

## Monokote Type HPM Mortar

A high performance, low cost firestop material for openings in fire-rated construction

### Product Description

Monokote® Type HPM Mortar is a single component, dry, powdery blend that is mixed with water to form a pourable trowelable material suitable for fire stopping openings in fire-rated walls and floors, such as those made for cable trays, electrical bus ways and multiple steel pipes or conduits. When cured, it forms a rigid, lightweight, non-combustible barrier against the spread of flames, when installed according to the AVI Firestop Installation Instruction or UL Fire Resistance Directory.

### Basic Uses:

Monokote® Type HPM Mortar is designed for sealing penetrations where a fire rate sealant is not practical. Typical applications include multiple steel and copper pipes or conduits, cable trays, and electrical bus ways.

### Limitations:

Monokote® Type HPM Mortar should not be applied:

- As a structural material for bearing external loads
- Penetrations subject to significant movement
- Where constant vibration is expected

### Composition and Materials:

Monokote® Type HPM Mortar or Type ZF-1 is a single component blend of Portland Cement, quarts (sands), perlite and continuous glass filament. When the 20 kg. content per pail are thoroughly and properly mixed with 8 liters ± 1 quart of potable water, its consistency become ideal for pouring of Monokote. Acceptable product and substrate application temperature range of 40°F - 100°F.

### Packaging:

Monokote® Type HPM Mortar is conveniently packed in paper bags of 20 kgs.

### Color:

Monokote® Type HPM Mortar is available in grey, red and white colors.

### Applicable Standards:

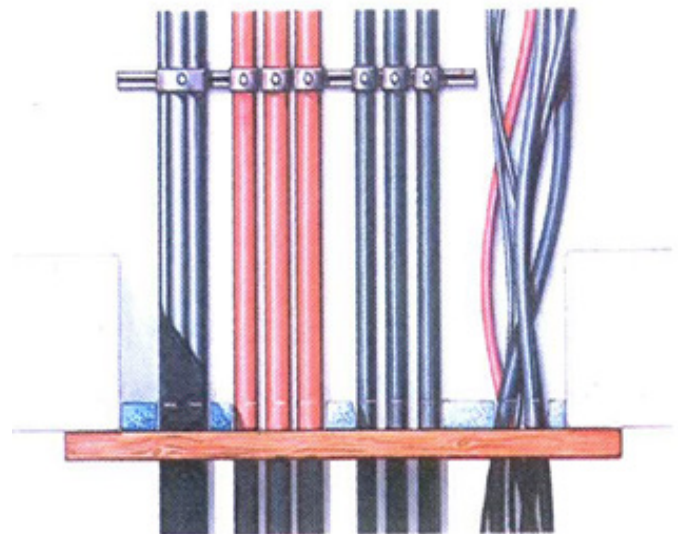
Monokote® Type HPM Mortar is classified by Underwriters Laboratories, Inc. as a "Fill, Void or Cavity Material" for use in Through-Penetration Firestop System Nos. CAJ4021, CAJ6010, and CAJ1178. Many different 3 hour ratings at UL in accordance with UL 1479 (ASTM E-814) Specific details can be found in the current UL Fire Resistance Directory, Volume II.

### Technical Data

Typical properties of Monokote® Type HPM Mortar. These values are not intended for use in preparing specifications.

#### As supplied:

Working time, minutes	..... 60
Initial set, hrs.	..... 8-10
Remove forms, hrs.	..... 24
Full cure and adhesion days	..... 28
Bond Strength per ASTM E736, psf concrete	..... 4546
steel	..... 3443
Hardness per ASTM D2240, Shore D, Points	..... 20
Cured Density per ASTM E605	..... 880 kg/m <sup>3</sup>
Compressive Strength, psi	..... 367
Shrinkage per ASTM C531 percent	..... 0.25
pH of Wet Mixture	..... 11-13
Application Temperature	..... 40°F-100°F
Thermal Conductivity per ASTM C518	..... $\frac{1,748 \text{ btu-in.}}{\text{Hr.ft.}^2\text{°F}}$



## Installation

### Preparatory Work:

1. Before handling, read product Material Safety Data Sheets for detailed use and health information. Also, consult the AVI Firestop Installation of UL Fire Resistance Directory for specific application details.
2. Monokote® Type HPM Mortar product and substrate application temperature range is min. 40°F, max. 110°F.
3. Remove all loose dirt, dust, oil, and any other foreign substances that would impair adhesion to the penetrating items and the construction substrate being penetrated.
4. Dam the opening to be firestopped using plywood, foam board or other rigid material. To prevent Monokote® Type HPM Mortar from sticking to the forms, cover them with plastic sheathing or apply an appropriate form release agent.
5. Add 8 liters ± 0.5 liters of water to one 20 kgs. bag of Monokote® Type HPM Mortar Trowelable Firestop Compound. Only clean, potable water, free of any contaminants, should be used.

