



# CHEM-FREEZER

## Two Component Sub-temperature Epoxy

### PRODUCT DESCRIPTION

Chem-Freezer is a two-component solvent free 100% solids, liquid epoxy binder system consists of epoxy resin and hardener formulated to cure at temperatures below 0°F (-18°C)

### FIELDS OF APPLICATION

Chem-Freezer is a clear liquid binder, which requires addition of dry silica sand as custom design, to produce a convention epoxy repair mortar for repairs of deep sections in concrete floors.

Due to the special formulation of Chem-Freezer epoxy system, which cures at temperatures below -18°C, the use of product is highly commendable in:

- Commercial Freezers.
- Cold Stores.
- Very cold winters at below -18°C temperatures where repairs to concrete must be accomplished.

Chem-Freezer is extremely used in cold stores, freezers of:

- Dairies and milk processing centers.
- Fisheries and meat processing centers.
- Bottling plants.
- Commercial freezers and cold stores.
- Food, fruit and vegetable cold stores.
- Repairs to any concrete member where temperatures are very low.
- Chem-Freezer works effectively at very cold temperatures where a conventional epoxy system does not cure and fails.

### PRODUCT FEATURES

- Two-component binder requires only addition of silica sand on site (custom design mixing) to suit the application.
- Excellent adhesion.
- Moisture insensitive.
- Bonds dissimilar materials in cold weather.
- 100% solids (solvent-free).
- Easy application.
- Low maintenance cost, as no requirement of bringing the freezer temperature to normal for repairs and maintenance of concrete.
- Cures at temperatures below -18°C.

### PACKAGING

Product	Packaging
CHEM-FREEZER	2 Gallon (7.57 Liters) Unit Part A: 1 Gal Can, Part B: 1 Gal Can
	10 Gallon (37.85 Liters) Unit Part A: One 5 Gal Pail, Part B: One 5 Gal Pail

### TECHNICAL DATA

#### Technical Data for Unmixed Parts

Property @ 25°C (77°F)	Resin Part A	Hardener Part B	Test Method
Solids	100%	100%	-
Color	Clear	Clear	-
Density, Lb/gal (Kg/L)	9.3 (1.12)	8.0 (0.96)	ASTM D1475
Shelf life	Two years	-	
Mix ratio A:B	1:1 by volume		-

#### Technical Data for Mixed Parts

Property (Mixed A & B)	Value @ 25°C (77°C)	Test Method
Density, Lb/Gal (Kg/L)	8.6 (1.04)	D-1475
Pot life (3 oz.)	6-8 minutes	C-881
Gel time (5 mil)	1-2 hours	N/A
Hardness (Shore)	65-D	D-2240
Tensile strength @ 7 days, Psi (MPa)	5140 (35)	D-638
Flexural strength@ 7 days, Psi (MPa)	4630 (31.5)	C-348
Compressive strength @ 7 days, Psi (MPa)	6680 (45.5)	D-695
Bond strength (24 hrs), Psi (MPa)	1610 (11)	C-882
Bond strength Moist (11 days), Psi (MPa)	1470 (10)	C-882
Elongation, %	35%	D-638
Water absorption (24 HRS), %	0.2%	D-570
Shrinkage	Passes	C-883
Thermal compatibility	Passes	C-884

#### Mixing with Silica Sand with 1 part of Chem-Freezer Binder:

System	Size	Ratio By volume	Kg/L
As repair mortar	Silica Sand	2 1/2 parts	1.60
	0.1-0.3mm 0.4-0.8mm	2 1/2 parts	
As Tile Adhesive	Silica Sand 0.1-0.3mm	3 parts	1.55
As Tile Pointing Mortar	Silica Sand 0.1-0.3mm	2 1/2 parts	1.50

#### Coverage:

Application	Coverage (Kg/mm/m <sup>2</sup> )
Primer	0.25
Repair Mortar (mixed with silica sand as above)	1.6
Tile Adhesive (mixed with silica sand as above)	1.55
Tile Pointing Mortar (mixed with silica sand as above)	1.5 gm/cm <sup>3</sup>

## APPLICATION DATA

### Limitations:

- ❑ Chem-Freezer is a cold temperature cure system. A very high exothermic reaction will occur during polymerization. When exotherm passes, the system must be cooled to the temperature of the freezer about 18°C.
- ❑ A potential of 110°C drop in temperature from peak exotherm to cold freezer will cause shrinkage.
- ❑ The system is an extremely fast curing system. Prepare all relevant requirements ready for installation prior to mixing.
- ❑ Do not inhale any vapors from the curing materials.

