern Chemical, Inc. 2226 Queen Anne Avenue North Seattle, WA 98109 USA Customer Service: 1-866-282-3384 / info@silverfernchemical.com Website - www.silverfernchemical.com
Emergency	
24 hour Emergency Telephone No.	Emergency telephone number Infotrac: 1-800-535-5053; Outside USA & Canada +1-352-323-3500

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Skin Irrit. 2;H315	Causes skin irritation.
Eye Irrit. 2;H319	Causes serious eye irritation.
Skin Sens. 1;H317	May cause an allergic skin reaction.
Aquatic Acute 2;H401	Toxic to aquatic life.
Aquatic Chronic 2;H411	Toxic to aquatic life with long lasting effects.

2.2. Label elements

Warning

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

H401 Toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

[Prevention]

P261 Avoid breathing dust, fume, gas, mist, vapors, spray.
P264 Wash thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
[Response]

P302+352 IF ON SKIN: Wash with plenty of soap and water.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see information on this label).
P333+313 If skin irritation or a rash occurs: Get medical advice or attention.
P337+313 If eye irritation persists: Get medical advice or attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.

[Storage]
No GHS storage statements
[Disposal]

P501 Dispose of contents or container in accordance with local and national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Bisphenol f epoxy resin **CAS Number: 0028064-14-4**	**100**	**Skin Irrit. 2;H315** **Eye Irrit. 2;H319** **Skin Sens. 1;H317** **Aquatic Chronic 2;H411**	**----**

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.
*PBT/vPvB - PBT-substance or vPvB-substance.
The full texts of the phrases are shown in Section 16.

Section 4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Rinse with plenty of clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Overview No specific symptom data available.
Treat symptomatically. Check section 2.2 (GHS Label Elements) for further details.

Eyes Causes serious eye irritation.

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

Section 5. Fire-fighting measures

5.1. Extinguishing media

Recommended extinguishing media; alcohol resistant foam, CO_2, powder, water spray.
Unsuitable extinguishing media: Do not use; water jet.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products:
Carbon monoxide (CO)
Carbon dioxide (CO2)
Phenolics.
Dense smoke is emitted when burned without sufficient oxygen.

Avoid breathing dust, fume, gas, mist, vapors, spray.

5.3. Advice for fire-fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean-up immediately after fire. No smoking.

Additional information

Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

ERG Guide No. 171

Section 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).
Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

6.3. Methods and material for containment and cleaning up

Ventilate the area and avoid breathing vapors. Take the personal protective measures listed in section 8. Contain and absorb spillage with non-combustible materials e.g. sand, earth, and vermiculite. Place in closed containers outside buildings and dispose of according to the Waste Regulations.

Section 7. Handling and storage

7.1. Precautions for safe handling

Handle containers carefully to prevent damage and spillage.
Check section 2.2 (GHS Label Elements) for further details. - [Prevention]
Do not get in eyes, on skin, or on clothing.
Use only in well ventilated areas.
Wear protective gloves/protective clothing/eye protection/face protection.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials: No available information
Check section 2.2 (GHS Label Elements) for further details. - [Storage]
Store in cool, dry place in tightly closed receptacles.
Store in a cool location.
Keep receptacle tightly sealed.

7.3. Specific end use(s)

No available information

Section 8. Exposure controls / personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0028064-14-4	Bisphenol f epoxy resin	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit

8.2. Exposure controls

Respiratory If workers are exposed to concentrations above the exposure limit they must use the appropriate, certified respirators.

Eyes Wear safety glasses with side shields to protect the eyes. An eye wash station is suggested as a good workplace practice.

Skin Avoid skin contact. Wear PVC or rubber gloves to keep skin contact to a minimum. Refer to the manufacturer's recommendations regarding the suitability of any gloves used.

Engineering Controls Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

Breathing equipment:
Use suitable respiratory protective device only when aerosol or mist is formed.
Short term filter device:
Filter A/P2
Organic vapor cartridge

Protection of hands:
The selected protective gloves have to satisfy the specifications of standard EN 374 or its equivalent.
Replace gloves immediately when torn or any change in appearance (dimension, colour, flexibility etc) is noticed.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and degradation
· **Material of gloves**
Butyl rubber, BR
Nitrile rubber, NBR
PVC gloves
Neoprene gloves
Ethyl vinyl alcohol laminate (EVAL)
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Eye protection:
Tightly sealed goggles
Safety glasses with side shields conforming to EN166, ANSI 87.1-2010, or equivalent.
· **Body protection:**
Use protective suit.
The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Other Work Practices Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Be sure to clean skin thoroughly after work and before breaks.
Ensure that washing facilities are available at the work place.

Check section 2.2 (GHS Label Elements) for further details.

Section 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Light Yellow Liquid
Odor	Weak-Characteristic
Odor threshold	No available information
pH	No available information
Melting point / freezing point	No available information
Initial boiling point and boiling range	No available information
Flash Point	257 °C (495 °F)
Evaporation rate (Ether = 1)	No available information
Flammability (solid, gas)	No available information
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** No available information **Upper Explosive Limit:** No available information
Vapor pressure (Pa)	No available information
Vapor Density	No available information
Relative Density	No available information
Solubility in Water	Not miscible or difficult to mix.
Partition coefficient n-octanol/water (Log Kow)	3.6 log POW (est.)
Auto-ignition temperature	No available information
Decomposition temperature	No available information
Viscosity (cSt)	No available information
Oxidising properties	No available information
Explosive properties	No available information
Density	1.19 g/cm^3 (9.931 lbs/gal)

9.2. Other information

No other relevant information.