### YIELD

YIELDS ARE DEPENDENT ON THE AMOUNT OF WATER ADDED, AS WELL AS THE METHOD AND DURATION OF MIXING. USING MORE WATER WITHIN THE SPECIFIED LIMITS WILL INCREASE THE YIELD, AS WILL LONGER MIXING TIME AND MECHANICAL MIXING (VERSUS HAND MIXING). TYPICALLY, ONE 20 KG. BAG OF Monokote® Type HPM Mortar MIXED WITH 8 LTRS. OR WATER BY MECHANICAL MEANS WILL YIELD A MINIMUM OF 22.6 LTRS.



Mix the contents thoroughly using a drill and paddle or mechanical mixer to produce uniform slurry, suitable for troweling or pouring in place. Do not mix more material than will be used within 60 minutes.

1. Pour or trowel in place the required depth of Monokote® Type HPM Mortar. Work it into all voids then trowel the surface to provide a neat, smooth, finished appearance.
2. Clean the uncured material with water.
3. Leave the completed firestop seal undisturbed for 8-10 hours. Forms may be removed after 24 hours. Full cure takes 28 days.

### Precautions:

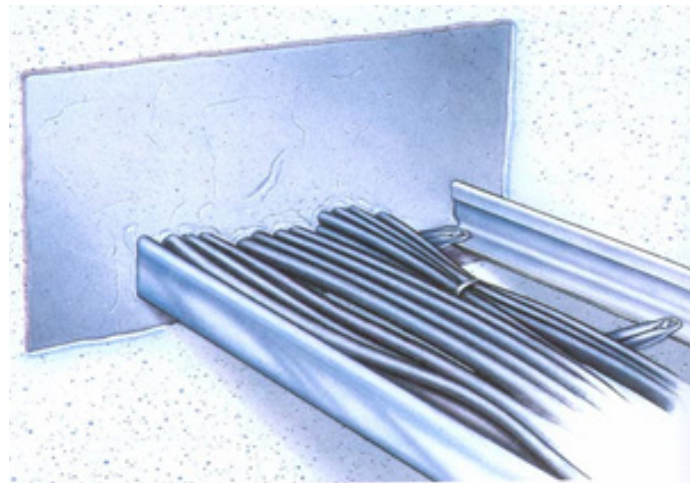
Avoid creating dust. Equip mixers with dust covers. Always provide adequate ventilation and respiratory protection. AVOID CONTACT WITH EYES AND SKIN. Wear skin and eye protection to avoid contact with dust or spray. Use anti-slip surfaces or working platforms. FOR INDUSTRIAL USE ONLY.

### Storage:

When stored in a safe, dry place, Monokote® Type HPM Mortar has a shelf life of 1 year from the date of manufacture if left unopened.

### RE-PENETRATION

No maintenance of Monokote® Type HPM Mortar as a fill void material is required. However, if penetrating items must be changed, subsequent drilling through and refilling void can be readily accomplished using Monokote® Type HPM Mortar by following the installation procedures detailed on the front side of the product data sheet. Newly mixed Monokote® Type HPM Mortar will adhere to already cured portions.



Wall penetration

### Technical Services

Your local AVI representative can provide assistance regarding your particular needs, as well as product demonstrations and on-site applicator training. For assistance, call your local AVI representative.

### Guarantee/Warranty

We warrant our products to be free of defects and manufactured to meet published physical properties when cured and tested in accordance with ASTM and AVI/Grace standards. Under this warranty, we will provide, at no charge, product in bags to replace any product failing to meet our guarantee.

All warranty claims must be made within twelve months of shipment. Absence of such claims in writing during respect to this product.