



# HYDROMET 50 MORTAR

The STEBBINS Engineering and Manufacturing Company  
Watertown, NY USA  
<http://www.StebbinsEng.com>

## PRODUCT INFORMATION

### DESCRIPTION

HYDROMET 50 Mortar is a hard, fast-setting, acid resistant mortar which adheres firmly to most firm dense substrates such as brick and steel. HYDROMET 50 Mortar was developed for use in vapor zones of pressure leach Autoclaves for Hydrometallurgical processes using sulfuric acid.

### ADVANTAGES

STEBBINS' HYDROMET 50 Mortar exhibits excellent acid resistance and also performs well in mildly alkaline conditions such as steam vapor areas and condensates and is not affected by oxygen overpressure.

HYDROMET 50 Mortar has excellent chemical and temperature resistance for conditions associated with typical Hydrometallurgical processes.

In its uncured plastic state, HYDROMET 50 Mortar yields and conforms to irregular metal or hard surfaces. In the cured state, under hot acid conditions, the material remains pliable, yet rigid as to form an effective seal.

### TYPICAL PHYSICAL PROPERTIES

<b>Physical State</b>	Solid (Mixture of Liquid and Powder)
<b>Composition</b>	Paste (Mortar)
<b>Color</b>	Yellow/Orange
<b>Density</b>	202 lb/ft <sup>3</sup> (3236 kg/m <sup>3</sup> )
<b>Coverage Per Unit</b>	1.08 ft <sup>3</sup> (0.031 m <sup>3</sup> )
<b>Tensile Strength, (ASTM C-307)</b>	400-500 psi (2.8-3.4 MPa)
<b>Compressive Strength, (ASTM C-306)</b>	5000-6000 psi (34.5-41.4 MPa)
<b>Water Absorption, % (ASTM-C-413)</b>	< 2.98%
<b>Coefficient of Thermal Expansion (ASTM C-531)</b>	8.75 x 10 <sup>-6</sup> in./in./°F (15.8 x 10 <sup>-6</sup> mm/mm/°C)
<b>Adhesion to Wire Cut Brick, (ASTM C-321)</b>	450 psi (3.1 MPa)
<b>Shrinkage Upon Cure</b>	0%

### TWO COMPONENT PRODUCT

HYDROMET 50 Mortar is a 2-component mortar consisting of HYDROMET 50 Powder and HYDROMET 50 Liquid.

COMPONENT	PACKAGING	WEIGHT PER CONTAINER
Hydromet 50 Liquid	3-gallon (11.4 L) Steel pail	31.2 lb. (14.2 kg) net.
Hydromet 50 Powder	17.5-gallon (66.2 L) Fiber drum	187 lb. (84.8 kg) net.

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## MIXING

HYDROMET 50 Mortar is mixed by combining the Powder with the Liquid to form a thick smooth mortar of troweling consistency.

COMPONENT	MIX RATIO BY VOLUME	MIX RATIO BY WEIGHT
Hydromet 50 Liquid	1 part by volume	1 part by weight
Hydromet 50 Powder	4 parts by volume	6 parts by weight

Small quantities of the mortar can be mixed by hand in a metal pan with a pointed trowel.

## WORKING AND SETTING TIMES (approximate)

TEMPERATURE	Working Time	FINAL SET
75°F (24°C)	20-30 minutes	< 60 minutes

HYDROMET 50 Mortar joints should not be exposed to moisture or put into service before reaching full cure.

## APPLICATION

For laying brick, a normal batch size is approximately 1-1/2 gallons (5.7 liters) of mortar. This quantity is normally mixed in a 3-gallon (11.4 liter) metal or rubber bucket. Mixing is accomplished by a 3/4" (19 mm) electric powered drill equipped with a mortar mixing paddle. Normal procedure is to place approximately 1 quart (0.95 liters) of liquid in the bucket and then add powder and mix until a smooth, thick mortar, suitable for laying brick, is formed.

STEBBINS' HYDROMET 50 Mortar is applied to brick with a trowel by the usual method. The brick must be dry and preferably at room temperature. Joint thicknesses range from 3/16" to 1/4" (5mm - 6mm).

## STORAGE

HYDROMET 50 components must be stored indoors in a cool, dry area until used. The liquid is hygroscopic and must be tightly covered at all times. If the liquid picks up excessive moisture from the air, it will cause accelerated cure and working times for the mortar.

Aged materials do not affect the overall corrosion resistance of the mortar; however, they seriously affect the working time such that use of the material may become prohibitive because of the short working time allowed in buttering and placing the brick. The powder must be stored in sealed plastic bags to prevent exposure to atmospheric oxygen. Excessive exposure to the air will cause the powder to react too fast when mixed with HYDROMET 50 Liquid.

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### **SAFETY PRECAUTIONS/DISCLAIMER**

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

All data contained in this Product Information sheet are averaged results of ASTM tests on laboratory prepared samples. Reasonable variations can be expected. The data should not be used for specification purposes.

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