

PRODUCT DESCRIPTION

Stonchem 441 is a 100% solids polyurea-polyurethane hybrid lining system applied at a nominal thickness of 0.75 to 3.0 mm, depending on conditions of use. This immersion grade lining provides a durable, flexible, waterproof membrane that can withstand significant impact and abrasion. This system can be applied over a broad range of substrates and in varied environmental conditions. Stonchem 441 has very good resistance to petroleum products, caustics and moderate concentrations of acids.

USES, APPLICATIONS

- Wastewater treatment/storage
- Secondary containment areas
- Bulk tank farms
- Waterproofing
- Tank liners
- Scrubber decks
- Chutes
- Mechanical rooms
- Parking structures
- Helicopter decks
- Refrigerators/freezers
- Truck loading ramps
- Flexible deck flooring
- Mezzanines
- Interior walls and ceilings
- Laboratories

PRODUCT ADVANTAGES

- 100% solids (solvent-free)
- Optional non-skid surface
- Superior abrasion resistance
- Seamless and monolithic
- Suitable for a broad range of substrates
- Water tight
- Can be applied in cold environments
- Excellent crack bridging capabilities

CHEMICAL RESISTANCE

Stonchem 441 is formulated to resist a variety of chemical solutions. Refer to the Stonchem 400 Series Chemical Resistance Guide, which lists reagent concentration and temperature recommendations.

PHYSICAL CHARACTERISTICS

Tensile Strength (ASTM D-638)	19 N/mm ²
Hardness (ASTM D-2240, Shore D)	50
Abrasion Resistance (ASTM D-4060, CS-17)	0.035 gm max. weight loss
Elongation (ASTM D-638)	125%
Low Temperature Flexibility Test (ASTM D-522)	-23°C Pass
Flammability (ASTM D-648)	Class I
VOC (ASTM D-2369, Method E)	< 1 g/l
Cure Rate	8 hours for foot traffic 24 hours for chemical or immersion
Color	Light Gray

Note: The above physical properties were measured in accordance with the referenced standards. Samples of the actual system, including binder and filler, were used as test specimens.

PACKAGING

Stonchem 441 is supplied in pre-measured 3, 15 and 150 gallon units for application with 2:1 ratio, plural component spray equipment.

Each unit consists of:

Stonchem 441

3 gallon unit:

- (1) 3.5 gallon pail containing 2 gallons of Polyol/Amine
- (1) 1 gallon can of Isocyanate

15 gallon unit:

- (1) 5 gallon pail of Isocyanate
- (2) 5 gallon pail of Polyol/Amine

150 gallon unit:

- (1) 50 gallon drum of Isocyanate
- (2) 50 gallon drum of Polyol/Amine

COVERAGE

One gallon of Stonchem 441 will cover approximately 149 m² per mil of application thickness. Coverage per gallon for typical thicknesses are as follows:

<u>Thickness</u>	<u>Application Coverage</u>
30 mil	5.0 m ²
50 mil	3.0 m ²
120 mil	1.2 m ²

STORAGE CONDITIONS

Store all components of Stonchem 441 between 13 to 30°C in a dry area, out of direct sunlight. **BE SURE TO HANDLE AND STORE PROPERLY.** The shelf life is 2 years in the original, unopened container.

SUBSTRATE

Stonchem 441, with the appropriate primer, is suitable for application over concrete, wood, brick, quarry tile, metal or Stonhard mortar systems. For questions regarding other possible substrates or an appropriate primer, contact your local Stonhard representative or Technical Service.

SUBSTRATE PREPARATION

Proper preparation is critical to ensure an adequate bond and system performance. The substrate must be dry and properly prepared utilizing mechanical methods. Questions regarding substrate preparation should be directed to your local Stonhard representative or Technical Service.

PRIMING

Stonchem Epoxy Primer must be applied to the prepared surface and cured to a tack-free state before applications of the Stonchem 441 begins. For outgassing substrates, a second coat of primer may be applied. The primer can be thickened by adding Stonchem Thixotrope. The use of a primer seals the substrate and enhances bonding. The primer should be applied using a rubber squeegee.

