HES™ Cement

SELECTION & SPECIFICATION DATA

Type

Modified silicate brick mortar

Description

HES Cement is a single component, halogen-free modified silicate brick mortar used to bond and bed acid brick in chemical environments.

Uses

- Butter industrial ceramics such as acid brick and firebrick
- Brick linings as found in acid towers, tanks vessels and other chemical process equipment

Features

- Single component mortar – add water only
- Resistant to acids in a pH range of 0-9
- Creamy, buttery consistency
- Resists strong oxidizing acids including nitric, chromic and sulfuric
- Low shrinkage
- High bond strength
- No acid washing required
- Fluoride-, sodium- and calcium-free eliminates potential sulfation-hydration reactions
- Contains no Portland or calcium aluminate cement
- No need for heated storage in cold climates

Limitations

- Not for use beyond its chemical resistance or thermal capabilities. Do not use in hydrofluoric acid service or caustic environments. Consult Armor with specific questions.

INSTALLATION GUIDANCE

Reference Specifications

CES-358 Armor Specification for Brick Mortar Mixing

Installation Conditions

HES Cement is formulated for ideal handling at 70°F (21°C). Do not use if temperature of mortar or components are below 50°F (10°C). If temperatures are below 50°F (10°C), condition components and substrate before application.

Ratio

1.0 part water: 6.5 parts powder by weight.

Powder loading may be adjusted slightly to suit individual bricklayer handling preferences.

Mixing

Pour measured quantity of water into clean, dry mixing vessel. Slowly add measured quantity of powder to water and mix thoroughly until fully blended. HES Cement undergoes a delayed wetting out reaction when mixed. After adding the suggested amount of powder to the water, the mix may appear quite dry. Continue mixing for 3-4 more minutes, and the mortar will wet out. Do not add more water.

Work Life

2-3 hours at 50°F (10°C)
25-35 minutes at 70°F (21°C)
15-20 minutes at 90°F (32°C)

Cleanup

Water

CURE TIME

Temperature	Initial Set	Full Cure
70°F (21°C)	5-6 hours	72-96 hours

SAFETY

Safety

Mixes and applications of this product present a number of hazards. Read and follow the hazard information, precautions and first aid directions on the individual product labels and safety data sheets before using.

Ventilation

Provide thorough air circulation during and after application until the material has cured when used in enclosed areas.

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PACKAGING, ESTIMATING & HANDLING

Product	Code	Packaging
HES Cement	21927	55 lb (25 kg) bag

A 0.48 cubic foot (63 lb or 28.6 kg) unit consists of 1 x 55 lb (20 kg) bag of powder and 8 lb of water.

Theoretical Coverage

Consumption will vary based on brick size and joint width. Consult estimating guide CES-145.

Storage & Shelf Life

Maintain products in original packaging and sealed until ready for use. Estimated shelf life is 12-18 months when stored in a dry area at 70°F (21°C). Actual shelf life may vary with storage conditions.

If there is any question with respect to the quality of the components, check reactivity prior to use. For assistance consult with Armor.

TYPICAL PHYSICAL PROPERTIES

Property	Typical Value
Color	White
Density, ASTM C138	130 lb/ft^3 (2,083 kg/m^3)
Compressive strength, 28-day, ASTM C579	>3,250 psi (22.4 MPa)
Tensile strength, 7-day, ASTM C307	>500 psi (3.4 MPa)
Flexural strength, ASTM C453	>800 psi (5.5 MPa)
Bond strength to brick (pull blocks)	>300 psi (2 MPa)
Maximum service temperature	1,650°F (900°C)

Temperature limitations will vary with chemical exposure. Consult Armor Technical Service for guidance.

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