



# Tyfo<sup>®</sup> HCR

## Chemical Resistant Coating/Surfacing

### DESCRIPTION

Tyfo<sup>®</sup> HCR is a two-component, fast curing, rigid epoxy coating with excellent resistance to strong acids and bases, organic acids such as acetic and lactic in moderate concentrations, steam and other chemicals in industrial environments. When seeded or blended with aggregate, the coating can be used on properly prepared concrete, steel or wood surfaces to provide surfaces with excellent slip/skid-resistance and wear characteristics.

### USE

Recommended as a coating and impact/slip-resistant surfacing in strong chemical environments, secondary containment, waste water treatment and sewer facilities.

### ADVANTAGES

- Resistant to strong acids/bases
- Bonds to properly prepared wet substrates
- Freeze/thaw resistant
- No VOC's

### COVERAGE

As a surfacing, approximately 25 to 40 sq. ft. /gal. (2.3 to 3.7 m<sup>2</sup>/3.79 L). As a 16 mil coating coverage is approximately 100 sq. ft. /gal. (9.3 m<sup>2</sup>/3.79 L).

### THICKNESS

Coating: 8 - 10 mil/coat, two coats minimum. Surfacing: Single or multiple coats @ 20 - 30 mil/coat.

### PACKAGING

Order in 15 or 150 gallons units (56.8 or 567.8 L).

### SHELF LIFE

Three years in the original, unopened package when stored at room temperature in a dry area away from sunlight. Note: Remixing of components may be required upon long-term storage.

### STORAGE CONDITIONS

Store at 40° to 80° F (4° to 27° C). Avoid freezing.

### CERTIFICATE OF COMPLIANCE

- Will be supplied on request, complete with state and federal packaging laws with copy of labels used.
- Material safety data sheets will be supplied upon request.

## HOW TO USE TYFO<sup>®</sup> HCR

### COLOR SELECTION

The standard color is concrete beige-gray. Brick red is an optional color and may require minimum quantities and/or slightly higher cost. Installed by FyfeFRP LLC trained and certified applicators.

### SURFACE PREPARATION

The composite surface to receive the Tyfo<sup>®</sup> A finish coating shall be free of any foreign substances at the time of installation. If used over Tyfo<sup>®</sup> Composites that have been allowed to cure for more than 72 hours, surface must be roughened for proper bond by light sanding or sandblasting.

### APPLICATION

Application temperature of the finish is 50° to 95° F (10° to 35° C). DO NOT THIN; solvents will prevent proper cure.

### SURFACE PREPARATION

Substrate surfaces must be clean, no free-standing water, sound and free of all bond-inhibiting substances. Prepare surfaces in accordance with industry standards and FyfeFRP LLC specific recommendations. Depending on the application, cleaned concrete surfaces should have a minimum strength ranging from at least 100 to 300 psi (689.4 to 2068.4 kPa) in direct tension. Steel surfaces should be cleaned to 'white metal' according to SSPC SP 5-63.

### MIXING

Tyfo<sup>®</sup> HCR resin to hardener (Part A to Part B) ratio is 2 to 1 by volume. Premix the individual components before drawing from bulk pack-aging. Wear safety glasses and clean neoprene gloves when handling the materials. Transfer appropriate quantities of Part A and Part B into a mixing container. Use quantities that can be applied before the potlife of the mixed material expires. Blend thoroughly using a Jiffy mixing blade attached to a low speed (350 to 750 rpm) electric or pneumatic drill. Proper mixing will take 2 to 3 minutes.

### APPLICATION

Apply with a stiff bruff, short nap roller, squeegee or airless, heatable, two-component spray. To avoid pin-holing when used as a coating, apply in two or more thin, 8 to 10 mil coats rather than one thick coat. The second coat may be applied as soon as the first coat is dry to the touch. When used as a chipseal, mixed material may be poured onto the substrate and spread to the desired coverage with a V-notched trowel or squeegee. Allow spread material to cure to a tacky to tack-free condition before applying the next coat. Avoid excessive cure times between coats. Aggregate must be broadcast into Tyfo<sup>®</sup> HCR within 20 minutes of applying the coating. The recommended aggregate size is 20 x 40 or 30 x 50 mesh. Typical aggregate broadcast rates are 0.75 to 1.5 lb./sq. ft.

### LIMITATIONS

Substrates must be properly prepared before applying the product. The minimum substrate temperature during application and cure is 50o F (10o C). To avoid out-gassing, apply the material after the daily substrate temperature cycle has reached its peak. Galvanized steel and aluminum are difficult substrates to coat and require special surface preparation. The information presented herein or the product may have been superseded, if considerable time has passed since the publication date. Check with FyfeFRP LLC for product availability and applicability of the present information.

Material Properties		
Property	ASTM Method	Typical Test Value
Weight/gal., lb. > Part A > Part B > Mixed	D2394	> 12.1 lb. > 8.4 lb. > 10.9 lb.
Viscosity, Poise > Part A > Part B > Mixed	D2393	> 110 > 7 > 35
Gel Time, 200g, minutes	D2471	35
Thin Film Set Time @ 73° F, hr		6 (touch dry) 16 (hard dry)
Recoat Time, hr @ > 73° F > 60° F > 90° F		> 4 to 24 hrs. > 8 to 72 hrs. > 2 to 10 hrs.
Tensile Strength	Thin Film Set Time @ 73° F, hr	Thin Film Set Time @ 73° F, hr
Elongation at Break	Thin Film Set Time @ 73° F, hr	Thin Film Set Time @ 73° F, hr
Compressive Strength	Thin Film Set Time @ 73° F, hr	Thin Film Set Time @ 73° F, hr
Compressive Modulus	Thin Film Set Time @ 73° F, hr	Thin Film Set Time @ 73° F, hr
Heat Deflection Temperature	Thin Film Set Time @ 73° F, hr	Thin Film Set Time @ 73° F, hr
Hardness, Shore D		
Bond Strength to Dump ASTM C-109 Mortar, psi, min.		

