Safety Data Sheet
ARCOR™ TS-1100 ACTIVATOR

Date of Issue: 01/2024

ChemTel ERS / MOD Tel US: 800-255-3924
Outside US: +001-813-248-0585

Section 1 - Identification of the Substance/Mixture and of the Company

Date of SDS Revision: January 23, 2024

1.1 Product identifier

Product Name: TS-1100 Activator
Product Number: **Part# 13340**
Product Use: AMINE CURED 100% SOLIDS EPOXY Internal Tube Coating
Manufacturer/Supplier: Novolac Epoxy Technologies Inc.

1.2 Relevant identified uses of the preparation and uses identified against

Product Use: AMINE CURED 100% SOLIDS EPOXY PRIMER/TOPCOAT
For professional/industrial use only.

1.3 Details of the supplier of the safety data sheet

Novolac Epoxy Technologies Inc.
28 Jonathan Bourne Drive
Pocasset, MA 02559 U.S.A.
Tel: 508-385-5598
. E-mail: Tech@ArcorEpoxy.com
Web: **www.NovolacEpoxy.Com**

1.4 Emergency telephone number

ChemTel (24 hours): 1-800-255-3924 (USA);
+1-813-248-0585 (outside USA);
1-300-954-583 (Australia);
000-800-100-4086 (India).

Section 2 - Hazards Identification

2.1 Classification of the substance/mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Acute oral toxicity cat. 4
H302
Skin irritation cat. 2
H315
Eye damage cat. 1
H318
Skin sensitization cat. 1
H317
Acute toxicity/inhalation cat. 4 H332
STOT-re, cat.2
H373
Aquatic toxicity, chronic cat. 3 H412

2.2 Labeling elements

2.2.1 Labeling according Regulation (EC) No 1272/2008 [CLP]

Signal Word: Danger

Hazard pictogram:

Hazard statements
H302 + H332 Harmful if swallowed and if inhaled.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H373 May cause damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements
P261 Avoid breathing mist/vapors/spray.
P264 Wash hands and skin contact areas thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves / eye protection / face protection.
P310 Immediately call a POISON CENTER or doctor.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P312 Call a POISON CENTER or doctor if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P333 + P313 If skin irritation or rash occurs: Get medical attention.
P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position 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.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents/container through a waste management company authorized by the local government.

2.3 OSHA GHS classification
This product is classified as non-hazardous as defined within the GHS OSHA Hazard Communication Standard 29CFR1910.1200.

Section 3 - Composition / Information on Ingredients

3.1 Substances
N/A

3.2 Mixtures
Composition/Information on ingredients:

	CAS Number	Composition %
4,4'- Methylenebiscyclohexanamine,	1761-71-3	2 - 6 %
Methyleneoxide, polymer with benzenamine, hydrogenated	135108-88-2	50 - 90%
Benzyl alcohol	100-51-6	15 - 38%
Formaldehyde, polymer with 1,3,dimethylbenzene	26139-75-3	10.0 - 20.0%

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits. Exact percentage values for components are proprietary in accordance with 29 CFR 1910.1200(i).

Occupational exposure limits, if available, are listed in Section 8.

Section 4 - First Aid Measures

4.1 Description of First Aid measures
General advice: consult a physician; show this SDS to doctor in attendance.
In the event of skin contact: Rinse immediately with plenty of water; remove contaminated clothing; wash thoroughly with soap and water for at least 15 minutes. If irritation, rash or other adverse effects develop, get medical attention immediately.
In the event of eye contact: Bathe the eye with running water for at least 15 minutes, lifting upper and lower eyelids. Get medical attention immediately.
In the event of swallowing: Do NOT induce vomiting unless advised by a physician. Rinse out mouth with water. Call nearest Poison Control Center or physician immediately.
In the event of exposure by inhalation: Move person to fresh air and keep at rest in a position comfortable for breathing; if breathing is irregular, provide artificial respiration; if there are breathing difficulties, administer oxygen; get medical attention.

4.2 Most important symptoms and effects, both acute and delayed
Harmful if swallowed and if inhaled; can cause severe skin burns and eye damage; sensitizer.

4.3 Indication of any immediate medical attention and special treatment needed
Treat symptomatically.
Eye wash stations and emergency showers should be available.

Section 5 - Fire Fighting Measures

5.1 Extinguishing media
Water fog, dry chemical, CO2, dry sand, limestone powder, alcohol-resistant foam.

5.2 Special hazards arising from the substance or mixture
Product may ignite if heated in excess of its flash point. Vapors may travel to sources of ignition and flashback. Vapor concentrations in enclosed areas may ignite explosively. Empty containers may contain ignitable vapors. Exposure to decomposition products may be harmful to health; combustion products may include but are not limited to: carbon monoxide, carbon dioxide, nitrogen oxides; the formation of hydrocarbon fragments is possible in the initial stages of fire (especially in between 400°C and 700°C); smoke may contain particles of the original material as well.

