



**Section 1. Product and Company Identification**

**Product Name:** Tyfo® SW-1S, Component B  
**Supplier:** FyfeFRP LLC | 621 Lockhaven Drive. Houston, TX 77073 | +1 281.590.8491  
**Emergency Phone Number:** 800.424.9300 (CHEMTREC)  
+1 703.741.5970 (Outside the US)  
**Product Description:** Hardener for epoxy resin  
**Product Use:** For professional use only

**Section 2. Hazards Identification**

**Classification of the substance or mixture**

Acute toxicity / oral – Category 4  
Acute toxicity / dermal – Category 4  
Skin Corrosion/irritation – Category 1B  
Eye damage/irritation – Category 1  
Sensitization/skin – Category 1  
Acute toxicity / inhalation – Category 4  
STOT (SE) – Category 3  
Reproductive toxicity – Category 1  
Aquatic Acute – Category 1  
Aquatic Chronic – Category 1

**Label Elements:**



**Hazard Statement(s):**

H302 - Harmful if swallowed  
H312 Harmful in contact with skin  
H314 Causes severe skin burns and eye damage  
H317 May cause an allergic skin reaction  
H318 Causes serious eye irritation  
H332 - Harmful if inhaled  
H335 - May cause respiratory irritation  
H361f Suspected of damaging fertility or the unborn child  
H400 Very toxic to aquatic life  
H410 Toxic to aquatic life with long lasting effects

**Signal Word:** Danger

**Precautionary Statement(s):**

P261 - Avoid breathing vapors



- P264 - Wash hands thoroughly after handling  
P271 - Use only outdoors or in a well-ventilated area  
P272 - Contaminated work clothing must not be allowed out of the workplace  
P280 - Wear eye protection, protective clothing, protective gloves  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P302+P352 - If on skin: Wash with plenty of water  
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  
P337+P313 - If eye irritation persists: Get medical advice/attention.

### Section 3. Composition/ Information on Ingredients

Chemical Name	CAS-No	Weight %
Benzyl alcohol	100-51-6	15 - 40
4-nonylphenol, branched	84852-15-3	15 - 40
1, 2-diaminocyclohexane, mixture of isomer	694-83-7	3 - 7
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2	1 - 5
Tetraethylenepentamine	112-57-2	1 - 5

### Section 4. First Aid Measures

#### **First Aid Measures for Accidental:**

**General:** If exposed or concerned: Get medical advice/attention.

**Inhalation:** Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

**Ingestion:** Rinse mouth. Do not induce vomiting. Call a physician immediately.

**Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**Skin contact:** Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

#### **Most important symptoms/effects, acute and delayed:**

Symptoms/effects after ingestion: Burns.

Symptoms/effects after skin contact: Burns. May cause an allergic skin reaction.

Symptoms/effects after eye contact: Serious damage to eyes.

**Indication of immediate medical attention and special treatment needed:** Treat symptomatically.

### Section 5. Fire Fighting Measures

**Suitable Extinguishing Media:** Water spray. Dry powder. Foam. Carbon dioxide.

#### **Advice for Fire-fighters:**

**Protection during firefighting:** Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.



**Specific Hazards Arising from the Substance or Mixture:**

**Reactivity:** Combustible liquid. The product is non-reactive under normal conditions of use, storage and transport.

**Section 6. Accidental Release Measures**

**Personal Precautions, Protective Equipment, and Emergency Procedures:** Ventilate spillage area. No open flames, no sparks, and no smoking. Avoid contact with skin and eyes. Do not breathe dust, gas, fume, mist, spray, vapors. Do not attempt to take action without suitable protective equipment. For further information refer to section 8.

**Environmental Precautions:** Avoid release to the environment. Notify authorities if product enters sewers or public waters.

**Methods and Materials for Containment and Cleaning Up:** Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters. Dispose of materials or solid residues at an authorized site.

**Section 7. Handling and Storage**

**Precautions for safe handling:** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Do not breathe dust, fume, gas, mist, spray, vapors.

**Hygiene measures:** Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

**Conditions for safe storage including any incompatibilities:** Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.

**Section 8. Exposure Controls / Personal Protection**

**Control Parameters (Exposure Limits):** Not applicable for the ingredients.

**Appropriate Engineering Control:** Ensure good ventilation of the work station.

**Personal Protective Equipment:**

**Respiratory Protection:** In case of inadequate ventilation wear respiratory protection.

**Eye / Face Protection:** Safety glasses.

**Skin Protection:** Wear suitable protective clothing. Protective gloves

**Environmental exposure controls:** Avoid release to the environment.

**Section 9. Physical and Chemical Properties**

<b>Physical state:</b>	Liquid
<b>Color:</b>	Mixture contains one or more component(s) which have the following color(s): Colorless, Light yellow, yellow amber to red-brown.
<b>Odor:</b>	Mixture contains one or more component(s) which have the following odor(s): Fruity odor, Aromatic odor, Mild odor, Phenol odor, Amine-like



