



**Section 1. Product and Company Identification**

**Product Name:** Tyfo® HCR, 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 solution  
**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  
Acute toxicity / inhalation – Category 4  
Skin Corrosion/irritation – Category 1A  
Sensitization/skin – Category 1  
Eye damage/irritation – Category 1  
STOT (SE) – Category 3  
Reproductive toxicity – Category 1B  
STOT (RE) – Category 2  
Hazardous to the aquatic environment / short term hazard – Category 1  
Hazardous to the aquatic environment / long term hazard – Category 1

**Label Elements:**



**Hazard Statement(s):**

H302 - Harmful if swallowed  
H312 - Harmful in contact with skin  
H332 - Harmful if inhaled  
H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage  
H335 - May cause respiratory irritation  
H360f - May damage fertility or the unborn child  
H373 - May cause damage to organs through prolonged or repeated exposure  
H400 - Very toxic to aquatic life  
H410 - Very toxic to aquatic life with long lasting effects

**Signal Word:** Danger

**Precautionary Statement(s):**

P260 - Do not breathe dust/fume/gas/mist/vapors/spray



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P261 - Avoid breathing dust/fume/gas/mist/vapors/spray  
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 protective gloves, protective clothing, eye protection, face protection P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting P302+P352 - If on skin: Wash with plenty of soap and water  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing  
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER, a doctor  
P312 - Call a doctor, a POISON CENTER if you feel unwell P333+P313 - If skin irritation or rash occurs: Get medical advice/attention P363 - Wash contaminated clothing before reuse  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed P405 - Store locked up  
P501 - Dispose of contents/container in accordance with local, regional, national and/or international regulation

**Section 3. Composition/ Information on Ingredients**

Chemical Name	CAS-No	Weight %
1,2-Diaminocyclohexane, Cyclohex-1,2-ylenediamine	694-83-7	20 – 40
Ortho-sec-ButylPhenol	89-72-5	15 – 30
Benzyl alcohol	100-51-6	15 – 30
Benzenediamine,ar,ar-diethyl-ar-methyl	68479-98-1	10 – 25
4,4'-Isopropylidenediphenol	80-05-7	5 – 10
2-Hydroxybenzoic acid	69-72-7	1 – 5

**Section 4. First Aid Measures****First Aid Measures for Accidental:**

**General:** Call a physician immediately.

**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 with water. Do not induce vomiting. Consult a doctor/medical service if you feel unwell.

**Eye contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

**Skin contact:** Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. 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/injuries after inhalation: May cause respiratory irritation.

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

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

Symptoms/injuries after ingestion: Burns.



**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.

**Unsuitable Extinguishing Media:** Solid water jet ineffective as extinguishing medium.

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

For non-emergency personnel: Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray.

For emergency responders: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

**Environmental Precautions:** Avoid release to the environment.

**Methods and Materials for Containment and Cleaning Up:** Take up liquid spill into absorbent material. Dispose of materials or solid residues at an authorized site.

### Section 7. Handling and Storage

**Precautions for safe handling:** Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray. Wear personal protective equipment.

**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):

Chemical Name	ACGIH- TWA (mg/m <sup>3</sup> )
diethylenetriamine (111-40-0)	1 ppm, exposure limit 8 h; TLV - Adopted Value. URT & eye irr.

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

#### Personal Protective Equipment:

**Respiratory Protection:** If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.



**Hand protection:** Protective gloves.

**Eye / Face Protection:** Wear chemical safety goggles

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

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

## Section 9. Physical and Chemical Properties

<b>Physical state:</b>	Liquid
<b>Color:</b>	Pale red-orange
<b>Odor:</b>	Mild
<b>Odor threshold:</b>	No data available
<b>pH:</b>	No data available
<b>Melting point:</b>	No data available
<b>Freezing point:</b>	No data available
<b>Boiling point:</b>	No data available
<b>Flash point:</b>	>93 °C
<b>Relative evaporation rate (butyl acetate=1):</b>	No data available
<b>Flammability (solid, gas):</b>	No data available
<b>Explosion limits:</b>	No data available
<b>Explosive properties:</b>	No data available
<b>Oxidizing properties:</b>	No data available
<b>Vapor pressure:</b>	No data available
<b>Relative density:</b>	1.06
<b>Relative vapor density at 20 °C:</b>	No data available
<b>Solubility:</b>	Insoluble
<b>Log Pow:</b>	No data available
<b>Auto-ignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available
<b>Viscosity:</b>	No data available
<b>Viscosity:</b>	Not determined

