



H2

Two-Component, Polymer-Modified Patching Mortar

DESCRIPTION

H2 is a two-component, polymer-modified, portland cement mortar. **H2** is a fast setting patching material for surface repairs from feather edge to 1" neat and up to 4" extended, in both interior and exterior applications. **H2** exhibits superior workability by maintaining a smooth, creamy consistency for easy troweling. **H2** has been specifically formulated to provide excellent workability through a range of consistencies. This versatility from putty consistency to more fluid allows for a wide range of concrete repairs from basic patching to topping and resurfacing.

USES

H2 is ideal for a wide variety of horizontal concrete surface repairs:

- Surfaces subject to severe freeze/thaw cycles
- Refinish old concrete and masonry surfaces
- Parking garages, ramps, warehouses, loading docks and all structural surface repair
- Fill in pits, voids and defects in concrete and masonry

BENEFITS

- Thermal expansion similar to concrete
- Open to foot traffic in 4 hours and pneumatic tire in 12 hours
- Color: Consistent color match for concrete
- High bond, compressive strengths
- Interior and exterior applications
- Non-Corrosive: Will not rust
- Consistent: Strict Quality Control testing and standards

SURFACE PREPARATION

All surfaces in contact with **H2** shall be free of dirt, oil, grease, laitance and other contaminants that may act as bondbreakers. All unsound concrete should be removed to ensure a good bond. Smooth, dense surfaces need to be mechanically abraded to provide necessary bonding requirements. Mechanically prepare the substrate to a minimum CSP 5 following ICRI Guideline 310.2R to allow proper bonding. ACI recommends the area to be patched should be saturated for 24 hours before placement. Remove any standing water. Surface should be saturated, surface dry (SSD). Scrub some of the mixed components into the prepared surface. Do not allow scrub coat to fully dry before placement.

For best results on extremely porous or absorbent concrete, **US SPEC Multi-55** may be used as a bonding agent. Apply with a low pressure sprayer, brush or roller at a rate of 300 ft²/gal (27.9 m²/3.8 L) when diluted 1:1 with cool, clean potable water. A hand held pump sprayer or an airless industrial sprayer is acceptable. Apply evenly without puddling. Allow **Multi-55** to fully dry prior to placing patch. Always apply a test patch. Maintain contact areas between 40°F (4°C) and 90°F (32°C) prior to repair and during initial curing period.

MIXING

For best results, use a mechanical mixer with rotating blades or use a heavy duty 1/2" (15 mm) (or larger) low-speed, corded drill and mixing paddle #6 per ICRI Technical Guideline 320.5R. Pre-wet mixer and empty excess water. Place 3/4 of the maximum 4.0 quarts of **US SPEC Dura** in mixer, then add dry material. A stiffer to non-sag mix is achieved by using less **Dura**. Mix on low RPM for a total of 3 to 5 minutes, adding the remaining **Dura** until a homogeneous mixture is achieved. Mix only enough material that can be placed within working time. For placements greater than 1" depth, **H2** must be extended 30% by weight of powder, with clean, washed and dried 3/8" (1 cm) pea gravel. Do not blend excess water as this will cause bleeding and segregation. Do not use any other admixtures or additives.

PLACING

H2 should be placed upon completion of mixing. Place material consistently, avoiding any air entrapment. Trowel material onto the surface to be repaired, ensuring that all pores and voids are filled. Force material against edge of repair, working away from center. After leveling, the patch can be troweled, brushed or broomed to the desired finish. When material has reached the proper set, it can be shaved, shaped or molded with a steel trowel. Multiple lifts can be applied. Each lift should be between 1/8" and 1" thick. Profile or roughen each lift to ensure a good bond. Screed or float to finished elevation.

FINISHING & CURING

Follow standard ACI curing practices, with the exception of ponding immersion and fogging in temperatures below 50°F (10°C). Exposed surfaces should be cured with a membrane forming curing compound such as **US SPEC Maxcure Resin Clear**, **US SPEC Hydrasheen** or **US SPEC Hydrasheen 30%**.

