

ICC-ES Evaluation Report

ESR-5082

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DIVISION: 06 00 00— WOOD, PLASTICS AND COMPOSITES Section: 06 05 23.10— Adhesives	REPORT HOLDER: THE DOW CHEMICAL COMPANY	EVALUATION SUBJECT: VORAMER MB 3022 POLYOL TWO-PART POLYURETHANE FOAM ADHESIVE	
DIVISION: 09 00 00— FINISHES			
Section: 09 29 10— Gypsum Board Accessories			

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, 2012, 2009 and 2006 International Building Code® (IBC)
- 2021, 2018, 2015, 2012, 2009 and 2006 International Residential Code® (IRC)

Properties evaluated:

- Gypsum board attachment
- Surface-burning characteristics

2.0 USES

The Voramer MB 3022 Polyol Two-Part Polyurethane Adhesive is used to attach various gypsum board to wood framing in walls and ceilings without the use of mechanical fasteners.

3.0 DESCRIPTION

The Voramer MB 3022 is a two-part polyurethane foam adhesive system. It is applied by pumping two components at a volumetric ratio of 1 to 1 under pressure through heating equipment to produce one continuous bead. The two components are "Voramer MB 3022 Polyol" and "Voramer ME 3044 Isocyanate". The A and B components are shipped in 250-gallon disposable totes, 55-gallon steel drums and 350-gallon returnable tanks. Storage of these containers shall be in an indoor dry place between 70°F and 90°F (21.1°C and 32.2°C). Unopened containers have a storage life of up to 6 months in these conditions.

The Voramer MB 3022 has a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested in accordance with ASTM E84.

4.0 DESIGN AND INSTALLATION

4.1 Installation:

Gypsum board being attached must comply with ASTM C1396. All substrate surfaces must be clean, dry and free of dust, wax, ice and loose particles and have a surface temperature greater than or equal to 50°F (10°C). Voramer MB 3022 adhesive must be applied in an ambient temperature range of 50°F to 100°F (10°C to



37.8°C). Adhesive is applied along the intersection of the gypsum and wood framing according to The Dow Chemical Company Application Instructions. The adhesive temperature at the heater block and hose shall be between 90°F (32.2°C) and 115°F (46.1°C). After the last bead is applied, the attachment must not be moved for a minimum of two minutes. The attachment must stay in the same ambient conditions for the first 24 hours.

Voramer MB 3022 adhesive must be used on wood framing with maximum spacing of 16 inches (406 mm) on center for walls and 24 inches (610 mm) on center for ceiling applications. The beads produced must be sized per Figure 1 and Table 1, and a bead must not be greater than 1 inch (25.4 mm) in size. The adhesive beads are applied along one side of field framing and along both sides at gypsum/sheathing seams. A bead shall not be great than $1^{1}/_{2}$ inches (38.1 mm) in width.

Panels consisting of gypsum wallboard complying with ASTM C1396 adhered to wood framing using Voramer MB 3022 adhesive were tested under static racking load in accordance with Section 14 of ASTM E72. See <u>Table 1</u> for ultimate shear loads. The reported ultimate shear loads do not include any safety factors. Determination of the allowable design values and applicability for seismic and wind designs are outside the scope of the evaluation report and must be justified to the satisfaction of the code official.

5.0 CONDITIONS OF USE:

The Voramer MB 3022 Polyol Two-Part Polyurethane Adhesive described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- **5.1** Materials and methods of installation must comply with this report and the manufacturer's published installation instructions. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.
- **5.2** Voramer MB 3022 is to be applied in an indoor manufacturing facility and must not be applied in an outdoor uncontrolled environment.
- 5.3 Use of Voramer MB 3022 adhesive in a fire-resistance rated assembly is outside the scope of this report.
- **5.4** A vapor barrier must not be used between the adhesive and the substrates.
- **5.5** The adhesive must be separated from the building interior by a thermal barrier of ¹/₂-inch (12.7 mm) gypsum wallboard installed in accordance with IBC Section 2603.4 or IRC Section R316.4, as applicable.
- 5.6 Application of Voramer MB 3022 adhesive is limited to the back side of gypsum board complying with ASTM C1396. Application of the adhesive to foil backed, moisture resistant or water-resistant gypsum boards is outside the scope of this report.
- **5.7** Voramer MB 3022 is manufactured at The Dow Chemical Company plant in Marietta, GA under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Report of Figure 1 testing in accordance with ASTM C557 testing.
- 6.2 Reports of racking load testing in accordance with Section 14 of ASTM E72.
- **6.3** Report of surface-burning characteristics testing in accordance with ASTM E84.
- 6.4 Reports of fire test of interior finish material in accordance with UL 1715.

7.0 IDENTIFICATION

- 7.1 Product labeling must include, the name of the report holder (The Dow Chemical Company) and address, the product name, date of manufacture, shelf-life information, and the ICC-ES mark of conformity. The evaluation report number (ESR-5082) may be used in lieu of the mark of conformity.
- 7.2 The report holder's contact information is the following:

THE DOW CHEMICAL COMPANY 1881 WEST OAK PARKWAY MARIETTA, GEORGIA 30062 (979) 238-5340 www.dow.com

TABLE 1—IN-PLANE SHEAR LOADING ON WOOD FRAME (SECTION 14 OF ASTM E72)

ASSEMBLY NUMBER	TOP PLATE / BOTTOM PLATE	STUDS / STUD SPACING	SINGLE / DOUBLE SIDED	ORIENTATION	PANEL	ADHESIVE SIZE	ULTIMATE LOAD (PLF) ¹
1	1x3 stud grade SPF	2x3 stud grade SPF, 16" on center	Single	⁵ / ₁₆ " Vertical	Georgia Pacific Gypsum Board	on side of stud: $3/8$ " on side of plates: $1/2$ " on gypsum: $1/2$ "	461
2	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center			Gold Bond Gypsum Board	on side of stud: $3/8$ " on side of plates: $1/2$ " on gypsum: $3/8$ "	529
3	2x4 stud grade SPF	2x4 stud grade SPF, 16" on center		⁷ / ₁₆ " Vertical	24/16 OSB	on side of stud: $1/2$ " on side of plates: $3/4$ " on gypsum: $1/2$ "	1250

¹Ultimate load values do not include any safety factors.



FIGURE 1—APPLICATION OF VORAMER MB 3022 POLYOL TWO-PART POLYURETHANE FOAM ADHESIVE