5.3 Advice for fire fighters: Use protective firefighting clothing and positive pressure self-contained breathing apparatus to protect against potential harmful and/or irritating fumes. Move containers from fire area if you do it without risk. Dike fire control water for later disposal; prevent runoff from entering drains. Cool fire exposed containers with water stream. Do not use high volume water jet on the fire as this may spread the area of the fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Isolate area; ensure adequate ventilation; remove all sources of ignition; use appropriate personal protection equipment; avoid breathing mist, vapors, spray; avoid contact with skin, eyes and clothing; keep unnecessary and unprotected personnel from entering the involved area. Local authorities should be advised if significant spillages cannot be contained.

6.2 Environmental precautions
Halt the flow of material as soon as practical using appropriate barriers; turn containers leak-side up to stop the escape of liquid. This material is a water pollutant and should be prevented from contaminating soil or from entering sewerage and drainage systems and bodies of water.

6.3 Methods and material for containment and cleaning up
Soak up with sand, earth, diatomaceous earth or other suitable inert absorbent material; collect into suitable waste disposal containers. Reuse uncontaminated material when possible. Wash spillage site with large amounts of water. Dispose of in accordance with applicable local and federal environmental control laws and regulations.

6.4 Reference to other sections
For more information on exposure controls, personal protection and disposal, review data in section 8 and section 13 of this SDS.

Section 7 - Handling and Storage

7.1 Precautions for safe handling
Ensure adequate ventilation. Prevent inhalation of vapor, ingestion, and contact with skin, eyes and clothing. Keep containers closed when not in use. Precautions apply to empty containers as well. Do not eat, drink or smoke in the work area. Wash thoroughly after handling. Personal protective equipment must be worn during maintenance or repair of mixers, reactors or other equipment containing the material.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry area with adequate ventilation. Store away from foodstuffs and all incompatible material. Keep container tightly closed when not in use.

Incompatibilities: Do not store together with strong oxidizing agents.

Section 8 - Exposure Controls / Personal Protection

8.1 Control parameters
Occupational exposure limits: None assigned
The AIHA recommended WEEL (workplace environmental exposure level) for Benzyl alcohol is 10 ppm (8h-TWA) (45 mg/m_3).

8.1.2 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 can be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents for the determination of hazardous substances.

8.2 Exposure Controls:
Follow good industrial workplace practices; do not eat, drink or smoke while handling; wash hands before breaks and at end of work shift; follow recommendations in this SDS.

8.2.1 Appropriate engineering controls
Ventilation through local exhaust if general ventilation is inadequate. Ten air changes per hour are generally recommended.

8.2.2 Individual protection measures, such as personal protective equipment

8.2.2.1 Eye/face protection
Wear chemical safety goggles and/or face shield to prevent eye contact. Refer to OSHA

Standard 29CFR1910.133 and European Standard EN166.

8.2.2.2 Skin protection
Wear impervious clothing as necessary to protect against product contact. Necessity for boots, apron, face shield, etc. will be dependent on any hazards presented in the work process. Refer to CFR1910.132 and CFR1910.136 for OSHA approved standards on protective clothing and footwear.

8.2.2.3 Respiratory protection
If ventilation is inadequate or if irritation or other symptoms are experienced, wear a NIOSH/MHSA approved respirator with organic vapor cartridge. Respirator use should follow the guidelines of an established respiratory protection program in compliance with 29CFR1910.134.

8.2.2.4 Hand protection
Use suitable impervious neoprene or nitrile rubber gloves. When prolonged or frequently repeated contact may occur, glove material should have a breakthrough time that exceeds 480 minutes (breakthrough rating = 6); when only brief contact is expected, a glove with a lesser breakthrough rating (rating 2 = >30 minutes) may be suitable. Note the requirements of Standard EN 374.

Other Protective Equipment: The type and degree of personal protective equipment appropriate will depend on the specific work operation. Eye wash stations and emergency showers should be available. Inspect and replace personal protective equipment at regular intervals; use professional care in their selection, use and care.