## TYFO® SW-1S, COMPONENT B

Odor threshold:	odor, Ammonia odor
pH:	No data available
Melting point:	No data available
Freezing point:	Not applicable
Boiling point:	No data available
Flash point:	No data available
Relative evaporation rate (butyl acetate=1):	> 74 °C Closed cup
Flammability (solid, gas):	No data available
Explosion limits:	Not applicable
Explosive properties:	No data available
Oxidizing properties:	No data available
Vapor pressure:	No data available
Relative density:	No data available
Relative vapor density at 20 °C:	No data available
Specific Gravity / density:	No data available
Solubility:	No data available
Log Pow:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity, dynamic:	No data available
Explosion limits:	No data available
Explosive properties:	No data available
Oxidizing properties:	No data available

**Section 10. Stability and Reactivity**

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

**Chemical Stability:** Stable under normal conditions.

**Possibility of Hazardous reactions:** No dangerous reactions known under normal conditions of use.

**Conditions to Avoid:** None under recommended storage and handling conditions (see section 7).

**Incompatible Materials / Chemicals:** No additional information available.

**Hazardous Decomposition Products:** Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Section 11. Toxicological Information****Information on toxicological effects:**

**Acute toxicity:** Oral: Harmful if swallowed. Inhalation: dust, mist: Harmful if inhaled.

**Tyfo® SW-1, Component B**

ATE US (oral) 1663.5610805584 mg/kg body weight

ATE US (dust, mist) 3.75 mg/l/4h

**Benzyl alcohol (100-51-6)**

LD50 oral rat 1620 mg/kg (Rat; Experimental value)

LD50 dermal rabbit > 2000 mg/kg (Rabbit; Inconclusive, insufficient data)



## TYFO® SW-1S, COMPONENT B

ATE US (oral) 1620 mg/kg body weight

ATE US (gases) 4500 ppmV/4h

ATE US (vapors) 11 mg/l/4h

ATE US (dust, mist) 1.5 mg/l/4h

**4-nonylphenol, branched (84852-15-3)**

LD50 oral rat 1882 mg/kg (Rat; Other; Experimental value; 1412 mg/kg bodyweight; Rat; Experimental value)

ATE US (oral) 1882 mg/kg body weight

**1, 2-diaminocyclohexane, mixture of isomers (694-83-7)**

LD50 oral rat 4556 mg/kg (Rat)

LC50 inhalation rat (mg/l) > 4.5 mg/l/4h (Rat)

ATE US (oral) 4556 mg/kg body weight

2,4,6-tris(dimethylaminomethyl)phenol (90-72-2)

LD50 oral rat 1200 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; 2169 mg/kg bodyweight; Rat; Experimental value)

LD50 dermal rat > 2000 mg/kg (Rat; Literature study; Other; >1 ml/kg; Rat; Experimental value)

ATE US (oral) 1200 mg/kg body weight

**Tetraethylenepentamine (112-57-2)**

LD50 oral rat 3990 mg/kg (Rat; Literature study; 3250 mg/kg bodyweight; Rat; Literature study)

LD50 dermal rabbit 660 mg/kg (Rabbit; Literature study; 660-1260 mg/kg bodyweight; Rabbit; Literature study)

ATE US (oral) 500 mg/kg body weight

ATE US (dermal) 660 mg/kg body weight

**Skin corrosion/irritation:** Causes severe skin burns and eye damage.

**Serious eye damage/irritation:** Not classified.

**Respiratory or skin sensitization:** May cause an allergic skin reaction.

**Germ cell mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Reproductive toxicity:** Not classified

**Specific target organ toxicity – single exposure:** May cause respiratory irritation.

**Specific target organ toxicity – repeated exposure:** Causes damage to organs through prolonged or repeated exposure (Dermal, Inhalation).

**Aspiration hazard:** Not classified

**Symptoms/effects after skin contact:** Burns. May cause an allergic skin reaction.

**Symptoms/effects after eye contact:** Serious damage to eyes.

**Symptoms/effects after ingestion:** Burns.

**Section 12. Ecological Information**

**Ecotoxicity:** Before neutralization, the product may represent a danger to aquatic organisms.



**SAFETY DATA SHEET**

**TYFO® SW-1S, COMPONENT B**

**Toxicity:**

Ingredients	LC50 Fish	EC50 Daphnia
benzyl alcohol (100-51-6)	460 mg/l (LC50; EPA OPP 72-1; 96 h; Pimephales promelas; Static system; Fresh water; Experimental value)	N/A
4-nonylphenol, branched (84852-15-3)	N/A	0.085 mg/l (EC50; ASTM E729-88; 48 h; Daphnia magna; Semi-static system; Fresh water; Experimental value) Algae: 0.027 mg/l (EC50; EPA OTS 797.1050; 96 h; Skeletonema costatum; Static system; Salt water; Experimental value)
2,4,6-tris (dimethylaminomethyl)phenol (90-72-2)	N/A	41.3 mg/l (LC50; 48 h; Daphnia magna) 84 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Scenedesmus subspicatus; Static system; Fresh water; Experimental value)
Tetraethylenepentamine (112-57-2)	420 mg/l (LC50; EU Method C.1; 96 h; Poecilia reticulata; Semi-static system; Fresh water; Experimental value)	24.1 mg/l (EC50; EU Method C.2; 48 h; Daphnia magna; Static system) Algae 1: 0.5 mg/l (NOEC; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum) Algae 2: 6.8 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum)

