

ARMOR PLATE - CERAMIC
REGULAR (R) – K - 036, FAST (F) – K - 038, HIGH TEMP (HT) – K - 037

BGE* FREE, CHEMICAL AND WEAR RESISTANT, TROWELABLE EPOXY COATINGS
FOR INDUSTRIAL USE ONLY

Armor Plate - Ceramics are two-component, ceramic filled epoxy systems specifically designed to resist abrasive wear and corrosion in pump casings, slurry lines, pipe elbows, pneumatic transport systems, chutes, cyclones, fans, coal breakers, pulverizers, coal heads, and other high wear areas.

APPLICATION GUIDELINES @ 72 °F (22 °C)

	K - 036	K - 038	K - 037
	<u>Armor Plate - Ceramic (R)</u>	<u>Armor Plate - Ceramic (F)</u>	<u>Armor Plate - Ceramic (HT)</u>
MAX. SERVICE TEMP., °F (°C)	350 (177)	250 (121)	450 (232)
CONSISTENCY	----- Non-Sag Trowelable Paste -----		
WORKING TIME ¹ , min	60	30	90
MIX RATIO (Resin/Hardener)			
Pbv	5.4/1	5.7/1	4/1
Pbw	6.2/1	6.7/1	4/1
CURING TIME ² , h	12	3 – 4	See Application Instructions
KIT/VOLUME, in ³ (cm ³)	14 lb (6.35 kg): 175 (2868) 24 lb (10.89 kg): 300 (4916) 54 lb (24.49 kg): 674 (11045)	11.5 lb (5.22 kg): 143 (2343) 24 lb (10.89 kg): 298 (4883) 45 lb (20.41 kg): 560 (9177)	11.5 lb (5.22 kg): 143 (2343) 45 lb (20.41 kg): 560 (9177)

Approximate coverage per pound is 25 in.² (161 cm²) at 0.5 in. (1.27 cm) thickness.

¹The working time of Armor Plate-Ceramic (the time you have to apply the material before it sets) will vary according to the air temperature, the temperature of the material itself, and the surface to which it is applied.

²Ultimate hard cure is obtained in 4 to 18 hours depending on the system being used, the air temperature, and the temperature of the surface being coated.

PHYSICAL PROPERTIES

	<u>Armor Plate - Ceramic (R)</u>	<u>Armor Plate - Ceramic (F)</u>	<u>Armor Plate - Ceramic (HT)</u>
TENSILE STRENGTH, psi (MPa) ASTM D 638	3,000 (21)	3,500 (24)	3,700 (26)
FLEXURAL STRENGTH, psi (MPa) ASTM D 790	5,000 (34)	6,500 (45)	8,600 (59)
COMPRESSIVE STRENGTH, psi (MPa) ASTM D 695	17,000 (117)	16,500 (114)	16,000 (110)
TENSILE SHEAR STRENGTH, psi (MPa) ASTM D 1002	2,000 (14)	1,500 (10)	2,200 (15)
FALLING BALL IMPACT STRENGTH, (ft – lb (kg.m))	6.3 (0.87)	3.2 (0.44)	9.5 (1.31)
WEAR RESISTANCE (weight loss), %	0.5	0.6	0.6
HARDNESS, Shore D ASTM D 2240	85	90	90

*BUTYL GLYCIDYL ETHER. The EPA (SARA Title III, section 312) lists BGE as “Toxic” (per ANSI Z129.1) by skin absorption and an immediate health hazard.

APPLICATION INSTRUCTIONS

Step 1 - Surface Preparation

The surface to be coated must be free of all rust, scale, dirt, dust, grease, oil, release agents, or other contaminants. Preheat the surface to 100 °F or 37.7 °C (this will drive off any moisture). For smoother surfaces or where vibration is a concern, tack weld an open mesh screen or expanded metal approximately 1/16 to 1/8 in. (1.59 - 3.18 mm) above the surface. Chip off weld slag.

Step 2 - Measuring

Armor Plate-Ceramic kits are supplied with the resin and hardener pre-measured in the correct mixing ratio. It is best to empty the entire contents of both the resin and hardener containers on a mixing board to insure the proper mixing ratio is maintained.

If less than a full kit is required for the job, both the resin and hardener **must** be **accurately** measured out. **DO NOT ATTEMPT TO "EYEBALL" THE AMOUNT NEEDED.** Use a scale to weigh out each component or use measuring cups to portion by volume. Adding more or less hardener will only degrade the physical properties.

If the kit is colder than 60 °F (15.6 °C), preheat both the resin and hardener by placing the cans in a hot water bath. The water temperature should not exceed 90 °F (32.2 °C) as high heat will reduce the working time of the mix. Heating of the cans with a torch is **NOT** recommended.

Step 3 - Mixing

After the components have been measured on a clean, flat mixing board, mix thoroughly with a trowel until a uniform color is achieved, (usually about 2 minutes).

For mixing the largest kits, a mixing paddle and heavy duty, slow speed drill may be used. However, the mechanical energy put into the mix by the drill may result in a shortened working time and a reduction of the non-sag characteristics of the Armor Plate.

Remember that incomplete mixing will result in poor curing, loss of physical properties, and "soft spots".

Step 4 - Application

Initially apply a thin, wet coat to the surface to create tack. Build upon the tack coat to the desired thickness. If a screen or expanded metal is used for reinforcement, apply an excess of material at one end of the area and push it through the screen. Push the material so that it "wets" the surface below the screen and moves in a continuous mass toward the other end of the area.

Step 5 - Curing Procedures

Armor Plate-Ceramic (R) - Cure at least 12 hours at 77 °F (25 °C) before returning equipment to service. For maximum physical properties cure 4 hours at 200 °F (93.3 °C) after curing 2 hours at 72 °F (22 °C).

Armor Plate-Ceramic (F) - Cure at least 4 hours at 77 °F (25 °C) before returning equipment to service.

Both curing procedures may be shortened by applying heat with a hot air blower or heat lamp. Do not exceed 120 °F (48.9 °C).

Armor Plate-Ceramic (HT) - For service up to 300 °F (148.9 °C).

Allow at least 8 hours cure at 77 °F (25 °C) or higher. Then preheat for at least 3 hours at the peak operating temperature prior to start up. For service above 300 °F (148.9 °C) - Allow 8 hours cure at 77 °F (25 °C) or higher. Preheat 3 to 4 hours at 400 °F (204.4 °C) or peak operating temperature.

DO NOT EXCEED 450 °F (232.2 °C)

SAFETY PRECAUTIONS

Avoid breathing of vapors. Forced local exhaust is recommended to effectively minimize exposure. NIOSH approved, organic vapor respirators and forced exhaust are recommended in confined areas, or when conditions (such as heated polymers, sanding) may cause high vapor concentrations. **DO NOT WELD ON, BURN OR TORCH ON OR NEAR, ANY EPOXY MATERIAL. HAZARDOUS VAPOR IS RELEASED WHEN AN EPOXY IS BURNED.**

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