8.3 Environmental exposure controls
Observe all precautions to prevent contamination of soil and waterways.

Section 9 - Physical and Chemical Properties

9.1 Information on basic physical and chemical properties
9.1.1 General information:
Appearance: Viscous Liquid
Color: Clear Amber
Type of Odor: Mild amine-like
Odor Threshold: No data available

9.1.2 Important health, safety and environmental information:
Boiling Point: >205°C (>401°F)
Melting Point: No data available
Flammability Classification: Combustible IIIB
Flash Point: >101°C (>214°F) (cc)
Autoignition Temperature: >300°C (>572°F)
Decomposition Temperature: No data available
Flammability Limits (lower/upper): LEL: 0.6% **UEL:** 13%
Vapor Pressure: 0.094 mm Hg @ 25°C
Vapor Density (Air=1): 7.24
Evaporation Rate (BuAc=1): <1
Octanol/Water Partition Coefficient (log P_{ow}): approx. 1 - 3
Specific Gravity: 1.06
Bulk Density: 8.9 lbs/gal
Water Solubility: Partially soluble
pH: No data available
Viscosity: 12500-20000 cP @ 25°C
Explosive Properties: Not explosive
Oxidizing Properties: Not determined
Molecular Formula: (mixture)
VOC Content: <1%

Section 10 - Stability and Reactivity

10.1 Stability and Reactivity

10.1 Reactivity
No dangerous reaction is known under normal use and storage conditions.

10.2 Stability
Stable under normal use and storage conditions.

10.3 Possibility of hazardous reactions
Mixtures with strongly acidic materials may produce an exothermic reaction.

10.4 Conditions to avoid
Avoid elevated temperatures and sources of ignition.

10.5 Incompatible materials
Acids, oxidizing agents, epoxies, isocyanates.

10.6 Hazardous decomposition products
Thermal decomposition will generate carbon monoxide, carbon dioxide and nitrogen oxides.

Section 11 - Toxicological Information

11.1 Information on toxicological effects
Acute Oral Toxicity: LD50(rat): 690 mg/kg (ATE)
Acute Dermal Toxicity: LD50(rabbit): 2188 mg/kg (ATE)
Acute Inhalation Toxicity: LD50(rabbit): >900 mg/m_3 (Salicylic acid)
Skin Corrosion/Irritation: Draize Test: Rabbit/skin: Irritating
Serious Eye Damage/Irritation: Draize Test: Rabbit/eye: Irritating
Skin Sensitization (guinea pig): Sensitizer
Germ Cell Mutagenicity: Not classified as mutagenic
Carcinogenicity: Not classified as carcinogenic. Not listed by OSHA/NTP/IARC.
Reproductive Toxicity: Not classified as a reproductive toxicant
Specific Target Organ Toxicity - single exposure (STOT-se): Product not classified based on available data.
Specific Target Organ Toxicity - repeated exposure (STOT-re): May cause damage to the liver and skeletal muscles through prolonged or repeated oral exposure.
NOAEL: (oral, rat): 15 mg/kg body weight per day.
Aspiration Hazard: Aspiration occurring while vomiting may cause lung damage.

Potential Health Effects:
Skin Contact: May cause irritation, itching, reddening, inflammation; may be absorbed through the skin win CNS effects; may cause an allergic reaction.
Eye Contact: Causes serious eye damage; vapors are irritating and may cause damage to the eyes; contact may cause severe burns and permanent eye damage including blindness.
Ingestion: Harmful if swallowed; may cause severe and permanent damage to mouth, throat and stomach; mat lead to perforation of the intestine.
Inhalation: Harmful if inhaled; may cause severe irritation to the respiratory tract; may cause CNS symptoms including headache, nausea, mental confusion, blurred vision, fatigue, dizziness and loss of coordination; prolonged overexposure may cause respiratory failure.
Chronic Health Effects:
Skin sensitizer; once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. After repeated high-dose oral exposure the substance causes adverse effects to the liver, kidneys.

Additional Data:
RTECS No. GV5020833 (PACM)
RTECS No. DN3150000 (Benzyl alcohol)
RTECS No. VO0525000 (Salicylic acid)

Section 12 - Ecological Information

12.1 Toxicity

12.1.1 Acute/prolonged toxicity to fish
LC50(freshwater fish)(96-hr): 10 mg/l (ATE)

12.1.2 Acute/prolonged toxicity to aquatic invertebrates
EC50(Daphnia magna)(48-hr): 10 mg/l (ATE)

12.1.3 Acute/prolonged toxicity to aquatic plants
EC50(algae)(72-hr): 16 mg/l (ATE)

12.1.4 Toxicity to bacteria, to soil dwelling organisms and to terrestrial plants
No data available

12.1.5 Chronic toxicity to aquatic organisms
Long lasting adverse effects to aquatic organisms.

12.1.6 General effect
Harmful to aquatic life with long lasting effects.

12.2 Persistence and degradability
Not readily biodegradable.

12.3 Bio accumulative potential
No data available

12.4 Mobility in soil
No data available; do not allow product to enter soil/subsoil.

12.5 Results of PBT and vPvB assessment (EC reg. 453/2010)
Product not classified as Persistent, Bio accumulative and Toxic
Product not classified as very Persistent or very Bio accumulative

12.6 German WGK classification
WGK = 1 (self-assessment)

12.7 Other adverse effects
Neutralization may be required before discharging to wastewater treatment plants.

Section 13 - Disposal Considerations

13.1 Waste treatment methods
Disposal: Do not dump to ground, sewers or watercourses. Incinerate or otherwise dispose of in compliance with all applicable federal, state and local environmental control laws and regulations. Waste characterization according to RCRA guidelines and compliance with applicable laws are the responsibility solely of the waste generator.
Container Disposal: Containers should be drained of all residual product prior to disposal.

