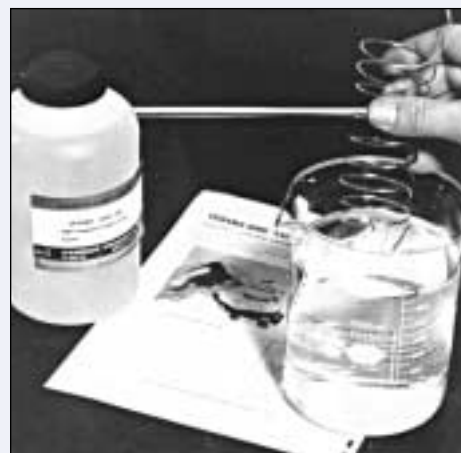


Aremco's Cerama-Bind™ materials are unique inorganic, water-based binder systems used in the formulation of specialty adhesives, coatings, sealants and putties for applications to 3200 °F. The versatility of Aremco's Cerama-Bind™ products enables users to blend formulations using most ceramic, glass and metal-oxide powders. Specific properties such as coefficient of thermal expansion, thermal conductivity, dielectric strength, and chemical and moisture resistance can be optimized.

PRODUCT HIGHLIGHTS

- 542** An acidic, etching solution which is ideal for use in adhesive systems for bonding non-porous ceramics and glass. Stable when mixed with copper. Reacts with bases such as carbonates, oxides and hydroxides of alkali metals.
- 642** A basic solution which is highly compatible with most ceramic and metal powders. Good wettability and tack, and excellent acid resistance after curing. Extremely moisture resistant after a high temperature cure. Sets up in thick cross-sections when properly formulated.
- 643-1** A basic solution compatible with most ceramic and metal powders. Excellent binder for producing high temperature protective coatings and refractory and chemically resistant adhesives and patching materials. Fully cures at low temperatures and sets up in thick cross-sections when properly formulated.
- 643-2** Similar to 643-1. Excellent for formulating thin coatings that set at room temperature and can be raised rapidly to high temperatures.
- 644-A** An acidic, colloidal alumina binder developed for mixing with sized refractory flours and grains to produce high temperature refractory coatings for ceramic fiber boards. Used as a superior standalone system to rigidize refractory fiber shapes.
- 644-S** A colloidal silica aqueous solution which produces high adhesive strength. Ideal for blending with all types of granular and fibrous ceramics. Excellent resistance to temperature, moisture and mechanical shock.
- 830** A basic solution compatible with most oxide and metal powders. Ideal for formulating high pigment-to-binder ratios to produce dense adhesives and coatings. Sets at room temperature to a moisture resistant film and does not require a heat cure. Use only for thin coating systems less than 1 mil thick.
- 875** An acidic powdered binder system used to formulate high strength, hydraulic-setting cements for electrical potting or molding applications. A powder blend is typically formulated by adding one part binder to four parts filler by weight. Water is then added in a ratio of 15-20 parts to 100 parts powder blend by weight. Curing occurs at room temperature or can be accelerated by heating at 200 °F for 1-2 hours.
- 880** High temperature, water-dispersible silicone resin for producing corrosion and moisture resistant coatings and sealing porous ceramics. Cures at 450 °F in one hour.



TYPICAL PRODUCT SPECIFICATIONS

Product	542	642	642A	643-1	643-2	644-A	644-S	830	875	880
pH	2.5	10.7	10.7	11.0	11.5	4.0	9.0	11.4	2.8	6.5
Specific Gravity, gms/cc	1.47	1.41	1.25	1.26	1.27	1.23	1.40	1.20	1.36	1.04
Viscosity, cps	50	370	200	60	30	7	35	10	N/A	480
Solids Content, % by weight	40	40	25	30	30	30	40	25	100	50
Temperature Resistance, °F (°C)	3200 (1760)	3000 (1650)	3000 (1650)	3000 (1650)	3000 (1650)	3000 (1650)	3200 (1760)	2000 (1093)	3000 (1650)	1200 (650)

APPLICATION PROCEDURES

Mixing & Curing (Except 875)