Section 10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No available information

10.4. Conditions to avoid

Avoid high temperatures and contact with incompatible material

To avoid thermal decomposition do not overheat.
Avoid temperature above 300 °C.
Potentially violent decomposition can occur above 350 °C

10.5. Incompatible materials

Strong oxidizing agents
Acids
Alkalis
Amines

10.6. Hazardous decomposition products

Phenol
Phenolics
Carbon monoxide and carbon dioxide
Decomposition products depend upon temperature, air supply and the presence of other materials.

Section 11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Bisphenol f epoxy resin - (28064-14-4)	>2000 mg/kg (rat)	No data available	No data available	No data available	No data available

Skin corrosion/irritation:
Causes skin irritation.
Rabbit: irritating to the skin (OECD 404)
Source: External (M)SDS
· **Serious eye damage/eye irritation:** Causes serious eye irritation.
· **Respiratory or skin sensitization:**
Mouse (Local Lymph Node Assay): Sensitizing to the skin (OECD 429)
Source: External (M)SDS
May cause an allergic skin reaction.
· **Germ Cell Mutagenicity:** Not classified based on available data.
· **Carcinogenicity:** Not classified based on available data.
· **Reproductive Toxicity:** Not classified based on available data.
· **Specific Target Organ Toxicity - Single Exposure (STOT SE):** Not classified based on available data.
· **Specific Target Organ Toxicity - Repeated Exposure (STOT RE):**
Not classified based on available data.
· **Aspiration Hazard:** Not classified based on available data.

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** No irritating effect.
· **Sensitization:** Sensitization possible through skin contact.

Carcinogen Data

CAS No.	Ingredient	Source	Value
0028064-14-4	Bisphenol f epoxy resin	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
		ACGIH	No Established Limit

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	2	Causes skin irritation.
Serious eye damage/irritation	2	Causes serious eye irritation.
Respiratory sensitization	---	Not Applicable
Skin sensitization	1	May cause an allergic skin reaction.
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Section 12. Ecological information

12.1. Toxicity

Toxic to aquatic life.
Toxic to aquatic life with long lasting effects.
Toxic to aquatic life
Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L
Bisphenol f epoxy resin - (28064-14-4)	9.00, Oncorhynchus mykiss	9.00, Daphnia magna	Not Available

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

No available information

12.4. Mobility in soil

No available information

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No available information

Section 13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

Recommendation:

After prior treatment product has to be disposed of in an incinerator for hazardous waste adhering to the regulations pertaining to the disposal of particularly hazardous waste.

Hand over to hazardous waste disposers.

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Any disposal method should also comply with national, regional, provincial, and local laws.

· **Uncleaned packagings:**

· **Recommendation:**

Empty containers may still contain hazardous residue.

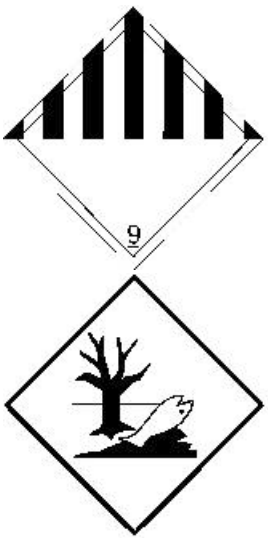
Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning.

Disposal must be made according to official regulations.

Section 14. Transport information

	DOT (Domestic Surface Transportation)	**IMO / IMDG (Ocean Transportation)**	**ICAO/IATA**
14.1. UN number	UN3082	UN3082	UN3082
14.2. UN proper shipping name	UN3082,Environmentally hazardous substances, liquid, n.o.s. (Formaldehyde, oligomeric reaction products wi th 1-chloro-2,3-epoxypropane and phenol),9,III	Environmentally hazardous substances, liquid, n.o.s. (Phenol,polymer with formaldehyde, glycidylether) MARINE POLLUTANT	Environmentally hazardous substances, liquid, n.o.s. (Phenol,polymer with formaldehyde, glycidylether)
14.3. Transport hazard class(es)	**DOT Hazard Class:** 9 **Sub Class:** Not Applicable	**IMDG:** 9 **Sub Class:** Not Applicable	**Air Class:** 9 **Sub Class:** Not Applicable

14.4. Packing group	III	III	III



14.5. Environmental hazards

Marine Pollutant: Yes; (Bisphenol f epoxy resin)

14.6. Special precautions for user

No available information

Section 15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Carcinogens (>0.0%):

WARNING: This product may expose you to Formaldehyde, which is known to the state of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Proposition 65 - Developmental Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:

This product contains no chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

New Jersey RTK Substances (>1%) :
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Pennsylvania RTK Substances (>1%) :
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

OSHA Process Safety Management Standard Highly Hazardous Chemicals, Toxics and Reactives:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

US EPA List of Regulated Substances under the Risk Management Plan (RMP) Program:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

US EPA Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) under the Minimum Risk Exemption:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

U.S. - DEA List II or Essential Chemicals:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

U.S. - DEA - Exempt Chemical Mixtures - List 1 and 2:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

US DHS Chemical Facility Anti-Terrorism Standards (CFATS):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Status of global inventories:
All component(s) within this product is listed or exempted from the following country's chemical inventory:
USA – TSCA
Australia – AICS
Canada – DSL
China – IECSC
EU – EINECS/NLP
Japan – ENCS
Korea – KECI
New Zealand – NZIoC
Philippines – PICCS
Taiwan – ECSI

Section 16. Other information

Revision Date 02/10/2023

DISCLAIMER OF RESPONSIBILITY
The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable.

The full text of the phrases appearing in section 3 is:
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

End of Document

Approved – TL 2-13-23