When Activator is mixed and cured with Base component the resultant cured product is inert and non-hazardous and may be disposed of in general landfill.

Section 14 - Transport Information

14.1 Shipping description

CFR Non-regulated

TDG Non-regulated

IMO/IMDG Non-regulated

IATA (Cargo) Non-regulated

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

15.1 Safety, health and environmental regulations/legislation specific for the substance or Mixture

United States - TSCA 12(b) - Chemical export notification: None required**.**
United States - TSCA 5(a)2 - Final significant new use rules: Not listed
United States - TSCA 5(a)2 - Proposed significant new use rules: Not listed
United States - TSCA 5(e) - Substances consent order: Not listed
Australia inventory (AICS): All components are listed or exempted.
Canada inventory: All components are listed or exempted.
Japan inventory: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
United States inventory (TSCA 8b): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

SARA Title III Section 313 (40CFR372): No reportable components
CERCLA Status (40CFR302): No Reportable Quantity components
TSCA Inventory Status: Reported/included
Canadian DSL Status: Reported/included
Canadian WHMIS Classification: D2B
Canadian NPRI : None required.
CEPA Toxic substances : None required
Chemicals Known to the State of California to Cause Cancer or Reproductive Toxicity: This product contains Epichlorohydrin CAS# 106-89-8 (trace amount).

REACH Annex XIV (SVHC)
No listed components

REACH Annex XVII (Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles)
No listed components

REACH Status (EC 1907/2006): This material has been registered, pre-registered or is otherwise exempted from registration under the Registration, Evaluation and Authorization of

Chemical Substances.

Chemical safety assessment
Not available

Section 16 - Other Information

HMIS ratings:
Health: **3**
Flammability: **1**
Reactivity: **0**

(Personal protective equipment selection is best assigned by the user after performing a hazard assessment on the product as it is to be used in the specific work process.)

National chemical inventories
All components of this product are listed on the following chemical substance inventories:
TSCA (USA)
DSL (Canada)
EINECS (Europe)
ENCS (Japan)
ECL (Korea)
AICS (Australia)
PICCS (Philippines)
IECSC (China)
NZIoC (New Zealand)

Abbreviations
ACGIH American Conference of Governmental Industrial Hygienists
ADR
International carriage of dangerous goods by Road
AICS Australian Inventory of Chemical Substances
AIHA American Industrial Hygiene Association
ATE Acute toxicity estimate
BfR Bundesinstitut für Risikobewertung recommendations for food contact materials
BCF Bioconcentration Factor
CERCLA Comprehensive Environmental Response, Compensation and Liability Act
CLP Classification, Labeling and Packaging regulation
DOT Department of Transportation
DSL Domestic Substances List
EINECS European Inventory of Existing Chemical Substances
ECL Existing Chemicals List (Korea)
ENCS Existing and New Chemical Substances Inventory (Japan)
EN 689 Workplace atmospheres – Guidance for the assessment of exposure by inhalation to

chemical agents for comparison with limit values and measurement strategy
ERG Emergency Response Guide
GHS Globally Harmonized System
HMIS Hazardous Materials Information System
IARC
International Agency for Research on Cancer
IATA
International Air Transport Association
ICAO
International Civil Aviation Organization
IDLH
Immediately Dangerous to Life and Health
IMDG
International Maritime Dangerous Goods

LD50 Lethal dose to 50% of test animal population
MAK Maximale Arbeitsplatz Konzentration
NOAEL No observable adverse effect level
NTP National Toxicology Program
OEL Occupational Exposure Limit
OSHA Occupational Safety & Health Administration
PBT Persistent, Bio accumulative and Toxic
vPvB Very Persistent and Very Bio accumulative
PEL Permissible exposure limit
PICCS Philippine Inventory of Commercial Chemical Substances
PNEC Predicted No Effect Concentration
REACH Registration, evaluation and authorization of chemical substances
RID
International carriage of dangerous goods by Rail
SARA Superfund Amendments and Reauthorization Act
STEL Short Term Exposure Limit
SVHC Substance of Very High Concern
TLV
Threshold Limit Value
TSCA Toxic Substances Control Act
TWA Time Weighted Average
VOC Volatile organic compound
WEEL Workplace Environmental Exposure Level
WGK Wassergefahrdungsklasse (Water Hazard Class)
WHMIS Workplace Hazardous Material Identification System

