

OMEGABOND® High Temperature Air Set Cements

Heat Conductive
 Thermal Shock Resistant
 Insulate Electricity
 Resists Oils, Solvents,
 Most Acids
 Adheres to Practically
 All Clean Surfaces**

OB Series



OMEGABOND® 400

OMEGABOND® 500 Powder

OMEGABOND® 500 Liquid

Air Set Cements set or cure through loss of moisture by evaporation. Atmospheric conditions therefore affect the drying rate. Air Set Cements are used mainly in thin film applications (applied in thicknesses less than 1/4")*.

Selection Criteria for Cements

1. Type of Application—

Potting, sealing, encapsulating, assembling, bonding. Is a thick or thin film of cement required? This dictates whether or not an air set or a chemical set cement should be used.

2. Thermal Considerations—

What is the maximum temperature that the cement must withstand? What degree of thermal conductivity is needed? What degree of thermal expansion is allowed? These parameters are then matched to the appropriate cement.

3. Substrate—What materials will the cement be in contact with?

4. Application Considerations—Pot life, set time, method of dispensing, batch size, cure procedure.

5. Miscellaneous Considerations—

Porosity, moisture absorption, electrical resistance, volume stability, clearances/tolerances.

To Order Visit omega.com/ob_omegabond_air_set for Pricing and Details

Model No.	Description
OB-300	OMEGABOND® 300 powder, 8 fluid oz (1 part cement; just mix with water)
OB-400	OMEGABOND® 400 powder, 8 fluid oz (1 part cement; just mix with water)
OB-500 POWDER	OMEGABOND® 500 powder, 8 fluid oz (2 part cement; mix powder with OB-500 liquid)
OB-500 LIQUID	OMEGABOND® 500 liquid, 8 fluid oz (2 part cement; mix liquid with OB-500 powder)
OB-KIT-1	Air set cement kit, ideal for research purposes; includes 2 fluid oz each of OB-300, OB-400, OB-500 powder and OB-500 liquid
OB-TL	OMEGABOND® thinning liquid, 8 fluid oz used to dampen porous substrates before application of mixed OB-300 or OB-400 cements

*, ** See next page for footnotes.

Ordering Example: OB-400, is a high temperature air set cement, 8 fluid oz.

High Temperature Air Set Cements



Applications		
OMEGABOND® 300	OMEGABOND® 400	OMEGABOND® 500
Assembling Sealing Insulating	Coating Embedding Insulating	Coating Dipping Casting

Physical Properties†

	OMEGABOND 300	OMEGABOND 400	OMEGABOND 500
Type of Cement (1 or 2 Part)	1 Part	1 Part	2 Part
Coefficient of thermal expansion, in/in°F	6.2 x 10 ⁻⁶	13.0 x 10 ⁻⁶	10.93 x 10 ⁻⁶
Color	Off white	Tan to gray	Off white
Compressive strength, psi	3900	3300	1500††
Dielectric constant	3.5 to 6.0	3.4 to 4.5	
Dielectric strength at 20°C (70°F), V/mil	12.5 to 51.0	12.5 to 51.0	
Dielectric strength at 400°C (750°F), V/mil	≤15.0	≤15.0	
Dielectric strength at 795°C (1475°F), V/mil	≤1.3	≤1.3	
Maximum service temperature, °C (°F)	980 (1800)	1425 (2600)	1205 (2200)
Modulus of rupture, psi	460		
Shear strength, psi	710	375	
Tensile strength, psi	410	325	1500
Volume resistivity at 20°C (70°F), Ω-cm	10 ⁸ -10 ⁹	10 ⁸ -10 ⁹	
Volume resistivity at 400°C (750°F), Ω-cm	10 ⁴ -10 ⁵	10 ⁵ -10 ⁶	
Volume resistivity at 795°C (1475°F), Ω-cm	10 ² -10 ³	10 ³ -10 ⁴	
Density (wet), lbs/ft ³			112
Density (dry), lbs/ft ³			82
Flexural strength, psi			2000††
Modulus of elasticity, psi			3.6 x 10 ⁵
Pot life, hr			1.0
Thermal conductivity, btu-in/ft ² -hr-°F	4-6	11	
Mix ratio	1-part cement; just mix powder with water to a smooth, uniform consistency	1-part cement; just mix powder with water to a smooth, uniform consistency	2-part cement: just mix powder and binder; mix ratio for cast applications ranges from 1.87 to 2.0 parts powder to 1-part liquid binder by weight
Curing schedule	OMEGABOND 300® cures at room temperature by air drying in 18 to 24-hr, depending upon thickness and consistency; cure time can be accelerated by low temperature oven drying at 82°C (180°F); if the cement is to be exposed to elevated temperatures, cure for 18 to 24-hr at ambient temperature, then oven dry for 4-hr at 82°C (180°F) and for an additional 4-hr at 105°C (220°F), this helps to prevent spilling	OMEGABOND 400® cures at room temperature by air drying in 18 to 24-hr, depending upon thickness and consistency; cure time can be accelerated by low temperature oven drying at 82°C (180°F); if the cement is to be exposed to elevated temperatures, cure for 18 to 24-hr at ambient temperature, then oven dry for 4-hr at 82°C (180°F) and for an additional 4-hr at 105°C (220°F), this helps to prevent spilling	OMEGABOND 500® has a pot life of 1-hr after the powder and binder are mixed together; OB-500 reaches an initial air set after 4-hr at room temperature; a final set is only reached after oven baking at 55°C (130°F) for 4-hr; if the cement is to be used at temperatures above 100°C (212°F), OB-500 must under go an extended cure at 105°C (220°F) or above for 12 hours
Distinguishing characteristics and applications	Lower thermal conductivity and coefficient of thermal expansion	Higher thermal conductivity and coefficient of thermal expansion; high maximum temperature rating	Withstands short-term immersion in molten metal; used as a coating on expendable thermocouple tubes

† These physical properties were determined under laboratory conditions using applicable ASTM procedures. Actual field data may vary. Do not use physical properties data for specifications.

†† Strength at 1 day after curing at 105°C (220°F).

* Chemical set cements are also available. See OMEGABOND® 600, OMEGABOND® 700 and CC high temperature cement. These cements set or cure by an internal chemical action which does not require exposure to air. They can be used in thick applications (greater than 1/4" thickness).

** Porous substrates may require dampening with thinning liquid before application of mixed cement. For OMEGABOND® 300 and OMEGABOND® 400 (1 part cements), order OMEGABOND® thinning liquid (8 fluid oz), **OB-TL**. For OMEGABOND® 500 (2 part cement), use OMEGABOND® 500 liquid to dampen porous substrates.