<sup>1</sup> Cure schedule: 7 days @ 73° +/- 4° F (23° +/- -16° ). Test temperature, 73° +/- 4° F (23° +/- -16° )

# CAUTION!

## FIRST AID

In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water; contact physician immediately. For respiratory problems, remove to fresh air. Wash clothing before reuse.

## CLEANUP

All tools and equipment must be cleaned before the mixed material cures. Cleaning can be facilitated with a locally approved solvent or heavy-duty detergents. Cured material may be removed from equipment and tools by soaking in an epoxy stripper.

## HANDLING AND TOXICITY

This data sheet does not always accompany the products when sold. For hazard warnings, first aid instructions, safe handling and disposal information, read carefully the material safety data sheets and container warning labels. Part A: Liquid epoxy resin, HMIS Health Hazard Rating - 2 (Moderate Hazard). Warning! Causes eye and skin irritation. May cause allergic reaction. Harmful if swallowed. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid prolonged or repeated contact with skin. Part B: Liquid epoxy hardener, HMIS Health Hazard Rating - 3 (Serious Hazard). Contains alkaline amines. Danger! Causes severe eye and skin burns. May cause allergic skin and respiratory reaction. Corrosive liquid. Do not get in eyes or on skin and clothing. Avoid breathing vapors. Keep container closed when not in use. Use only with adequate ventilation. Harmful if swallowed. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep away from heat source.

## SHIPPING LABELS CONTAIN

- State specification number with modifications, if applicable
- Component designation
- Type, if applicable
- Manufacturer's name
- Data of manufacture
- Batch name
- State lot number, if applicable
- Directions for use
- Warnings or precautions required by law

Not For Internal Consumption.  
Consult Material Safety Data Sheet  
(Msds) For More Information. Keep  
Out of Reach of Children. For  
Industrial Use Only.

## TYFO® HCR Performance

Chemical	Rating	Chemical	Rating
Acetic-5%	E	Lactic-10%	E
Acetic-10%	E	Lactic-50%	E
Acetic-10%	OS	Maleic-30%	E
Benzoic-sat. (3%)	E	Malic-40%	E
Butyric-10%	E	Nitric-10%	E
Chromic-10%	G	Nltric-25%	OS
Chromic-20%	NR	Oleic	E
Citric-50%	E	Oxalic-sat.	E
Cresylic	G	Perchloric-35%	OS
Diglycolic	E	Phosphoric-50%	G
Fatty	E	Phthalic	G
Fluoboric	OS	Phenol-5%	E
Formic-10%	G	Stearic	E
Heptanoic	E	Succinic-sat.	E
Hydrochloric-15%	E	Sulfuric-25%	E
Hydrochloric-37%	OS	Sulfuric-98%	NR
Hydrofluoric-10%	OS	Tannic-sat.	E
Hydrochlorous-5%	G	Tartaric-sat.	E
Acetone	OS	Hexane	E
Alcohol (methyl)	OS	Hydr. Peroxide-10%	E
Alcohol (others)	G	JPS Jet Fuel	E
Benzene	G	Juices-Fruit	E
Beer	E	Juices-Vegetable	E
Bromine	G	Lard	E
Brake Fluid-Oil Base	E	Linseed Oil	E
Brake Fluid-H . Duty	OS	Methyl Ethyl Ketone	OS
Butyl Acetate	OS	Methylene Chloride	NR
Carbon Tetrachloride	E	Milk	E
Castor Oil	E	Mineral Spirits	E
Coke	E	Naphtha	E
Corn Oil	E	Oils-Cutting	E
Cyclohexanc	OS	Oils-Mineral	E
Diacetone Alcohol	OS	Oils-Vegetable	E
Diesel Fuel	E	Perchlor	OS
Ethylene Glycol	E	Skydrol	G
Ether	G	Sugar	E
Formaldehyde	E	Toluene	NR
Fuel Oil	E	Trichlor	E
Gasoline	E	Turpentine	G
Gasohol	OS	Urea	E
G.P. Floor Cleaners	E	Vinegar-Household	E
Germicidal Solutions	E	Water	E
Glycerine	E	Xylene	OS

## Rating Definitions

- E** Excellent
- G** Good. Not suitable for long-term exposure
- OS** Suitable for occasional spills with an immediate cleanup
- NR** Not recommended

**Statement of Responsibility:** The technical information and application advice in this publication is based on the present state of our best scientific and practical knowledge. As the nature of the information herein is general, no assumption can be made as to the product's suitability for a particular use or application, and no warranty as to its accuracy, reliability or completeness, either expressed or implied, is given other than those required by State legislation. The owner, his representative or the contractor is responsible for checking the suitability of products for their intended use. Field service, where provided, does not constitute supervisory responsibility. Suggestions made by the FyfeFRP LLC, either verbally or in writing, may be followed, modified or rejected by the owner, engineer or contractor since they, and not the FyfeFRP LLC, are responsible for carrying out procedure appropriate to a specific application.