Date of Issue: 01/2024
Date of Previous Issue: 05/2015

DISCLAIMER

TO THE BEST OF OUR KNOWLEDGE, THE INFORMATION CONTAINED HEREIN IS ACCURATE. HOWEVER SOME OF THE INFORMATION PRESENTED AND CONCLUSIONS' DRAWN ARE DERIVED FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE PRODUCT ITSELF AND WHILE NOVOLAC EPOXY TECHNOLOGIES INC BELIEVES SUCH SOURCES TO BE RELIABLE, THE INFORMATION IS PROVIDED WITHOUT WARRANTY REGARDING ITS CORRECTNESS.

THE INFORMATION OR RECOMMENDATIONS CONTAINED HEREIN ARE BASED ON STANDARD PRODUCT AND ARE PROPRIETARY AND FURNISHED SOLELY FOR THE USE OF OUR CUSTOMERS. THIS INFORMATION IS PROVIDED IN GOOD FAITH AND BELIEVED TO BE TRUE AND ACCURATE AS OF THE DATE SHOWN ABOVE.

USERS ARE ADVISED TO PERFORM THEIR OWN TESTS AND HAZARD ASSESSMENTS TO DETERMINE THE SAFETY, SUITABILITY AND RELEVANCE OF APPLICABLE LAW TO THE PRODUCT AS IT IS TO BE USED BY THEM.

SINCE NOVOLAC EPOXY TECHNOLOGIES INC HAS NO CONTROL OVER THE CONDITIONS UNDER WHICH THE PRODUCT WILL BE USED, LIABILITY WILL NOT BE ASSUMED TO EXCEED REPLACEMENT OR REFUND OF THE PURCHASE PRICE OF THIS PRODUCT. EXCEPT AS STATED HEREIN, THERE ARE NO EXPRESS OR IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NOVOLAC EPOXY TECHNOLOGIES INC ASSUMES NO LIABILITY FOR INJURY OR INCIDENTAL OR CONSEQUENTIAL DAMAGE ARISING OUT OF THE STORAGE, HANDLING OR USE OR, DISPOSAL OF THIS PRODUCT.

Safety Data Sheet
ARCOR™ TS-1100 BASE

Date of Issue: 01/2024

ChemTel ERS / MOD Tel US: 800-255-3924
Outside US: +001-813-248-0585

Section 1 - Identification of the Substance/Mixture and of the Company

Date of SDS Revision: January 23, 2024

1.1 Product identifier

Product Name:	TS-1100 Base
Product Number:	**Part# 13340**
Product Use:	AMINE CURED 100% SOLIDS EPOXY Internal Tube Coating
Manufacturer/Supplier:	Novolac Epoxy Technologies Inc.

1.2 Relevant identified uses of the preparation and uses identified against

Product Use: AMINE CURED 100% SOLIDS EPOXY PRIMER/TOPCOAT
For professional/industrial use only.

1.3 Details of the supplier of the safety data sheet

Novolac Epoxy Technologies Inc.
28 Jonathan Bourne Drive
Pocasset, MA 02559 U.S.A.
Tel: 508-385-5598
E-mail: Tech@ArcorEpoxy.com
Web: **www.NovolacEpoxy.Com**

1.4 Emergency telephone number

ChemTel (24 hours): 1-800-255-3924 (USA);
+1-813-248-0585 (outside USA);
1-300-954-583 (Australia);
000-800-100-4086 (India).

Section 2 - Hazards Identification

2.1 Classification of the substance/mixture

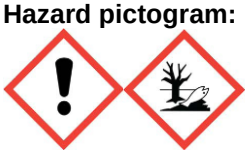
2.1.1 Classification according to OSHA 29CFR1910.1200 and EU (EC) 1272/200 Skin irritation, cat. 2
H315
Skin sensitization, cat. 1 H317
Eye irritation, cat. 2
H319
Aquatic chronic, cat. 2
H411

2.2 Labeling elements

2.2.1 Labeling according to OSHA 29CFR1910.1200 and EU (EC) 1272/2008

Signal Word: Warning

Hazard pictogram:



Hazard statements
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.

Precautionary statements
P261 Avoid breathing mist/vapors/spray.
P264 Wash hands and skin contact areas 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 / eye protection / face protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P391 Collect spillage.
P501 Dispose of contents/container through a waste management company authorized by the local government.

2.3 OSHA GHS classification
This product is classified as non-hazardous as defined within the GHS OSHA Hazard Communication Standard 29CFR1910.1200.