## 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:** Not classified



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

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

LD50 dermal rabbit: &gt; 2000 mg/kg (Rabbit; Inconclusive, insufficient data)

ATE US (oral): 1620.000 mg/kg body weight

ATE US (gases): 4500.000 ppmV/4h

ATE US (vapors): 11.000 mg/l/4h

ATE US (dust, mist): 1.500 mg/l/4h

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

LD50 oral rat: 4556 mg/kg (Rat)

LC50 inhalation rat (mg/l): &gt; 4.5 mg/l/4h (Rat)

ATE US (oral): 4556.000 mg/kg body weight

**Section 12. Ecological Information****Ecotoxicity:** Before neutralisation, the product may represent a danger to aquatic organisms.**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)	-
Diethylenetriamine (111-40-0)	430 mg/l (LC50; EU Method C.1; 96 h; Poecilia reticulata; Semi-static system Fresh water; Experimental value)	64.6 mg/l (EC50; EU Method C.2; 48 h; Daphnia magna; Static system; Fresh water; Experimental value)
4,4'-Isopropylidenediphenol (80-05-7)	9.9 mg/l (LC50; 96 h)	3.9 mg/l (EC50; 48 h)

**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.Biochemical oxygen demand (BOD): 1.6 g O<sub>2</sub>/g substanceChemical oxygen demand (COD): 2.4 g O<sub>2</sub>/g substanceThOD: 2.5 g O<sub>2</sub>/g substance**1, 2-diaminocyclohexane, mixture of isomers (694-83-7):** Biodegradability in water: no data available.**diethylenetriamine (111-40-0):** Readily biodegradable in water. Readily biodegradable in the soil. Adsorbs into the soil. Low potential for mobility in soil. Photooxidation in the air.**4,4'-Isopropylidenediphenol (80-05-7):** Readily biodegradable in water. Forming sediments in water. Non degradable in the soil. Adsorbs into the soil. Photolysis in the air. Photodegradation in the air.**Bioaccumulative potential:****Benzyl alcohol (100-51-6):** Low potential for bioaccumulation (Log Kow < 4). Log Pow: 1-1.1, Experimental value; Other; 20 °C



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1, 2-diaminocyclohexane, mixture of isomers (694-83-7): Low potential for bioaccumulation (Log Kow < 4). Log Pow: 0.09 (Estimated value)

**Mobility in soil:**

Surface tension: 0.0 587-0.0589, 20 °C

Log Koc: log Koc, SRC PCKOCWIN v2.0; 2.65; QSAR

**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 liquids, n.o.s. (Alkaline Amine)

UN number: UN1760

Hazard Class: 8

Packing Group: III

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: 40 - Stow "clear of living quarters"

**TDG**

Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A - Epoxy Resin)

UN number: UN3082

Hazard Class: 9

Packing Group: III

**IATA**

Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. (Bisphenol A - Epoxy Resin)

UN number: UN3082

Hazard Class: 9

Packing Group: III

**Section 15. Regulatory Information****Safety, health and environmental regulations/legislation specific for the substance or mixture****Federal Regulations:****Benzyl alcohol:** Listed on the United States TSCA (Toxic Substances Control Act) inventory**1, 2-diaminocyclohexane, mixture of isomers:** Listed on the United States TSCA (Toxic Substances Control Act) inventory**Diethylenetriamine:** Listed on the United States TSCA inventory**4,4'-Isopropylidenediphenol:**

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Subject to reporting requirements of United States SARA Section 313

**International regulations****Canada:** No additional information available**EU-Regulations:** No additional information available**National regulations****Titanium Dioxide (13463-67-7):** Listed on IARC (International Agency for Research on Cancer)**US State regulations****Diethylenetriamine:** U.S. - New Jersey - Right to Know Hazardous Substance List**4,4'-Isopropylidenediphenol:** U.S. - 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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