



METALCRETE HT

High-Temperature Metallic Aggregate Floor Topping

1. Product Description

a. Basic Use: Metalcrete HT is a metallic aggregate topping designed for use under high temperature exposure. It can be applied from 1 in. (25.4 mm) to 4 in. (102 mm) in thickness and provides excellent wear and impact resistance in combination with service temperatures up to 2000°F (1093°C).

b. Features/Benefits:

- Excellent for exposure to furnaces, hot pots, and hot rolled metals.
- High specific heat materials for good heat transmission and capacity.
- Superior wear resistance to heavy traffic.
- Very dense surface for resistance to water, fluids and oil.
- Thick armoring for protection of base concrete from 1 in. (25.4 mm) to 4 in. (102 mm).
- High strength and extra tough.

c. Typical Applications: Rolling mills, foundries, glass plants and steel mills.

d. Limitations: Metalcrete HT contains iron and should not be used in areas that are exposed to acids or other chemicals which attack cement or iron. De-icing salts will cause surface oxidation and direct exposure should be avoided.

e. Composition: Metalcrete HT is formulated with a special coarse aggregate, graded iron aggregate, a heat resistant cement binder, and other proprietary chemicals.

f. Appearance: Metalcrete HT is dark gray in color when properly applied and cured.

2. Packaging

Metalcrete HT is packaged in 50-lb.(22.7 Kg) bags. Bulk bags are available for mixing in ready mix trucks on large placements.

3. Estimating/Coverage

One 50-lb. (22.7 Kg) bag of Metalcrete HT when mixed with 0.4 gals. (1.5 liter) of water will yield 0.26 cu. ft. (0.007 cu. m) of topping.

Thickness	Material Needed	Coverage/50-lb. (22.7 Kg) Bag
1 in. (25.4 mm)	15.8 psf (77 Kg/sq. m)	3.2 sq. ft. (0.29 sq. m)
2 in. (51 mm)	31.6 psf (154 Kg/sq. m)	1.6 sq. ft. (0.15 sq. m)
3 in. (76 mm)	47.5 psf (232 Kg/sq. m)	1.1 sq. ft. (0.09 sq. m)
4 in. (102 mm)	63.3 psf (309 Kg/sq. m)	0.8 sq. ft. (0.07 sq. m)

4. Technical Data

a. Applicable Standards:

- ACI 302, Guide For Concrete Floor and Slab Construction.
- ASTM C 779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.

b. Compressive Strength: ASTM C 109, 2 in. (50 mm) cubes.

Age	Strength
1 day	4,000 psi (28 MPa)
3 days	5,000 psi (35 MPa)
7 days	8,000 psi (55 MPa)
28 days	9,000 psi (62 MPa)

c. Flexural Strength: ASTM C 78, 28 days; 1,500 psi (10 MPa).

d. Wear Resistance: ASTM C 779, Procedure A; 0.013 in. (0.033 mm) at 60 minutes.

5. Directions for Use

(Follow basic ACI 302 Guidelines)

a. Preparation: Subgrade should be well compacted and graded to proper elevation. If a vapor barrier is used, it should not be placed over the subgrade but rather a minimum of 3 in. (76 mm) under the compacted fill. Vapor barriers will aggravate finishing problems and can contribute to slab curling. Forms should be set strong and true. Strip placements are preferred over checkerboarding. Place under roof whenever possible.

b. Monolithic Application - Base Concrete:

1. Concrete mix must be non-air entrained and not contain any calcium chloride based admixtures. Place at a low slump to prevent bleeding. The use of a superplasticizer is recommended, but keep slump as low as possible.

2. Bull-float surface after screeding concrete to an elevation that allows for topping thickness. As concrete stiffens, groove the surface with a rake or tining fork.

3. Just before topping placement, when the concrete has stiffened sufficiently to support foot traffic, broom the surface parallel to groove marks to expose fresh cement matrix. If the surface appears too hard or dry, broom in a layer of Acrylpave latex adhesive. (Proceed to Item e.)

c. Two Course Bonded - New Base Concrete:

1. Place base concrete at an elevation that accounts for the subsequent topping thickness. Place at a slump and water content that prevents bleeding.