Section 3 - Composition / Information on Ingredients

3.1 Substances

	CAS Number	**Composition** %
Phenol-Formaldehyde Polymer Glycidyl Ether	28064-14-4	35.0 – 75.0%
Oxirane, Mono[(C12-14-alkyloxy)methyl] Derivs.	68609-97-2	3.5 – 18.5%
3-(2,3-epoxypropoxy)propyl]trimethoxysilane	2530-83-8	0.5 – 4.8%
Titanium Dioxide	13463-67-7	3.0- 15.0%
Ceramic Microspheres.	66402-68-4	25.0- 65.0%

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits. Exact percentage values for components are proprietary in accordance with 29 CFR 1910.1200(i).

Occupational exposure limits, if available, are listed in Section 8.

Section 4 - First Aid Measures

4.1 Description of First Aid measures
General advice: consult a physician; show this SDS to doctor in attendance.
In the event of skin contact: Drench the affected area immediately with plenty of water; remove contaminated clothing. Wash thoroughly with soap and water for at least 15 minutes. Get medical attention if irritation persists.

In the event of eye contact: Bathe the eye with running water for at least 15 minutes, lifting upper and lower eyelids. Get medical attention if symptoms persist.
In the event of swallowing: DO NOT induce vomiting; rinse mouth then drink plenty of water; get medical attention if symptoms persist.
In the event of exposure by inhalation: Move person to fresh air. Get medical attention if symptoms develop.

4.2 Most important symptoms and effects, both acute and delayed
Skin irritation, allergic reactions.

4.3 Indication of any immediate medical attention and special treatment needed
No specific antidote; treat symptomatically.
Eye wash stations and emergency showers should be available.

Section 5 - Fire Fighting Measures

5.1 Extinguishing media
Carbon dioxide, alcohol resistant foam, dry chemical, water fog; use water spray to cool fire exposed containers.
Do not use direct water stream which may spread fire.

5.2 Special hazards arising from the substance or mixture
Exposure to decomposition products may be harmful to health; combustion products may include but are not limited to: carbon monoxide, carbon dioxide, phenolics; smoke may contain particles of the original material as well. Prevent fire-fighting waters from entering sewer or waterways.

5.3 Advice for fire fighters: Use protective firefighting clothing and positive pressure self-contained breathing apparatus to protect against potential harmful and/or irritating fumes. Do not use high volume water jet as this may spread the area of the fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Isolate area; ensure adequate ventilation; use appropriate personal protection equipment; avoid breathing mist, vapors, spray; avoid contact with skin, eyes and clothing; keep unnecessary and unprotected personnel from entering the involved area.

6.2 Environmental precautions:
Prevent contamination of soil and water. Prevent from spreading or entering drains, ditches, waterways by using sand, earth or appropriate barriers.

6.3 Methods and material for containment and cleaning up
Absorb with sand, diatomaceous earth or universal binders and collect into suitable disposal container. Dispose of in accordance with applicable local and federal environmental control laws and regulations.

6.4 Reference to other sections
For more information on exposure controls, personal protection and disposal, review data in section 8 and section 13 of this SDS.

Section 7 - Handling and Storage

7.1 Precautions for safe handling
Ensure adequate ventilation of workplace and storage areas; avoid skin contact; do not breathe mist, vapors, spray; use recommended personal protective equipment; wash thoroughly after handling. Do not eat, drink or smoke in the work area. Avoid use of electric band heaters (failures of such heaters have been reported to cause drums of liquid epoxy resin to explode and

catch fire). Never apply a direct flame to any container of product.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated place. Keep away from incompatible materials. Keep container tightly closed. Recommended storage temperature: 10-35°C (50-95°F).

Section 8 - Exposure Controls / Personal Protection

8.1 Control parameters

Occupational exposure limits: OSHA/PEL: None established

8.1.2 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 can be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents for the determination of hazardous substances.

8.2 Exposure Controls:

Follow good industrial workplace practices; do not eat, drink or smoke while handling; wash hands before breaks and at end of work shift; follow recommendations in this SDS.

8.2.1 Appropriate engineering controls

Ensure adequate ventilation through local exhaust.

8.2.2 Individual protection measures, such as personal protective equipment

8.2.2.1 Eye/face protection

Use safety glasses with side shields. Refer to OSHA Standard 29CFR1910.133 and European Standard EN166.

8.2.2.2 Skin protection

Wear impervious clothing as necessary to protect against product contact. Necessity for boots, apron, face shield, etc. will be dependent on any hazards presented in the work process. Refer to CFR1910.132 and CFR1910.136 for OSHA approved standards on protective clothing and footwear.