Note: Primer should be applied later in the day as the substrate begins to cool

APPLICATION GUIDELINES

For optimal working conditions, substrate temperature must be between 15 to 27°C. Cold areas must be heated until the slab temperature is above 13°C to ensure the material achieves a proper cure. A cold substrate will make the material stiff and difficult to apply. Warm areas or areas in direct sunlight must be shaded or arrangements made to work during evenings or at night. A warm substrate (15 to 27°C) will aid in the material's workability; however, a hot substrate (27 to 32°C) or a substrate directly in the sun will shorten the material's working time and can cause other phenomenon such as pinholing and bubbling. Substrate temperature should be greater than 3°C above dew point. Application and curing times are dependent upon ambient and surface conditions. Consult Stonhard's Technical Service Department if conditions are not within recommended guidelines.

APPLYING STONCHEM 441

Squeegee Application

If applying the material by hand the process is as follows: If the components can be heated using heating bands, the material should be heated to approximately 32 to 37°C. Regardless of the application method, premix the gray polyol prior to portioning the material; it tends to separate in the container. Due to the nature of the materials they must be portioned in separate containers and then poured into the mixing bucket.

- Pour the portioned polyol and isocyanate into the mixing bucket. If the material has not been heated, the material should be mixed for 90 seconds using a drill and the appropriately sized mixing blade. Otherwise, mix the material for 60 seconds.
- Once the material has been thoroughly mixed, pour it onto the substrate and spread the material to appropriate thickness using a notched squeegee and roller.

Spray Application

- As indicated above, the Stonchem 441 can be spray applied. Doing so requires a plural component spray rig with a 2:1 ratio proportion. The preferred spray rig is the following: Spray pump and heating unit – WIWA Duo Mix 230, as manufactured by WIWA Wilhelm Wagner LP
- Spray gun – WIWA 500F Airless Spray gun with one port of entry for the mixed two-component lining material. The spray gun shall be fed by a 1/4 in. swiveling WHIP hose that contains mixed material.

Note: WHIP hose contains mixed material requiring that spray be continuous or a purge bucket be available to purge the lines after 15 to 20 seconds of in-activity. Purging can be done with 2 or 3 squeezes on the gun.

- Drum heaters are required to heat the material to approximately 37°C.
- The following minimum services shall be provided to run the spray equipment and heaters:
 - Electric: Single phase, 110 or 220 volt
 - Compressed Air : 185 CFM @ 90 psi, treated to assure dry air supply. Moist air is unacceptable and can adversely affect the material.
- Once the polyol has been pre-mixed, both components are heated, and the proper pressures are achieved, spray apply the proper millage of Stonchem 441 to the primed substrate.

CURING

The surface of Stonchem 441 will be tack-free in 8 hours at 21°C. The coated area may be put back into service in 24 hours at 21°C, conditions permitting.

PRECAUTIONS

- Acetone is recommended for clean up of Stonchem 44I isocyanate or polyol/amine resin material spills. Use these materials only in strict accordance with the manufacturer's recommended safety procedures. Dispose of waste materials in accordance with government regulations.
- Avoid contact with Stonchem 44I polyol resin and isocyanate, as they may cause skin, respiratory and eye irritation.
- **The use of NIOSH/MSHA approved respirators using an organic vapor/acid gas canister is mandatory during spray applications.**
- The selection of proper protective clothing and equipment will significantly reduce the risk of injury. Body covering apparel, safety goggles or safety glasses and impermeable gloves are required.
- In the event of accidental eye contact, immediately flush eyes with copious amounts of water for 15 minutes and seek medical attention.

- If material is ingested, immediately contact a physician.

DO NOT INDUCE VOMITING.

- Use only with adequate ventilation. Inhalation of vapors may cause severe headaches, nausea and possibly unconsciousness.

NOTES

- Material Safety Data Sheets for Stonchem 44I are available on line at www.stonhard.com under Products or upon request.
- Specific information regarding the chemical resistance of Stonchem 44I is available in the Stonchem 400 Series Chemical Resistance Guide.
- A staff of technical service engineers is available to assist with product application, or to answer questions related to Stonhard products.
- Requests for technical service or literature can be made through local sales representatives and offices or corporate offices located worldwide.

IMPORTANT:

Stonhard believes the information contained here to be true and accurate as of the date of publication. Stonhard makes no warranty, expressed or implied, based on this literature and assumes no responsibility for consequential or incidental damages in the use of the systems described, including any warranty of merchantability or fitness. Information contained here is for evaluation only. We further reserve the right to modify and change products or literature at any time and without prior notice.

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