**Persistence and degradability:**

**Benzyl alcohol (100-51-6):** Readily biodegradable in water. Biodegradable in the soil. No (test) data on mobility of the substance available.

**4-nonylphenol, branched (84852-15-3):** Inherently biodegradable. Biodegradability in soil: no data available. Adsorbs into the soil. Photodegradation in the air.

**1, 2-diaminocyclohexane, mixture of isomer:** Biodegradability in water: no data available.

**2,4,6-tris (dimethylaminomethyl)phenol (90-72-2):** Not readily biodegradable in water. Highly mobile in soil. Low potential for adsorption in soil.

**Tetraethylenepentamine (112-57-2):** Not readily biodegradable in water. Highly mobile in soil. Low potential for adsorption in soil.

**Bioaccumulative potential:**

**Benzyl alcohol (100-51-6):** Low potential for bioaccumulation (Log Kow < 4).

**4-nonylphenol, branched (84852-15-3):** Potential for bioaccumulation (500 ≤ BCF ≤ 5000).

**1, 2-diaminocyclohexane, mixture of isomer:** Low potential for bioaccumulation (Log Kow < 4).

**2,4,6-tris (dimethylaminomethyl)phenol (90-72-2):** Low potential for bioaccumulation (Log Kow < 4).

**Tetraethylenepentamine (112-57-2):** Low potential for bioaccumulation (Log Kow < 4).



## TYFO® SW-1S, COMPONENT B

**Mobility in soil:****Benzyl alcohol (100-51-6):** Surface tension 0.04 N/m (20 °C)**4-nonylphenol, branched (84852-15-3):** Log Koc; >= 4.35 - <= 5.69; Experimental value; GLP**2,4,6-tris (dimethylaminomethyl)phenol (90-72-2):** Log Koc, SRC PCKOCWIN v2.0; 20.98; QSAR; log Koc; 1.32; Calculated value.**Other adverse effects:** No known ecological damage caused by this product.**Section 13. Disposal Considerations****Waste treatment methods:** Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.**Uncleaned packaging:** Do not re-use empty containers for food, clothing, or products for human or animal consumption, or where skin contact can occur. Dispose of container and unused contents in accordance with federal, state, and local regulations.**Section 14. Transport Information****US DOT:**

Proper Shipping Name:	Corrosive liquid, n.o.s. (4-nonylphenol, branched)
UN number:	UN1760
Hazard Class:	8
Packing Group:	III
Marine pollutant:	Yes
DOT Packaging Non Bulk (49 CFR 173.xxx):	203
DOT Packaging Bulk (49 CFR 173.xxx):	241
DOT Symbols:	G - Identifies PSN requiring a technical name
DOT Packaging Exceptions (49 CFR 173.xxx):	154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27):	5L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75):	60L
DOT Vessel Stowage Location:	A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other:	40 - Stow "clear of living quarters"

**IMDG**

Proper Shipping Name:	Corrosive liquid, n.o.s. (4-nonylphenol, branched)
UN number:	UN1760
Hazard Class:	8
Packing Group:	III

**IATA**

Proper Shipping Name:	Corrosive liquid, n.o.s. (4-nonylphenol, branched)
UN number:	UN1760
Hazard Class:	8
Packing Group:	III
Marine pollutant:	Yes
Limited quantities (IMDG):	5 L

**Section 15. Regulatory Information****Safety, health and environmental regulations/legislation specific for the substance or mixture****Federal Regulations:**

All ingredients are listed on the United States TSCA (Toxic Substances Control Act) inventory

**International regulations**

**Canada:** No additional information available

**EU-Regulations:** No additional information available

**National regulations:**

Quartz (14808-60-7): Listed on IARC (International Agency for Research on Cancer)

Titanium Dioxide (13463-67-7): Listed on IARC (International Agency for Research on Cancer)

**US State regulations:**

California - Proposition 65 – No ingredient regulated by CA Prop 65 present.

Tetraethylenepentamine (112-57-2): New Jersey - Right to Know Hazardous Substance List

**Section 16. Other Information****Key Legend Information:**

CAS: Chemical Abstracts Service  
IATA: International Air Transport Association  
ICAO: International Civil Aviation Organization  
IMDG: International Maritime Dangerous Goods  
NIOSH: National Institute for Occupational Safety and Health  
OSHA: Occupational Safety and Health Administration

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