

Industrial Plasters and Gypsum Cements for Foundry Applications

USG Metal Casting Plaster

A blend of plaster and refractory materials formulated for producing low-permeability plaster molds. Designed for casting aluminum matchplates, cope-and-drag sets, core boxes, loose patterns, prototypes, housings and plastic mold tooling.

HYDROPERM Gypsum Cement

A formulated product incorporating an air-entraining agent to provide permeability. For producing permeable plaster molds to cast many non-ferrous metals and alloys.

Medium High-Expansion HYDROCAL Cement

A formulated product to give uniform expansion of a pattern in all directions, equal to the shrinkage of aluminum or zinc alloy metals (Kirksite, Zamac, etc.). Normal growth range is $\frac{1}{16}$ to $\frac{3}{16}$ inch per foot.

The Plaster Mold Casting Process

Is Superior To Other Methods When . . .

- You need fine, intricate surface detail.
- You want to use parts in an as-cast condition.
- You want to reduce or eliminate post-machining of castings.
- You need better dimensional accuracy for cast-to-size parts.
- You need to cast thin metal sections, not possible with other methods.
- You need to produce complicated shapes with intricate core structures.
- You cannot justify the higher pattern or die costs required by some casting methods.
- You want to do short run or prototype castings economically.

Typical Physical Properties

Product	Use consistency (parts of water by weight per 100 parts of plaster)	Hand mix setting time (minutes)	Maximum setting expansion (%)	Approximate density (lb./ft. ³)	
				Wet	Dry
USG Metal casting plaster	130	25-30	0.100	84.6	41.0
Medium high-expansion HYDROCAL cement	48	25-35	1.050	108.7	—
HYDROPERM gypsum cement	100	12-19	0.140	40.0	—

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