



## Polyurethane Cement Flooring System

### PRODUCT DESCRIPTION

Thermal-Chem's **ThermalCrete** is three (3) component polyurethane cement flooring system for medium to heavy-duty use interior applications. Its chemical composition of water emulsified polyurethane combined with cement and silica sand, produce properties that exceed those of concrete while delivering the ultimate resistance to thermal shock and the ability to withstand high temperatures up to 230°F. These properties when combined with excellent chemical resistance, impact resistance and zero VOC's makes Thermal-Chem's polyurethane cement flooring system the preferred choice for virtually all heavy-duty industrial or commercial flooring applications.

ThermalCrete may be applied as a slurry broadcast system or as a troweled system. Typical thickness is ¼"

### ADVANTAGES

- Superior surface protection
- Excellent resistance to thermal shock
- Extremely durable and long wear
- Easy to clean
- Chemical resistant
- Customizable surface profile
- All products are 100% solids and VOC compliant
- Moisture insensitive
- All products are Green
- Can be installed with an integral cove base

### TYPICAL USES

- Floors subjected to cleaning with high temperature water
- Industrial/Commercial kitchens
- Floors subjected to impact and abrasion
- Food processing facilities
- Meat, poultry and dairy processing facilities
- Bakeries

### LIMITATIONS

- Concrete slab on grade or below-grade requires vapor/moisture testing. If a vapor drive in excess of 5 lbs. per 1,000 sq. ft. per 24 hours (ASTM F 1869) is present, an epoxy vapor barrier coating must be installed below the solid seeded system for proper performance.
- Do not install system if the ambient temperature and/or concrete substrate temperature is below 40° F or above 90° F. Product cure times are significantly affected by temperatures and can have a major affect on working time

- Allow ThermalCrete to cure for 24 hours prior to exposure to water and 2 days before the use of cleaning chemicals
- Direct sunlight will cause discoloration
- Must precondition materials to 70° F when installing below 55° F

### PHYSICAL PROPERTIES

<b>Color</b>	To be selected
<b>Pot Life Mixed @ 72° F.</b>	20 Min.
<b>VOC</b>	Compliant
<b>Cure Rate @72° F</b>	Dry to touch: 3 hrs Foot Traffic: 5 hrs Full Service: 24 hrs
<b>Hardness, Shore D</b> ASTM D 2240	76-82
<b>Tensile Strength</b> ASTM D 638	1040 psi
<b>Compressive Strength</b> ASTM C 579	7200 psi
Density ASTM C 905	130 lbs.
<b>Adhesion</b> ACI 503R	350 psi (100% concrete failure)
<b>Coefficient of Friction</b> ASTM F 1679 (dry)	0.90 @ medium texture
<b>Thermal Compatibility</b>	Passes

ASTM C = Mortar System  
ASTM D = Resin only

### COLOR

Available in three (3) standard colors – Tile Red, Pewter Gray (Medium) and Charcoal Gray (Dark Gray) utilizing powder pigment or sixteen (16) colors using universal colorant. Matte and Gloss topcoats available

### OPTIONS

- Various texture degrees ranging from smooth, medium, to aggressive can be achieved. The contractor should submit a texture sample and sign off approval by customer should occur before installation.

- EXPANSION AND CONTROL JOINTS MUST BE TREATED TO ALLOW FOR MOVEMENT.
- Prior to installation, different methods of treatment and repair should be discussed and agreed to by the manufacture and end user.
- A cove base can be installed to provide an integral seal between the floor and wall surfaces. Cove bases should be specified by height and length and radius prior to installation.
- Deteriorated concrete should be repaired to achieve a smooth level surface.
- Colored Quartz granules may be broadcast into the slurry system and top coated with a clear material.

### SURFACE PREPARATION

New concrete should be cured a minimum of 28 days. The substrate must be dry, clean, and sound. All surface contaminants such as dirt, oil, grease, paint, fats, wax, and concrete laitance should be removed. Proper surface preparation is essential for proper adhesion. Scarify at 1/16" to 1/8" in two directions **OR** abrasive blast the surface to remove all laitance and surface contaminants and saw-cut a grid of 1/8" deep grooves every 12" over the entire surface. Pre-fill all small voids that may trap air and cause bubbles. Refer to the Thermal-Chem Surface Preparation Guide # 2001-G for additional surface preparation information.

### SYSTEM INSTALLATION

#### SLURRY

Mix One (1) Gallon of part A, one (1) Gallon of part B and 54 lbs of part **C (Crete Slurry # 8A Product A111)** aggregate. Each part is pre-measured.

