Edison Coatings, Inc.

ROSENDALE

NATURAL CEMENT PRODUCTS®

Composite Repair 13P

Natural Cement-Based Repair Mortars for Stone, Masonry and Historic Concrete

DESCRIPTION

ROSENDALE 13P is a series of custom-matched, pre-packaged natural cement-based mixtures for repair of stone, masonry, and historic concretes. They are prepared using a blend of natural cement and other mineral binders, and custom aggregates matching the composition and color of the original materials for maximum aesthetic, mechanical and thermal compatibility. **ROSENDALE 13P** is non-polymer modified.

Four grades are available:

L – LIMESTONE & MARBLE: Moderate Strength mortar with calcareous aggregate

S – SANDSTONE: Low to Moderate Strength mortar with siliceous aggregate

C – CONCRETE: Moderate to High Strength mortar with siliceous aggregate

B – BRICK & TERRA COTTA: Low to Moderate Strength mortar with low coefficient of thermal expansion

Photo: US Capitol Building, Washington, DC. Multiple colors of **Rosendale 13P Type L** were used for patching the exterior marble.

FEATURES

ROSENDALE 13P offers long-term performance features which are unique to natural cement products, including:

- **Fast Initial Set:** Typical initial set time is 30 - 60 minutes, and material can typically be built up rapidly in deep sections without the need to install in "lifts".
- **Excellent Workability:** The moderate rate of strength gain following initial set provides extended working time for fine carving or shaving of profiles. The mortars typically remain soft enough for carving or shaving for 24 hours or more.
- **Moderate Strength:** Compressive strength is limited to avoid distress to historic substrates.
- **Water Resistance:** Natural cement mortars withstand severe wind-driven rain exposures within a short time of application, facilitating the installation process. They can also be formulated for water immersion and below-grade applications.
- **Early Freeze Resistance:** Natural cement products that are not subject to water immersion while frozen require only a relatively short period of protection from freezing after application. This facilitates installation over the course of a much-extended working season in northern climates, as compared with lime and hydraulic lime products.
- **Low Modulus: N**atural cements continue to relieve stress and remain mechanically compatible with historic substrates, even after more than a century of performance.
- **High Permeability:** Natural cements permit high rates of moisture vapor transmission, assuring that buildings and structures will "breathe", avoiding moisture entrapment.

FORMULATION

- **Rosendale Natural Cement Products®** are produced from argillaceous limestones conforming to the requirements of *ASTM C10 Standard Specification for Natural Cement*.

- **Lime** incorporated in **ROSENDALE 13P** can be customized to meet individual project requirements. Hydrated dolomitic building lime meeting the specifications of ASTM C207 Type S or SA, or high calcium limes meeting the requirements of ASTM C207 Type N may be incorporated. Lime can also be omitted in order to allow on-site addition of lime paste (putty) or field-hydrated quicklime.

APPLICATION

ROSENDALE 13P natural cement repair mortars are applied in accordance with good restorationpractices. These practices are taught to masons and restoration contractors during hands-on training workshops, which are offered on a regular basis. On-site training services are also available.

General installation guidelines are typical of all repair mortars. Substrates must be sound, clean, roughened and properly prepared to the correct depth. Slurry coat primer consisting of **ROSENDALE 13P** and water, mixed to a brushable consistency, should be applied to the patch area prior to patching placement. **ROSENDALE 13P** must be mixed with clean water in accordance with printed mixing instructions, and water addition levels must be controlled to obtain optimum color uniformity and best performance. For formed and poured repairs, **ROSENDALE 13P** can be modified with a high range water reducing admixture to facilitate placement while minimizing water- cement ratio. For repairs to surfaces that are likely to become frozen while saturated, such as stairways, pavements, ponds and fountains, modification with Edison Coatings **ICE-Minus 9 (RL-9)** freeze-thaw performance amendment is an effective option.

Minimum Application Thickness: ¼" depth

Mixing Ratio: 2:1 Powder to Water (Slurry Coat)

5:1 to 7:1 Powder to Water (Patching)

Mixed mortars must be placed before initial set, so mix only as much material as will be used within 10- 20 minutes. Once material has begun to set, it should not be re-tempered or adjusted with additional water, but should be discarded. Actual setting times vary by individual formulation, product grade and environmental conditions.

To achieve smooth profiles, finish as you go, immediately after placement. Carved or shaved profiles may be created after initial set, typically 30-60 minutes. Depending on conditions, material remains soft enough for carving or shaving for 24 hours or more. Once the material has been placed, it must be maintained in a damp condition throughout its curing period. Generally, this period of wet curing will be a minimum of 3 days, depending on conditions. Acceptable curing methods include draping burlap over the fresh material and maintaining the burlap in a damp condition, or frequent misting with water. Some grades may also be cured by covering with polyethylene.

Following 7-10 days curing time, surfaces may be cleaned, if desired, using dilute commercial cleaning solutions or microabrasive techniques. E-WASH 30 is an acceptable detergent based cleaner. Contact Edison Coatings for further details on cleaning options. Prior to large-scale cleaning, perform spot cleaning tests using the proposed methods and materials, to evaluate effectiveness and results.

NOTE: Many commercial cleaning products are hazardous materials requiring proper handling and safety precautions. Read and observe the safety instructions provided by the material manufacturer and as detailed in the Safety Data Sheet for each cleaning product.

PERFORMANCE

- **Rosendale Natural Cement Products®** are made from authentic natural cement, produced from argillaceous limestone extracted from North American quarries and mines used during the 19th Century to produce historic natural cement materials. Additional mineral binders may be added to achieve the required strength and/or color for any application.

While individual custom formulations will vary somewhat in their properties, the following are typical for Rosendale natural cement products.

PROPERTY	TYPICAL VALUES
SET TIME	30-60 minutes
COMPRESSIVE STRENGTH	Typically 1000-3000 psi @ 90 days
MODULUS OF ELASTICITY	535,000 to 640,000 psi
TENSILE STRENGTH	35-75 psi at 90 days

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