2. Bull float surface and groove surface with a rake, serrated bull float, or tining fork. Cure with polyethylene. (Note: If an epoxy bonding agent is to be used later for bonding the topping, a heavy broom finish is recommended.) (Proceed to item "E".)

d. Two-Course Bonded - Old Base Concrete:

1. Mill, waterblast, shotblast, or chip concrete down to proper elevation to accommodate topping thickness. Remove all loose material and debris

2. Clean floor surface of all dust with water and compressed air. Make sure all concrete dust is removed from pore structure of concrete surface. Failure to properly clean the surface will prevent proper bond. Use a wet vacuum for hard to clean areas. Allow concrete surface to dry.

e. General Guidelines on Bond Coats:

1. On monolithic placements, bond coats are not normally needed. Acrylpave latex may be used if the surface becomes too hard or dry, or the topping has been delayed too long.

2. When bonding to new, but hardened concrete less than 1 month old with proper roughness, use Metcobond mixed with a cement slurry as a bond coat. Concrete over one month old should use epoxy as a bonding agent. (See item 3.)

3. When bonding to new concrete over 30 days old or to old, properly prepared concrete, use Acrylpave as the bonding agent.

f. Mixing: Mix Metalcrete HT in a mortar mixer using 0.48 gals. (1.8 liters) of water per 50-lb. bag. Several bags can be mixed at one time depending on the size of mixer. Add the water first and follow with dry powder. Hold back 10% of water and mix material stiff if lumping starts to occur. Add remaining water and mix for 2 to 3 minutes. A 5 in. (127 mm) to 6 in. (152 mm) slump should be achieved and minor water adjustments are permissible to achieve this slump. (Note: Mixing of bulk, 3,300-lb. (1497 Kg) bags requires special procedures. Contact Metalcrete Industries for more information.)

g. Placement: Place Metalcrete HT over fresh concrete or newly applied bond coat. Strike off or power

screed into place. Power screeding is preferred to achieve maximum consolidation and density. Bull float surface of topping. Use Waterhold evaporation retardant to prevent moisture loss while waiting for topping to set.

h. Finishing: When the topping will support a man and finishing machine, float surface (with float shoes on trowel blades) to consolidate surface and fill any imperfections. Trowel surface to produce a hard, smooth surface with subsequent finishing operations. Time troweling to prevent blisters.

i. Curing: Apply two coats of Seal N Kure 30 (roller preferred) as soon as finishing operations are complete. Curing is very important to fully develop topping strength.

j. Joints: Control or construction joints in the base slab should be brought up through the topping. Sawcut above base slab joints the full depth of the topping. Fill with Jointfill 302 epoxy after a minimum 3 month wait (according to ACI 302, Section 4.10). Use Vulcanox urethane at isolation and expansion joints.

k. User Precautions: Metalcrete HT contains hydraulic cement. Use dust masks and/or wear protective gloves during mixing, transporting, and placing of Metalcrete HT.

l. Maintenance: Metalcrete HT is intended to require minimum maintenance once properly installed. Metalcrete HT floors should be cleaned with standard high alkaline floor cleaners and power scrubbers. Additional applications of Seal N Kure 30 at project turnover or at other intervals once the floor is in use are optional, but not mandatory. Floors should be inspected for any needed maintenance at intervals not exceeding six months.

6. Availability

Metalcrete HT is normally available immediately from your local distributor or it will be shipped within 5 working days upon receipt of order. Please contact your local Metalcrete representative or call Metalcrete directly for more information.

7. Warranty

Metalcrete HT is manufactured in strict accordance with the quality control standards of Metalcrete Industries. It is guaranteed to perform as indicated on this data sheet when applied by competent applicators.

8. Technical Service

Metalcrete technical service representatives are available to provide on-site assistance with a minimum three day notice.



Metalcrete Industries

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