8.2.2.3 Respiratory protection

Although no exposure limits have been established, respiratory protection may be of use if any respiratory irritation or discomfort is noted; if the material is processed at elevated temperatures without adequate ventilation, it may be necessary to wear an air-purifying respirator with organic vapor cartridge; respirator use should follow the guidelines of an established respiratory protection program in compliance with 29CFR1910.134.

8.2.2.4 Hand protection

Wear nitrile rubber, nitrile, neoprene, PVC or other suitable impervious gloves; refer to European Standard EN374. Gloves selected must have a breakthrough rating appropriate for the work shift (>480 minutes).

Other Protective Equipment: The type and degree of personal protective equipment appropriate will depend on the specific work operation. Eye wash stations and emergency showers should be available.

8.3 Environmental exposure controls

Observe all precautions to prevent contamination of soil and waterways.

Section 9 - Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

9.1.1 General information:
Appearance: Viscous Liquid
Color: Gray
Type of Odor: Slight epoxy odor
Odor Threshold: Not determined

9.1.2 Important health, safety and environmental information:
Initial Boiling Point: >218°C (>424°F)
Melting Point: Not applicable
Flammability Classification: Combustible IIIB
Flash Point: >150°C (>302°F)
Autoignition Temperature: No data available
Decomposition Temperature: >268°C (>514°F)
Flammability Limits (lower/upper): No data available
Vapor Pressure: 0.03 mm Hg @ 25°C
Vapor Density (Air=1): >1
Evaporation Rate (BuAc=1): <1
Octanol/Water Partition Coefficient (log P_{ow}): 3 (for epoxy resin component)
Specific Gravity: 1.45
Bulk Density: 12.1 lbs/gal
Water Solubility: Slight
pH: Not determined
Viscosity: 10,000-20,000 cP @ 25°C
Volatile Content: <0.1%
Explosive Properties: Not determined
Oxidizing Properties: Not determined
Molecular Formula: (mixture)

Section 10 - Stability and Reactivity

10.1 Stability and Reactivity

10.1 Reactivity
No dangerous reaction is known under normal use and storage conditions.

10.2 Stability
Stable under normal use and storage conditions.

10.3 Possibility of hazardous reactions
Masses of more than one pound (0.5 kg) product plus an aliphatic amine will cause irreversible polymerization with considerable heat build-up.

10.4 Conditions to avoid
Excessive heat.

10.5 Incompatible materials
Strong oxidizing agents, acids, alkalis, amines.

10.6 Hazardous decomposition products
Uncontrolled exothermic reaction of epoxy resin releases carbon monoxide, carbon dioxide, phenolics, aldehydes.

Section 11 - Toxicological Information

11.1 Information on toxicological effects
Acute Oral Toxicity: LD50(rat): >5000 mg/kg
Acute Dermal Toxicity: LD50(rabbit): >4000 mg/kg

Skin Corrosion/irritation (rabbit): Causes slight skin irritation
Serious Eye Damage / Eye Irritation (rabbit): Causes serious eye irritation; corneal injury is not likely.
Skin Sensitization (guinea pig): Causes allergic skin reactions.
Germ Cell Mutagenicity: Not classified based on available data.
Carcinogenicity: Not classified based on available data. Not listed by IARC, NTP, OSHA.
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.
Potential Health Effects:
Skin: Causes mild skin irritation; may cause sensitization; once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Eyes: Causes serious eye irritation; pain, irritation, watering, redness
Ingestion: Low toxicity; incidental ingestion of small amounts not anticipated to be harmful.
Inhalation: Low volatility; not expected to be a significant route of exposure. Inhalation of heated vapors may irritate the respiratory tract causing coughing or wheezing.
Potential Chronic Health Effects:
May cause an allergic skin reaction.

Section 12 - Ecological Information

12.1 Toxicity

12.1.1 Acute/prolonged toxicity to fish
LC50 (Fathead minnow)(96-hr): 3.1 mg/l (epoxy resin)

12.1.2 Acute/prolonged toxicity to aquatic invertebrates
EC50 (Daphnia magna)(24-hr): 3.6 mg/l (epoxy resin)

12.1.3 Acute/prolonged toxicity to aquatic plants
No data available

12.1.4 Toxicity to bacteria, to soil dwelling organisms and to terrestrial plants
No data available

12.1.5 Chronic toxicity to aquatic organisms
No data available

12.1.6 General effect
Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability
Biodegradation rate: 5% after 28 days (not readily biodegradable)

12.3 Bio accumulative potential
BCF = 31, Log P_{ow} = 3 (low potential to bioaccumulate in aquatic organisms)

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment (EC reg. 453/2010)
Not classified as Persistent, Bio accumulative and Toxic
Not classified as very Persistent or very Bio accumulative

12.6 German WGK classification
WGK = 2 (self-classification)

12.7 Other adverse effects
No other adverse effects are identified.

Section 13 - Disposal Considerations

13.1 Waste treatment methods
Disposal: Do not dump to ground, sewers or watercourses. Reuse uncontaminated material when possible. All methods of disposal must be in compliance with all applicable federal, state and local environmental control laws and regulations. Waste characterization according to RCRA guidelines and compliance with applicable laws are the responsibility solely of the waste generator.
Container Disposal: Containers should be drained of all residual product prior to disposal; empty/clean containers should be recycled; incinerate or landfill when recycling is not feasible.