STORAGE

Normal cement storage and handling practices should be observed. Store material in an interior, cool, dry place. Shelf life is one year in original, unopened container.

LIMITATIONS

In addition to limitations already mentioned, please note the following. Protect **H2** from moisture intrusion for the first 24 hours after application. Do not apply when the surface or ambient temperature is below 40°F (4°C) or expected to fall below 40°F (4°C) within 48 hours. Do not apply over surfaces that are frozen or contain frost. Do not apply over any active faults or cracks in the substrate without addressing any movement that may occur. Allow concrete to fully cure for 28 days before the use of this product. Setting time will speed up in hot weather and slow in cold weather. For hot and cold weather applications, contact your US SPEC manufacturer's representative.

**H2****Two-Component, Polymer-Modified Patching Mortar****PHYSICAL PROPERTIES**

All Physical Property testing performed in laboratory conditions of 73.5 ± 3.5°F (23 ± 2°C) and a relative humidity no less than 50% unless otherwise determined by the test method or specification. All results represent H2 with 4.0 quarts of US SPEC Dura unless listed otherwise. Tests are conducted under standardized conditions for comparative purposes, and results may not be representative of performance under field conditions.

Property and Test Method	Results		
Compressive Strength ASTM C109	1 Day	7 Days	28 Days
	2,000 psi (13.78 MPa)	3,000 psi (20.68 MPa)	5,000 psi (34.47 MPa)
Rate of Set ASTM C266	Working Time	Initial	Final
	1:00	1:20	2:00
Flexural Strength ASTM C78	1 Day	28 Days	
	1,000 psi (6.89 MPa)	1,500 psi (10.34 MPa)	
Density ASTM C138	135 lb/ft ³ (2,162 kg/m ³)		
Length Change ASTM C157	28 Day Air	28 Day Water	
	(-)0.07%	(+)0.13%	
Modulus of Elasticity ASTM C469	3.27 x 10 ⁶ @ 28 days (22.59 GPa)		
Freeze/Thaw Resistance ASTM C666	F/T Cycles	Durability	
	300	97%	
Scaling Resistance ASTM C672	Age	Scaled Material	
	25 Cycles	.005 kg/m ²	
Bond Strength ASTM C882	1 Day	28 Days	
	1,400 psi (9.65 MPa)	2,500 psi (17.23 MPa)	
Flow ASTM C1437	5 Minutes	15 Minutes	
	>100%	>100%	
Coefficient of Thermal Expansion CRD C39	6.6 x 10 ⁻⁶ in/in°F (11.8 x 10 ⁻⁶ cm/cm°C)		

DANGER

This product contains Crystalline Silica (CAS# 14808-60-7) and Portland Cement (CAS# 65997-15-1). Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation. Causes damage to organs through prolonged or repeated exposure. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.

**WARNING:** Cancer and Reproductive Harm -
www.P65Warnings.ca.gov
FIRST AID

If swallowed: Immediately call a poison center/doctor. Rinse mouth. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

MANUFACTURER/TECHNICAL SERVICE

Contact your US SPEC manufacturer's representative for the most current product information. Always read and follow the warnings and instructions on the most current technical data sheets, available online at www.usspec.com.

US MIX Co.
112 South Santa Fe Drive
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Web Site: www.usspec.com

NOTICE OF LIMITED WARRANTY US MIX Co. (manufacturer) warrants to buyer that this product at the time and place of shipment is of good quality and conforms to the manufacturer's specifications in force on the date of manufacture when used in accordance with the instructions hereon. Manufacturer cannot warrant or guarantee any particular method of use, application or performance of the product under any particular condition. This limited warranty cannot be extended or amended by manufacturer's sales people, distributors or representatives or by any sales information, specifications of anyone other than the manufacturer. Liability under this warranty is expressly limited to refund of the purchase price. See product packaging for complete limitation of warranties and liability.

Yield: 50 lb (22.7 kg) will fill approximately 0.43 ft³ when mixed with 4.0 quarts US SPEC Dura.