

Dry mix cement-based adhesive and base coat

Description

Primus DM is a dry mix, polymer-modified, cementitious adhesive and base coat. It is supplied in 23 kg (50 lb.) bags and, when mixed with water at the job site, produces a high performance, easily applied adhesive and base coat for use with Dryvit systems.

Uses

Primus DM is used to adhere expanded polystyrene insulation board to acceptable substrates and to embed reinforcing mesh as part of the base coat for Dryvit systems.

Coverage

Approximately 5.1 m² (55 ft²) of surface area per 22.7 kg (50 lb.) bag, depending on job conditions, application techniques, etc. This includes adhesive and base coat layers. For adhesive only 9.3 m² (100 ft²); for base coat only 11.1 m² (120 ft²).

Properties

Working Time - After mixing, the working time of the Primus DM mixture is approximately 1-3 hours depending on ambient weather conditions.

Drying Time - Drying time of the Primus DM mixture is dependent on the air temperature and relative humidity. Under average drying conditions [21 °C (70 °F), 55% R.H.], the Primus DM mixture will dry in 24 hours. Protect work from rain for at least 24 hours. Being a cementitious product, the Primus DM mixture develops full strength in 28 days. When used to bond expanded polystyrene insulation board to an acceptable substrate, a period of 24 hours must elapse to allow the Primus DM mixture to form a positive bond. The installed insulation board should not be

disturbed until adequate bond has developed.

Testing Information

For individual test data on this product's properties, refer to the chart included with this document.

Application Procedures

FOR COMPLETE APPLICATION INSTRUCTIONS, REFER TO THE APPROPRIATE DRYVIT SYSTEM APPLICATION INSTRUCTIONS.

Job Conditions - Air and surface temperatures for application of the Primus DM mixture must be 4 °C (40 °F) or higher and must remain so for a minimum of 24 hours.

Temporary Protection - Shall be provided at all times until the adhesive, base coat, finish and installation of permanent flashings, sealants, etc. are completed to protect the wall from inclement weather and other sources of damage.

Acceptable Substrates:

- Exterior grade gypsum sheathing meeting ASTM C 1396 (formerly C 79) requirements for water-resistant core or Type X core
- Exterior sheathing having a water-resistant core with fiberglass mat facers meeting ASTM C 1177
- Exterior fiber reinforced cement or calcium silicate boards
- Unglazed brick, cement plaster, concrete or masonry
- Galvanized expanded metal lath 1.4 or 1.8 kg/m² (2.5 or 3.4 lbs/yd²) installed over a solid substrate

Surface Preparation:

- Surfaces must be above 4 °C (40 °F) and must be clean, dry, structurally sound and free of efflorescence, grease, oil, form release agents and curing compounds.
- The substrate shall be flat within 6.4 mm (1/4 in) in a 1.2 m (4 ft) radius.

Mixing:

- **Pail Mixing** - One 22.7 kg (50 lb) bag of material will produce approximately 19 L (5 gal) of Primus DM mixture. Add 5.7 L (1.5 gal) of clean potable water into a clean plastic container. Add the Primus DM slowly while mixing using a "Twister" paddle or equivalent mixing blade, powered by a 12.7 mm (1/2 in) drill, at 500-1200 rpm. NOTE: A minimum 7 amp drill works best for Portland cement based materials. Thoroughly mix until uniformly wetted, adjusting consistency with a small amount of water or Primus DM material. Allow the mixture to set for a minimum of 5 minutes then retemper, adding a small amount of water if necessary. Material must be free of lumps before using.
- **Mortar Mixer** - Add 5.7 L (6 qt) of clean potable water for each 22.7 kg (50 lb.) bag of Primus DM into a clean mortar mixer. Add the Primus DM while the mixer is running. Let mix 3 to 5 minutes, shut the mixer off for 5-8 minutes, then run mixer for another 2 to 3 minutes to break the set and add a small amount of water if necessary to adjust the workability. The pot life is 1 to 3 hours depending on weather.

