

ICC-ES Evaluation Report**ESR-2581**

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DIVISION: 04 00 00—MASONRY**Section: 04 05 13—Masonry Mortaring****DIVISION: 09 00 00—FINISHES****Section: 09 24 00—Portland Cement Plastering****REPORT HOLDER:****GIBCO PRODUCTS INTERNATIONAL, INC.****POST OFFICE BOX 880****LANGLEY, OKLAHOMA 74350-0880****(918) 782-4000**www.gibco-usa.comgibco@att.net**EVALUATION SUBJECT:****GIBCO'S MRF AND PRF LIQUID AND DRY
ADMIXTURES; MITSUBISHI PREMIUM PLASTIC
CEMENT; LEHIGH SOUTHWEST PREMIUM PLASTERING
CEMENT AND LEHIGH SOUTHWEST PREMIUM
MORTAR CEMENT; MITSUBISHI MORTAR CEMENT;
AND OMEGA SUPER CEMENT****ADDITIONAL LISTEES:****LEHIGH SOUTHWEST CEMENT COMPANY****PERMANENTE PLANT****12667 ALCOSTA BOULEVARD, SUITE 400****SAN RAMON, CALIFORNIA 94583****MITSUBISHI CEMENT CORPORATION****5808 STATE HIGHWAY 18****LUCERNE VALLEY, CALIFORNIA 92356****OMEGA PRODUCTS INTERNATIONAL, INC.****1681 CALIFORNIA AVENUE****CORONA, CALIFORNIA 92881****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2006 *International Building Code*® (IBC)
- 2006 *International Residential Code*® (IRC)
- Other Codes (see Section 8.0)

Properties evaluated:

- Physical
- Structural
- Durability

2.0 USES

Gibco's MRF and PRF Liquid and Dry Admixtures are intended to replace lime in mortar and plaster mixtures prepared in accordance with IBC Sections 2103.8 and 2512, ASTM C 926 and IRC Section R607.1. The admixtures are also used in prepackaged mortar and plaster mixtures.

Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement, Lehigh Southwest Premium Mortar, and Omega Super Cement are used for exterior wall coverings complying with IBC Section 2512 or IRC Section R703.

Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement and Lehigh Southwest Premium Mortar are used on masonry construction in accordance with IBC Section 2103.8 and IRC Section R607.1.

3.0 DESCRIPTION**3.1 Gibco's MRF and PRF Liquid and Dry Admixtures:**

Gibco's MRF and PRF liquid and dry admixtures, as described in this report, are proprietary mixtures of resin compounds. The admixtures have an infinite shelf life provided containers are not opened or exposed to evaporation, contamination or moisture, and are stored at temperatures between 32°F and 120°F (0°C and 49°C). Both admixtures are classified as CLR and MrC in accordance with the ICC-ES Acceptance Criteria for Mortar with Admixtures (AC87). Gibco's MRF and PRF liquid and dry admixtures are prepackaged in 1- and 5-gallon (3.8 and 19 L) pails, 55-gallon (208 L) drums and 275-gallon (1041 L) bulk containers. The admixtures are available as premixes and prepackaged as mortar and plaster mixes, respectively.

3.2 Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement and Lehigh Southwest Premium Mortar:

The Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement and Lehigh Southwest Premium Mortar, as described in this report, are manufactured blends of Type II portland cement complying with ASTM C 150, with up to a 20 percent addition of inorganic mineral plasticizer by volume, and the addition of either of the following: 3 ounces (89 mL) of Gibco's MRF or PRF liquid admixtures, or 1 ounce (28.35 g) of Gibco's dry admixtures. The cements are prepackaged in 94-pound (42 kg) bags. The cements have a shelf life of one year when stored in unopened bags without exposure to contamination or moisture, and at temperatures between -20°F and 170°F (-29°C and 77°C).