- 1) Blend powder(s) slowly into Cerama-Bind™ Liquid Binders until desired viscosity is achieved. Mix slowly to reduce entrapped air.
- 2) Binder-to-Powder weight ratios of 4:1 to 1:1 are recommended when formulating adhesives, coatings and pastes.
- 3) Note: Mixtures of more than one binder can also be blended to achieve specific properties.
- 4) Apply mixture to clean surfaces. Extremely smooth surfaces are difficult to wet and should be sandblasted or etched whenever possible. Porous substrates tend to absorb and separate the binder from the powder; these substrates should be pre-coated with the binder only prior to applying the mixture.
- 5) After the mixture is applied, air dry for a minimum of one hour or until the surface is dry to the touch. Extend the air dry period for larger applications.
- 6) Cerama-Bind™ 542, 642, 642A and 643-1 should be heat cured at 200 °F for 1-4 hours, then cured at 300 °F for 1-2 hours.

Cerama-Bind™ 542 should be cured at 500 °F for 1-2 hours, then at 700 °F for 1-2 hours in order to maximize adhesive strength and moisture resistance.

Cerama-Bind™ 644 can be cured during operation if the use temperature is reached slowly at approximately 200 °F per 1/2 hour.

Cerama-Bind™ 643-2 and 830 should be air dried for 1/2 hour. A heat cure is not required.

Storage

Unopened containers have a six-month shelf life when stored at room temperature. Make sure opened containers are capped securely to prevent evaporation. Place a plastic film in between the cap and container to prevent air leakage. Store containers between 45 °F and 95 °F.

Safety

Read Material Safety Data Sheet carefully prior to use. All Cerama-Bind™ products are water-based materials which can be washed from the skin, in the uncured state, with mild soap and warm water. Prolonged skin contact should be avoided to prevent irritation. If any material contacts the eyes, flush continuously with water or neutralizing solutions, then consult a physician immediately.

Cerama-Bind™ Compatibility Chart

PRODUCT	542	642/642A	643	644-S	644-A	830
Aluminum	R	S	R	S	R	S
Aluminum Oxide	S	S	S	S	S	S
Aluminum Nitride	R	S	S	S	S	S
Boron Nitride	S	S	S	R	S	S
Brass	S	S	S	S	S	S
Bronze	S	S	S	S	S	S
Chromium	R	S	S	S	S	S
Cobalt	R	S	S	S	S	S
Copper	S	R	R	R	S	S
Dolomite	S	S	S	S	S	S
Inconel	S	S	S	S	S	S
Indium	S	S	S	S	S	S
Indium Oxide	S	S	S	S	S	S
Invar	S	S	S	S	S	S
Iron	R	S	S	S	S	S
Iron Oxide	R	S	S	S	S	S
Magnesium Oxide	R	S	S	R	S	S
Manganese Dioxide	S	S	R	S	S	S
Mica	S	S	S	S	S	S

PRODUCT	542	642/642A	643	644-S	644-A	830
Molybdenum	R	S	R	S	S	S
Mullite	S	S	S	S	S	S
Neodymium Oxide	R	S	S	S	S	S
Nickel	R	S	S	S	R	R
Nichrome	S	S	S	S	S	S
Silicon Dioxide	S	S	S	S	S	S
Silicon	S	S	S	S	S	S
Silicon Carbide	R	S	S	R	S	S
Stainless Steel	R	S	S	R	S	S
Tantalum	R	S	S	R	S	S
Titanium	R	R	S	R	S	S
Titanium Diboride	R	R	R	S	S	S
Titanium Dioxide	S	R	R	R	S	S
Zinc	S	S	S	R	S	S
Zirconium Carbide	R	S	S	S	S	S
Zirconium Diboride	R	S	S	S	S	S
Zirconium Oxide	S	S	S	S	S	S
Zirconium Silicate	S	S	S	S	S	S

Key
S = Stable
R = Reacts

Refer to Price List for complete order information.

Aremco Products makes no warranty express or implied concerning the use of this product.

The user assumes all risk of use or handling whether or not in accordance with directions or suggestions, or used singly or in combination with other products.