

## DESCRIPTION

PolySpec 7K Deck Top Insulation is a trowel-applied magnesium oxychloride cement compound containing ultra-lightweight aggregate particles, with built-in insulation and fire resistance properties. PolySpec 7K meets the requirements of the United States Coast Guard for an A-60 deck at 1.35" (34 mm) and conforms to parts 1 and 3 of the IMO FTP Code. This product provides an outstanding combination of thermal insulation and fire protection qualities. PolySpec 7K is an excellent underlayment for most finished deck covering systems.

Coast Guard Approval Number 164.105/5/0

## TYPICAL APPLICATION

• Grip Bond System	408 Emulsion and AC Compo @ 3/32" thickness
• Body Coat	PolySpec® 7K @ 1.35" thickness

## PERFORMANCE DATA

Indentation (MIL-D-23134, MIL-D-18873) ..... Does not exceed 4.5% of recommended thickness – no cracking or detachment

Impact Resistance (MIL-D-23134, MIL-D-18873) ..... Less than 0.125" (1/8") Permanent indent, no chipping, cracking or detachment

Adhesive Strength (MIL-D-23134, MIL-D-18873) ..... >50 psi

Water Absorption ..... <20%

Compressive Strength ..... 2,000 psi

Thermal Conductivity (K Value) (ASTM C 177) ..... 0.65 BTU/sq ft/hr/°F/1"

Fire Resistance (IMO Res. MSC.61(67), IMO FP 44/18) .... Non-Combustible

Fire Rating (IMO Res. A.754 (18)) ..... A-60

Weight (MIL D 23134, MIL D 18873) ..... 3.41 lbs/sq.ft @ 1" thickness

## STORAGE & INSTALLATION

Storage Environment ..... Dry area, 65–80°F

Application Temperature, ambient ..... 50–85°F

Application Temperature, substrate ..... Minimum 5°F above dew point

Service Temperature ..... Maximum 150°F

Shelf Life ..... 12 months

Foot Traffic, @ 77°F ..... 36 hours

Full Service, @ 77°F ..... Minimum 7-10 day cure per inch applied

*Material cures more slowly at cooler temperatures, and working time will be substantially reduced at higher temperatures. In hot weather, material should be cooled to 65°F to 80°F prior to mixing and application to improve workability and avoid shortened pot life. The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result.*

## CONSIDERATIONS & LIMITATIONS

1. Vehicles with rubber tires should not be parked on coating within 36 hours of installation.
2. Floors should be sloped to drain to prevent standing water or chemicals. As with any surface, all spills should be removed as soon as possible to prevent a slipping hazard.
3. Confirm product performance in specific chemical environment prior to use.
4. Prepare substrate according to "Surface Preparation" portion of this document.
5. Always use protective clothing, gloves and goggles consistent with OSHA regulations during use. Avoid eye and skin contact. Do not ingest or inhale. Refer to Material Safety Data Sheet for detailed safety precautions.
6. For industrial/commercial use. Installation by trained personnel only.

# PolySpec® 7K

TECHNICAL DATA SHEET

## Deck Top Magnesite Insulation

### BENEFITS

- "K" Factor of 0.65
- Levels and smoothes uneven decks
- Very light weight insulation
- High compressive strength
- Spark proof
- Sound deadening characteristics
- Nailable
- Easily repairable

### RECOMMENDED USES

- Decks and floors exposed to wide variations in temperature
- Oil tankers over bulk fuel tanks
- Insulate the living quarters of offshore rigs
- For applications requiring A-60 fire boundary
- Shipboard applications over mechanical spaces

### GENERIC DESCRIPTION

Magnesium oxychloride cement

### PACKAGING / COVERAGE

#### PolySpec® 7K Body Coat

7K Compo 35 - Pound Bag / 7.5 sq. ft

Magnesium

Chloride Flakes 50 - Pound Bag / 25 sq. ft

#### PolySpec® GRIP Bonding System

408 Emulsion

5 - Gallon Unit / 300 sq. ft

AC Compo

40 - Pound Bag / 50 sq. ft

## SURFACE PREPARATION

**Steel:** For steel surfaces, a "Near White Metal" ultra high-pressure wash or abrasive blast with anchor profile of 2-4 mils in accordance with Steel Structures Painting Council Specification SP-10 or NACE No. 2 is required.