3.3 Omega Super Cement:

Omega Super Cement as described in this report is a manufactured blend of Type II portland cement complying with ASTM C 150, with up to a 20 percent addition of inorganic mineral plasticizer by volume, and 1 ounce (28.35 g) of Gibco's dry admixtures. The Omega Super Cement is prepackaged in 94-pound (42 kg) bags. It has a shelf life of one year when stored in unopened bags without exposure to contamination or moisture, and at temperatures between -20°F and 170°F (-29°C and 77°C).

4.0 DESIGN AND INSTALLATION

4.1 General:

Gibco's MRF and PRF liquid and dry admixtures, Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement, Lehigh Southwest Premium Mortar and Omega Super Cement, must be mixed in accordance with the manufacturer's published installation instructions, subject to the conditions of this report.

Cold weather construction must be in accordance with IBC Section 2104.3. Masonry cannot be placed on foundations or masonry units with frost or that are frozen. Hot weather construction must comply with IBC Section 2104.4.

The manufacturer's published mixing instructions and this report must be strictly adhered to, and a copy of the instructions must be available on the jobsite at all times during installation.

4.2 Gibco's MRF and PRF Liquid and Dry Admixtures:

Gibco's MRF and PRF admixtures must be agitated before being blended with other plaster or mortar components. The Gibco admixtures must be blended with Type I or Type II portland cement complying with ASTM C 150, with up to a 20 percent addition of inorganic mineral plasticizer by volume, at a rate of 3 ounces (89 mL) of liquid or 1 ounce (28.35 g) of dry admixtures per 94-pound (42 kg) bag of portland cement. The final proportions of the components in the mortar must be in accordance with the proportion specifications of IBC Section 2103.8 or IRC Section R607.1. Portland cement plaster must be proportioned in accordance with IBC Section 2512 or IRC Section R703.6.2, with the admixture replacing the lime at a rate of 3 ounces (89 mL) of liquid admixture or 1 ounce (28.35 g) of dry admixture per 94-pound (42 kg) bag of Type I or Type II portland cement complying with ASTM C 150.

4.3 Cements:

4.3.1 Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement; Lehigh Southwest Premium Plastering Cement, Lehigh Southwest Premium Mortar and Omega Super Cement: The products must be blended with sand and water in accordance with IBC Section 2512.1 or IRC Section R703.6.2; no lime is permitted.

4.3.2 Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement and Lehigh Southwest Premium Mortar: The products must be prepared with sand and water in accordance with the IBC Section 2103.8 and Table 2103.8(1), or IRC Section R607.1 and Table R607.1.

4.4 Mortars in Areas of Seismic Risk:

4.4.1 IBC: In accordance with ACI 530-05/ASCE-5-05/TMS 402.05, Sections 1.14.2.2 and 1.14.3 to 1.14.7, mortars prepared in accordance with this report are limited to the following Seismic Design Categories when used as part of lateral force resisting systems:

- Categories A, B, and C: Type M, S or N
- Categories D, E and F: Type M or S

4.4.2 IRC: In accordance with IRC Sections R607.1.2 and R607.1.3, mortars prepared in accordance with this report are limited to the following Seismic Design Categories when used as part of lateral force resisting systems:

- Categories A, B, and C: Type M, S or N
- Categories D₀, D₁ and D₂: Type M or S

5.0 CONDITIONS OF USE

The admixtures and cement described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** Mixing and application must comply with this report and the manufacturer's published installation instructions. If there are any conflicts between the manufacturer's instructions and this report, this report governs.
- 5.2** The admixtures described in this report may be used as alternatives to lime for Type M, S or N masonry mortars as required in the IBC or IRC, provided amounts are as set forth in this report.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Mortar with Admixtures (AC87), dated June 2006.

7.0 IDENTIFICATION

7.1 Admixtures:

The admixtures are packaged in containers labeled with the product name, the manufacturer's name (Gibco Products International, Inc.) or one of the additional listees on this report) and address, mixing instructions and the evaluation report number (ESR-2581).

7.2 Cements:

The products are packaged in bags labeled with the product name, the manufacturer's name (Gibco Products International, Inc. or one of the additional listees on this report) and address, mixing instructions and the evaluation report number (ESR-2581).