Application:

- **Adhesive** - For application over sheathing substrates, use a stainless steel notched trowel

with notches measuring 12.7 mm (1/2 in) wide, 12.7 mm (1/2 in) deep spaced 50.8 mm (2 in) apart. Apply the Primus DM mixture on the back side of the insulation board and scrape the excess adhesive from between the adhesive beads. The adhesive beads shall be applied so that they run vertically when the insulation board is placed on the wall.

- For application over non-sheathing substrates, the notched trowel application previously described.
CAUTION: Do not install the Primus DM mixture directly on the substrate. Immediately place the insulation board on the substrate, ensuring that no Primus DM mixture gets into board joints. Do not allow the Primus DM mixture to form a skin before positioning the insulation board on the substrate as it will affect the bond strength.
- **Base Coat** - For base coat application, all insulation board irregularities greater than 1.6 mm (1/16 in) must be sanded flush. Apply the base coat to the entire surface of the insulation board. Fully embed

the Dryvit reinforcing mesh in the wet base coat troweling from the centre to the edge of the reinforcing mesh so as to avoid wrinkles. The reinforcing mesh shall be continuous at all corners and lapped or butted in accordance with Dryvit's recommendations. The overall minimum base coat thickness shall be sufficient to fully embed the reinforcing mesh. The recommended method is to apply the base coat in two applications. All areas requiring higher impact resistance shall be detailed on the plans and described in the contract documents. The application shall be in accordance with Dryvit's recommendations.

Clean Up - Clean tools with water while the Primus DM mixture is still wet.

Storage

Primus DM bags must be protected from moisture and weather. The bags shall be stored off the ground in a cool, dry location out of direct sunlight. If the Primus DM is warm or hot, the pot life of the Primus DM

mixture will be greatly reduced. The shelf life is 1 year from date of manufacture when properly stored in unopened bags.

Cautions and Limitations

- Clean, cool potable water may be added to adjust workability. Do not over water. Warm water will accelerate the set.
- Primus DM mixture shall not be used to adhere EPS directly to wood-based substrates.
- Mixing paddles and pails must be clean. Contamination from previous mixing will lead to a short pot life.
- Substrate and air temperatures must be above 4 °C (40 °F) or higher and rising at time of application.
- Wear protective eyewear and clothing since the product contains cement, which cause irritation.
- Avoid working in direct sunlight and keep mixed Primus DM in the shade.

Technical and Field Services

Available on request.

Primus DM Testing			
Test	Test Method	Criteria	Results
Surface Burning Characteristics	ASTM E 84	ICC and ANSI/EIMA 99-A-2001	Passed
Test for Non-Combustibility	CAN/ULC-S 114	No flaming after 30 seconds No more than 20% reduction in mass	Passed
Water Vapor Transmission	ATM E 96 Procedure B	ICC: Vapor Permeable No ANSI/EIMA Criteria	66 Perms
Accelerated Weathering	ASTM G 23 (Carbon Arc)	ICC: 2000 hours: No deleterious effects ¹	2000 hours: No deleterious effects ¹
Freeze-Thaw Resistance	ASTM E 2485 (formerly EIMA 101.01)	ANSI/EIMA 99-A-2001 60 cycles: No deleterious effects ¹	60 cycles: No deleterious effects ¹
	ASTM E 2485/ICC-ES Proc: ICC ES (AC219*)	No deleterious effects ¹ after 10 cycles	Passed: No deleterious effects ¹ after 10 cycles
Water Resistance	ASTM D 2247	ICC and ANSI/EIMA 99-A-2001 14 days: No deleterious effects ¹	14 days: No deleterious effects ¹
Tensile Bond ²	ASTM C 297/E 2134 (formerly EIMA 101.03)	ICC and ANSI/EIMA 99-A-2001 Minimum 104 kPa (15 psi) – substrate or insulation failure	>104 kPa (15 psi)
Water Penetration	ASTM E 331	No water penetration beyond the inner-most plane of the wall after 2 hours at 299 Pa (6.24 psf)	Passed 2 hours at 299 Pa (6.24 psf)
1. No cracking, checking, rusting, crazing, erosion, blistering, peeling, or delamination when viewed under 5x magnification. 2. Sample consists of 1” EPS adhered to various substrates. *AC219 – Acceptance Criteria for EIFS			