When Activator is mixed and cured with Base component the resultant cured product is inert and non-hazardous and may be disposed of in general landfill.

Section 14 - Transport Information

14.1 Shipping description

CFR Non-regulated

TDG Non-regulated

IMO/IMDG Non-regulated

IATA (Cargo) Non-regulated

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

15.1 Safety, health and environmental regulations/legislation specific for the substance or Mixture

United States - TSCA 12(b) - Chemical export notification: None required**.**
United States - TSCA 5(a)2 - Final significant new use rules: Not listed
United States - TSCA 5(a)2 - Proposed significant new use rules: Not listed
United States - TSCA 5(e) - Substances consent order: Not listed
Australia inventory (AICS): All components are listed or exempted.
Canada inventory: All components are listed or exempted.
Japan inventory: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Korea inventory: All components are listed or exempted.
New Zealand Inventory (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
United States inventory (TSCA 8b): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

SARA Title III Section 313 (40CFR372): No reportable components
CERCLA Status (40CFR302): No Reportable Quantity components
TSCA Inventory Status: Reported/included

Canadian DSL Status: Reported/included
Canadian WHMIS Classification: D2B
Canadian NPRI : None required.
CEPA Toxic substances : None required
Chemicals Known to the State of California to Cause Cancer or Reproductive Toxicity: This product contains Epichlorohydrin CAS# 106-89-8 (trace amount).

REACH Annex XIV (SVHC)
No listed components

REACH Annex XVII (Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles)
No listed components

REACH Status (EC 1907/2006): This material has been registered, pre-registered or is otherwise exempted from registration under the Registration, Evaluation and Authorization of Chemical Substances.

Chemical safety assessment
Not available

Section 16 - Other Information

HMIS ratings:
Health: **2**
Flammability: **1**
Reactivity: **0**

(Personal protective equipment selection is best assigned by the user after performing a hazard assessment on the product as it is to be used in the specific work process.)

Synonyms:
Phenol, polymer with formaldehyde, glycidyl ether;
Phenol-formaldehyde polymer, oxiranylmethyl ether;
Glycidyl epoxy Novolac resin.

Abbreviations
ACGIH American Conference of Governmental Industrial Hygienists
ADR
International carriage of dangerous goods by Road
AICS Australian Inventory of Chemical Substances
BfR Bundesinstitut für Risikobewertung recommendations for food contact materials
BCF Bioconcentration Factor
CERCLA Comprehensive Environmental Response, Compensation and Liability Act
CLP Classification, Labeling and Packaging regulation
DOT Department of Transportation
DSL Domestic Substances List
EINECS European Inventory of Existing Chemical Substances
ECL Existing Chemicals List (Korea)
ENCS Existing and New Chemical Substances Inventory (Japan)
EN 689 Workplace atmospheres – Guidance for the assessment of exposure by inhalation to

chemical agents for comparison with limit values and measurement strategy
ERG Emergency Response Guide
GHS Globally Harmonized System
HMIS Hazardous Materials Information System
IARC
International Agency for Research on Cancer
IATA

International Air Transport Association
ICAO
International Civil Aviation Organization
IDLH
Immediately Dangerous to Life and Health
IMDG
International Maritime Dangerous Goods
LD50 Lethal dose to 50% of test animal population
MAK Maximale Arbeitsplatz Konzentration
NOAEL No observable adverse effect level
NTP National Toxicology Program
OEL Occupational Exposure Limit
OSHA Occupational Safety & Health Administration
PBT Persistent, Bio accumulative and Toxic
vPvB Very Persistent and Very Bio accumulative
PEL Permissible exposure limit
PICCS Philippine Inventory of Commercial Chemical SubstanPNEC Predicted No Effect Concentration
REACH Registration, evaluation and authorization of chemical RID
International carriage of dangerous goods by Rail
SARA Superfund Amendments and Reauthorization Act
STEL Short Term Exposure Limit
SVHC Substance of Very High Concern
TLV
Threshold Limit Value
TSCA Toxic Substances Control Act
TWA Time Weighted Average
VOC Volatile organic compound
WGK Wassergefahrdungsklasse (Water Hazard Class)
WHMIS Workplace Hazardous Material Identification System

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