Slowly premix Part A separately for 1 minute. Mix Part A and Part B thoroughly for 1 minute at slow speed to avoid creating a vortex. Add the pre-measured dry pigment packs or universal pigment. Then slowly pour Part C into Mixed A and B while mixing at slow speed to avoid creating a vortex which incorporates air into the mix. Do not mix more material than can be applied in 15 – 20 minutes. Apply with a gauge rake or screed. A Slurry mix will cover 40 sq. ft. at 3/16" depth. Spike roll or loop roll to aid self-leveling and to remove air. Broadcast to rejection, by hand or mechanical means TC A-108 silica sand for a medium texture or TC A-110 silica sand for an aggressive texture. Broadcast in a manner so the sand rains down on the material to prevent clumps and unevenness in the floor. Remove excess silica sand when cured. Apply topcoat (See Topcoat Installations instructions below)

Note: If installing on a pitched-to-the-drain floor, add up to 5 lbs. of A 104 Slurry Silica #4 sand to prevent slumping.

#### TROWEL (OPTIONAL INSTALLATION)

Mix One (1) Gallon of part A, one (1) Gallon of part B and (2) two 64 lb. bags of part **C (Crete Trowel # 9A Product A112)** aggregate. Each part is pre-measured.

Slowly premix Part A separately for 1 minute. Mix Part A and Part B thoroughly for 1 minutes. Do not mix at high speed and incorporate air into the mix. Add pre-measured dry pigment packs or the universal colorant. Then slowly pour Part C into Mixed A and B while mixing. Do not mix more material than can be applied in 15 – 20 minutes. Pour out some mixed Part A and B (before adding Part C) and prime at 200 sq. ft. per gallon. Screed material and hand trowel at 1/4". A Trowel mix will cover 46 sq. ft. at 1/4". Apply topcoat. (See Topcoat Installations)

#### TOPCOAT

Mix One (1) Gallon of part A, one (1) Gallon of part B and 12 lbs of part **C (Crete Top Coat # 10 Product A113)** aggregate. Each part is pre-measured.

Slowly premix Part A separately for 1 minute. Mix Part A and Part B thoroughly for 1 minute at slow speed to avoid creating a vortex. Add the pre-measured dry pigment packs or universal pigment. Then slowly pour Part C into Mixed A and B while mixing at slow speed to avoid creating a vortex which incorporates air into the mix. Do not mix more material than can be applied in 15 – 20 minutes. Apply the Two (2) gallons and 12 lb. mix at minimum of 200 sq. ft. with squeegee and back roll with a loop roller. Apply aluminum oxide and back roll if additional texture is required.

The finished floor will exhibit a matte finish. Should a gloss finish be required, apply Thermal-Chem ArmorTop # 789, a Novalac epoxy, at 100 sq. ft. per gallon.

#### FINISHED TEXTURE

Texture is typically achieved through a combination of quartz granule sizes, how aggressively the cured floor is sanded prior to applying a topcoat and the thickness and number of topcoats.

One of Thermal-Chem's aluminum oxide sizes (fine, medium, coarse or extra coarse) may be use to enhance an aggressive texture. The use of approximately 3 pounds per 100 sq. feet may be broadcast into the top coat and back rolled while still wet.

**CLEANUP**

Clean up mixing and application equipment immediately after use. Use xylene and be careful to observe all fire and health precautions when handling or storing solvents.

Safe and proper disposal of excess materials shall be done in accordance with applicable federal, state, and local codes.

**SYSTEM MAINTENANCE**

**GENERAL CARE**

If the coating is gouged, it should be patched immediately. Always clean up chemical spills to avoid possible staining. Refrain from dragging heavy loads or equipment across the floor surface.

**CLEANING SCHEDULE**

Floors should be swept, washed down and mopped on a daily basis. Heavy soil load environments may require auto scrubbing. Dirt, grease, oil, spills, and other surface contaminants represent a safety issue and should be addressed by a regular floor-cleaning schedule. Facility soil loads, safety and appearance, all contribute to frequency and what type of cleaning is required. Consult Thermal-Chem's Care and Maintenance Guide for polymer floor systems.

**DISCLAIMER**

The data on this sheet represent typical values obtained by the methods indicated. Since application variables are a major factor in product performance, this information should serve only as a general guide. Such information and recommendations are subject to change and pertain to the products(s) offered at the time of publication. Published technical data is subject to change without notice.

**SYSTEM APPLICATION CHART**

	Material	Mix Ratio	Theoretical Coverage	Packaging
<b>1<sup>st</sup> Coat and Broadcast</b>	ThermalCrete #1030 with 54 lbs. of Slurry Crete # 8A	1:1	1 mix will cover 38-40 sq. ft. at 3/16"	2, 4 or 10 gal units
	Broadcast Sand		.5 to .75lbs / sq. ft.	50 lb bags
<b>Top Coat</b>	ThermalCrete #1030 with 12 lbs of Crete Top Coat # 10	1:1	200 sq. ft. minimum coverage per mix.	2, 4 or 10 gal units

Note: If additional texture is required broadcast Aluminum Oxide A-120 Coarse into the topcoat at the rate of 3 lbs. per 100 sq. ft. and back roll.

May 10, 2017