

## SELECTION & SPECIFICATION DATA

<b>Type</b>	Modified silicate brick mortar
<b>Description</b>	HES Cement is a single component, halogen-free modified silicate brick mortar used to bond and bed acid brick in chemical environments.
<b>Uses</b>	<ul style="list-style-type: none"> <li>• Butter industrial ceramics such as acid brick and firebrick</li> <li>• Brick linings as found in acid towers, tanks vessels and other chemical process equipment</li> </ul>
<b>Features</b>	<ul style="list-style-type: none"> <li>• Single component mortar – add water only</li> <li>• Resistant to acids in a pH range of 0-9</li> <li>• Creamy, buttery consistency</li> <li>• Resists strong oxidizing acids including nitric, chromic and sulfuric</li> <li>• Low shrinkage</li> <li>• High bond strength</li> <li>• No acid washing required</li> <li>• Fluoride-, sodium- and calcium-free eliminates potential sulfation-hydration reactions</li> <li>• Contains no Portland or calcium aluminate cement</li> <li>• No need for heated storage in cold climates</li> </ul>
<b>Limitations</b>	<ul style="list-style-type: none"> <li>• Not for use beyond its chemical resistance or thermal capabilities. Do not use in hydrofluoric acid service or caustic environments. Consult ErgonArmor with specific questions.</li> </ul>

## INSTALLATION GUIDANCE

<b>Reference Specifications</b>	CES-358 ErgonArmor Specification for Brick Mortar Mixing
<b>Installation Conditions</b>	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.
<b>Ratio</b>	1.0 part water: 6.5 parts powder by weight.  Powder loading may be adjusted slightly to suit individual bricklayer handling preferences.
<b>Mixing</b>	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.
<b>Work Life</b>	2-3 hours at 50°F (10°C) 25-35 minutes at 70°F (21°C) 15-20 minutes at 90°F (32°C)
<b>Cleanup</b>	Water

## CURE TIME

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

## SAFETY

<b>Safety</b>	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.
<b>Ventilation</b>	Provide thorough air circulation during and after application until the material has cured when used in enclosed areas.

### 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.		
<b>Theoretical Coverage</b>	Consumption will vary based on brick size and joint width. Consult estimating guide CES-145.	
<b>Storage &amp; Shelf Life</b>	<p>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.</p> <p>If there is any question with respect to the quality of the components, check reactivity prior to use. For assistance consult with ErgonArmor.</p>	

### TYPICAL PHYSICAL PROPERTIES

Property	Typical Value
Color	White
Density, ASTM C138	130 lb/ft <sup>3</sup> (2,083 kg/m <sup>3</sup> )
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 ErgonArmor Technical Service for guidance.	

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