8.0 OTHER CODES

8.1 Evaluation Scope:

The products in this report have also been evaluated for compliance with the requirements of the 2003 *International Building Code*[®] (2003 IBC), the 2003 *International Residential Code*[®] (2003 IRC), and the 1997 *Uniform Building Code*[™] (UBC).

8.2 Uses:

8.2.1 Gibco's MRF and PRF Liquid and Dry Admixtures: Gibco's MRF and PRF Liquid and Dry Admixtures are intended to replace lime in mortar and plaster mixtures prepared in accordance with 2003 IBC Sections 2103.7 and 2512, 2003 IRC Section R607.1, and UBC Section 2103.3.

8.2.2 Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement, Lehigh Southwest Premium Mortar and Omega Super Cement: The products and Omega Super Cement are used for exterior wall coverings complying with 2003 IBC Section 2512, 2003 IRC Section R703, and UBC Section 2508.

8.2.3 Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement and Lehigh Southwest Premium Plastering Cement and Lehigh Southwest Premium Mortar: The products are used in concrete and masonry construction in accordance with 2003 IBC Section 2103.7, 2003 IRC Section R607.1, and UBC Section 2103.3.

8.3 Description:

See Section 3.0.

8.4 Design and Installation:

8.4.1 General: See Section 4.1.

8.4.2 Gibco's MRF and PRF Liquid and Dry Admixtures: Gibco's MRF and PRF admixtures must be agitated before being blended with other plaster or mortar components. The Gibco admixtures must be blended with Type I or Type II portland cement complying with ASTM C 150, with up to a 20 percent addition of inorganic mineral plasticizer by volume, and at a rate of 3 ounces (89 mL) of liquid admixture or 1 ounce (28.35 g) of dry admixture per 94-pound (42 kg) bag of portland cement. The final proportions of the components in the mortar must be in accordance with 2003 IBC Section 2103.7, 2003 IRC Section R607.1, or UBC Section 2103.3. Portland cement plaster must be proportioned in accordance with 2003 IBC Section 2512 or UBC Section 2508, with the admixture replacing the lime at a rate of 3 ounces (89 mL) of liquid admixture or 1 ounce (28.35 g) of dry admixture per 94-pound (42 kg) bag of Type I or Type II portland cement complying with ASTM C 150.

8.4.3 Cements:

8.4.3.1 Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement, Lehigh Southwest Premium Mortar and Omega Super Cement: The plastering cements must be blended with sand and water in accordance with UBC Section 2508 and Table 25-F; no lime is permitted.

8.4.3.2 Mitsubishi Premium Plastic Cement, Mitsubishi Mortar Cement, Lehigh Southwest Premium Plastering Cement and Lehigh Southwest Premium Mortar: The mortars must be prepared with sand and water in accordance with 2003 IBC Section 2103.7 and Table 2103.7(1), or UBC Section 2103.3 and Table 21-A.

8.4.3.3 Mortars in Areas of Seismic Risk: 2003 IRC: In accordance with 2003 IRC Sections R607.1.2 and R607.1.3, mortars prepared in accordance with this report are limited to the following Seismic Design Categories when used as part of lateral force resisting systems:

- Categories A, B, and C: Type M, S or N
- Categories D₁ and D₂: Type M or S

8.4.3.4 UBC: In accordance with UBC Section 2106.1.12, mortars prepared in accordance with this report are limited to the following Seismic Zones when used as part of lateral force resisting systems:

- Zones 0, 1, and 2: Type M, S or N
- Zones 3 and 4: Type M or S

8.5 Conditions of Use:

See Section 5.0, with the exception that the admixtures described in this report may be used as alternatives to lime for Types M, S or N masonry mortars as required in the 2003 IBC, the 2003 IRC or the UBC, provided amounts are as set forth in this report.

8.6 Evidence Submitted:

See Section 6.0.

8.7 Identification:

See Section 7.0.