**Surface Preparation:** surface of application should be clean and sound. The surface must be free of any dust, oil, grease, laitance curing compounds or any other contaminants, which impairs bonding. The best results in adhesion are obtained on dry concrete. Do not apply on surfaces, which have been sealed with a permanent type of form oil, curing compounds or release agents. Remove these substances before applications.

**Mixing Procedure:** pre-condition the materials and sand to 24°C or less. Mix one part A with one part B by volume into a clean mixing container. Mix the epoxy with a slow speed drill fitted with mixing paddle attachment. Carefully scrape the sides and bottom of the pail during mixing.

- ❑ Mix only amounts that can be used within the pot life specified.
- ❑ When thoroughly mixed, add pre-weighed silica sands as per mix design given in the above table and stir with mechanical mixer for 2 minutes. Ensure the blend gives a uniform consistency.

### Application:

**As Repair Mortar:** the area to be filled must be at least 50-75 mm deep and 100-150 mm wide. Avoid feathered edges, saw cut the edges of repairs.

Use the clear binder as a primer and rub into the area to be repaired with a very thin coat using a brush and immediately after mixing the mortar, rush the mixture to the cold room and pack it into place with a trowel. Smooth the patch with a trowel until desired appearance is achieved.

For spalls deeper than 50 mm, heating of the area around the patch and into patch area is recommended.

**As Tile Adhesive:** this requires a very fast application technique. Pre-design the tile to be in place. Mixing smaller quantities per batch, proceed laying tiles as per standard procedure.

Spread the mixture onto the pre-treated area using a notched trowel to approx. 3 mm thickness uniformly. Lay the tiles and set them within the specified pot life period. Cured material may only be removed mechanically. Ensure the tiles are firmly placed into position. Clean the applicator tools in between batches using blended solvents.

**As Tile Pointing Mortar:** recommended method for pointing is to arrange the joints with masking tapes in order to prevent Chem-Freezer mortar spillage on the tiles.

Fill the joints to the desired level. Remove excess using a rubber wiper or putty knife. Remove masking tapes immediately upon completion of finishing works.

Non-colored rags wetted with blended solvents may be used to wipe off any material from the tile surfaces.

**Note:** make a test wipe on the tile with blended solvents for verification of color/glaze damages. If any damages to the color/glaze of tile surface avoid blended solvents.

**Curing:** the applied system should not be disturbed at least for a period of 6 hours.

**Note:** large batches of epoxy will cure much faster than small batches. Mixed epoxies will cure much faster in hot weather than in cold weather.

## CLEANING

Cleaning of tools, rollers, equipment, etc. can be efficiently carried out immediately after use, with CHEM-CRETE BLENDED SOLVENT, M.E.K. or other suitable solvents. Cured material may only be removed mechanically.

## STORAGE

The product can be stored for a minimum of twelve months at temperature from +10 °C to +35 °C in the unopened original packaging. Protect from direct sunlight.

## SAFETY PRECAUTIONS

### Health Precaution:

- ❑ Part 'A' – Irritant: Prolonged skin or eye contact may cause sensitization and irritation.
- ❑ Part 'B' – Irritant: Contact with skin or eyes may cause severe burns.

### First Aid:

**Skin Contact:** Wash thoroughly with soap and lukewarm water.

**Eye Contact:** Flush immediately with clean running water and contact a Physician.

**Respiratory Problems:** Remove affected person to fresh air immediately and contact a Physician.

**Hygiene:** Wash hands immediately after use. Wash clothing before re-use.

After full curing, the product is physiologically harmless. Keep the resin and hardener away from the eyes, mouth and skin. Do not inhale vapors. Uncured mixture can cause irritation of the skin. The best precaution is to wear safety protective gloves, overall, mask and goggles while working. Skin contamination should be immediately cleaned with soap and plenty of water. The use of solvents should be avoided. If resin or hardener splashes into the eyes, wash immediately with running water. A Doctor must be visited in all cases. Forced ventilation should be provided when working with solvents, etc.

## TECHNICAL ASSISTANCE

Please contact International Chem-Crete Corporation for Technical Personnel.

## WARRANTY

**LIMITED WARRANTY:** International Chem-Crete Inc. warrants that, at the time and place we make shipment, our materials will be of good quality and will conform to our published specifications in force on the date of acceptance of the order.

**DISCLAIMER:** The information contained herein is included for illustrative purposes only and, to the best of our knowledge,

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**Manufactured By:**



International Chem-Crete Inc., 800 Security Row, Richardson, TX 75081, U.S.A  
Tel: (972) 671-6477, Fax: (972) 238-0307  
[contactus@chem-crete.com](mailto:contactus@chem-crete.com)    [www.chem-crete.com](http://www.chem-crete.com)