## PRECAUTIONS

1. Never install in direct contact with white metal, such as aluminum, magnesium, etc., as an electrolytic reaction will occur that will corrode the metal and damage the deck. If this product is to be installed over an aluminum deck, always apply a bond coat of PolySpec GRIP, using 408 Emulsion.
2. Do NOT attempt to reactivate PolySpec 7K once it starts to set.
3. When applying PolySpec 7K in a wet environment, be certain to install PolySpec DEK Waterproof Membrane, or other PolySpec approved membrane and a seamless finish deck coating to keep water from coming in contact with the 7K. The system can withstand intermittent wetting. Avoid high exposure to water, such as in wet spaces or exterior installations.

## INSTALLATION STEPS

1. **Preparation of Magnesium Chloride Gauging Solution:** The magnesium chloride flakes generate a small amount of heat when dissolved in water and where possible, should be mixed the day before, to allow it to cool down. The magnesium chloride must always be mixed with fresh water ... NEVER USE SALT WATER. It is important to note that not all magnesium chloride is "the same". Even within the same geological deposit there can be a significant chemical difference.

*NOTE: If the chloride solution is used while warm, the material will set too quickly. This will prevent proper finish troweling of the system. There are magnesium chlorides that contain a higher proportion of lithium, which can significantly accelerate the setting time of the magnesium oxide and other physical properties as well.*

2. Use a clean, lined, open top, 55 gallon drum (208 liters). Pour three 50 lbs. (22.7 kgs.) bags of magnesium chloride flakes into the drum filled approximately 3/4 full of fresh water. Stir until all the flakes are

thoroughly dissolved. Measure the density of the gauging solution. From this, the solution is adjusted accordingly. The desired density of the solution is 22° Baume, 40-42% by weight of magnesium chloride solution. A Baume Hydrometer is used for gauging liquids that are heavier than water. If the reading is higher, water is added and, if it is lower, additional magnesium chloride must be added. The final solution strength must be 22° Baume, plus or minus 0.5°.

*Note: If the Baume reading is higher than 22°, it will cause the material to set too fast and will make finish troweling almost impossible. If the reading is lower than 22° Baume, the finished product will be hard and brittle, will crack badly and will wear prematurely.*

3. **The GRIP Bonding system:** Two 40 lbs. bags of AC Compo should be mixed with 1 3/4 - 2 gallons of 408 Emulsion. It is suggested that about 1-1/2 gallons of the emulsion be poured into the mixing container (20 gal.) with the powder being added to the liquid. A mechanical drill mixer is recommended. The balance of the emulsion should then be added and the resulting mix should be flat troweled tight to the deck leaving a coarse, open surface and making certain that it is not excessively thick. Immediately after troweling, a coarse, stiff bristle broom should be passed over the surface to provide furrows that produce the proper surface texture. This material should be allowed to dry overnight before applying the PolySpec 7K body coat.
4. **The PolySpec 7K Bodycoat:** Mix material in an area that is sheltered from wind. The dry components are lightweight and can easily be dispersed into the air during mixing. It is recommended that an appropriate dust mask be worn by personnel involved in the handling and mixing of the materials.

A three cubic foot mechanical mortar mixer or mortar box is recommended for mixing. In both cases add the 7K Compo to the magnesium chloride solution until the mixture has the proper troweling consistency. Proper troweling consistency is achieved by filling a container, a quart works well, with the mixed material and turning it upside down on a flat surface. The contents will slump to 1/2 the height of the container from which it came.

Remove the thoroughly mixed PolySpec 7K from the mixing unit and spread onto the prepared deck with a flat trowel, scratching the mix well into the surface to ensure a proper bond.

5. Let the PolySpec 7K take its initial set before doing additional work. The approximate time is 2 to 4 hours at 70°F (21°C). High temperatures reduce this time and lower temperatures increase it. The surface is then flat troweled to a level smooth plane.
6. After the initial set, the finish troweling is accomplished. The installer, working on knee boards with the bolts pointing upward and holding the trowel at an angle to the surface, hard trowels the surface and removes the "frieze", which is a slight foaming, and produces a smooth even grained finish. If the finish blisters during this operation, it is being troweled too soon and more setting time should be allowed.

If the PolySpec 7K begins to take its final set before the "hard" troweling operation is complete, the finished deck system will be too open and porous. It is important to watch the set of the deck covering carefully to avoid this condition. In cool weather, the set time will be slower.

*Note: Allow the 7K decking system to cure for 6 to 8 days before a finished decking material is installed over surface. High humidity conditions prevent the moisture from evaporating into the air and retard the drying, while low humidity helps speed up the drying process.*

7. Equipment can be cleaned with water. Do not let material harden on equipment, as it will be most difficult to remove.

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