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Technical Bulletin

# REDBAC Rapid Strength Grout – K-829

**Description:**

K-829 is a three component, 100 % solids epoxy system combining early mechanical strength development, comfortable working time, and excellent flow. K-829 has been specifically formulated to address fast compressive strength development which reduces installation costs related to usage of expensive equipment like cranes, lifting jacks, etc. Redbac Rapid Strength Grout does not contain butyl glycidyl ether (BGE[1]) or nonyl phenol[2].

**Intended Use:**

- Rapid Strength Development
- Excellent Flow & Effective Bearing Area
- Grouting Machine Bases & Setting Sole Plates
- Foundation Repair and Support

**Application Guidelines:**

The working time (the time you have before the grout sets) will vary according to the air temperature. The average working time at 70-72 °F (21-22 °C) will be about 60 minutes. In cooler weather you will have more time to pour, in hotter weather you will have less time.

The average cure time from the last pour to machinery start-up will be 4-6 hours at 75-77 °F (23-25 °C). In cool weather, the grout will cure and develop strength more slowly than in hot weather. Remember that along with the air temperature the temperature of the foundation concrete must be taken into account when assessing the cure time needed.

**Handling Properties:**

| | | | |
|---|---|---|---|
| SPECIFIC GRAVITY, g/cm³ | 2.08 | | ASTM D 792 |
| MIXED VISCOSITY, cP or mPa.s | 28,000 | | ASTM D 2196 |
| WORKING TIME, min | 60 | | |
| GEL TIME, min | 90 | | ASTM D 2471 |
| MAXIMUM DEPTH OF POUR in. (cm) | 2 | (5.08) | |

**Physical Properties:**

| | | | |
|---|---|---|---|
| COMPRESSIVE STRENGTH, psi (MPa) | | | ASTM C 579 |
| 8h | 10,200 | (70.3) | |
| 16h | 13,100 | (90.3) | |
| 24h | 14,000 | (96.5) | |
| 7 days | 15,500 | (106.9) | |
| ULTIMATE[3] | 17,300 | (119.3) | ASTM D 695 |
| COMPRESSIVE MODULUS | 489,000 | | |
| TENSILE STRENGTH | 2,400 | (16.5) | ASTM C 307 |
| FLEXURAL STRENGTH | 4,750 | (32.8) | ASTM C 580 |
| HEAT DISTORTION TEMPERATURE, °F (°C) | 170 | (77) | ASTM D 648 |
| MAXIMUM SERVICE TEMPERATURE, °F (°C) | 300 | (149) | |
| COEFFICIENT OF THERMAL EXPANSION | 6.0X10-6 (in./in./F) | | ASTM C 531 |
| EFFECTIVE BEARING AREA | ≥ 95 | | ASTM C 1339 |
| BOND TO CONCRETE (complete concrete failure) | ≥ 550 | (3.8) | ASTM C 882 |
| ADHESION TO STEEL (clean, blasted) | 2,500 | (17.2) | ASTM D 4541 |
| HARDNESS, Shore D | 92 | | ASTM D 2240 |
| WATER ABSORPTION | 0.22% | | ASTM D 570 |
| CREEP | | | ASTM C 1181 |
| (@ 600 psi (4MPa) @ 150 °F (65.5 °C)) | 4.5X10-4 (in./in.) | | |

1 – 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.
2 – Nonyl Phenol is a Marine Pollutant and considered "Dangerous for the environment" per the EU directive 79/831/EEC.
3 – Cure cycle: 3 h/150 °F + 2 h/212 °F

**Surface Preparation:**

**CONCRETE PREPARATION:** Remove all oil, grease, or contaminated concrete. Chip the surface down to sound aggregate. The concrete must be **dry** and have no water in the anchor bolt holes. Light sand blasting or acid etching surface preparation procedures may result in poor bond and should be avoided. Do not prime or seal concrete surfaces.

**FORMING:** Standard wood or metal forming may be used. The forms should be protected with heavy coats of paste wax, grease, or form release agent. Wrapping the forms with heavy plastic is acceptable. The forms must be caulked and sealed to a liquid-tight condition.
When placing forms for grouting, it is absolutely necessary that the top of the forms be at least half way up the sides of the base plate or machine base. Placing the grout just to the bottom of the base plate will result in an improper grout job. If the forms cannot be placed half way up the side of the machine base, the minimum distance is 3/4 inch (1.9 cm) above the bottom of the machine base.
The forms should be placed between 2 and 6 inches (between 5 and 15 cm) away from the perimeter of the machine base to allow for the air to escape and to provide for a grout shoulder around the base plate.

**PREPARATION OF METAL SURFACES:** Base plates or sole plates to be grouted should be sand blasted to a "white metal" condition. If it is impossible to grout within 24 hours of sand blasting, the surfaces should be primed with a high-quality primer. Do not use porch and deck enamel or red-lead primer.

**Mixing:**

Mix the Resin (Part A) and the Hardener (Part B) for 2-3 minutes with a slow speed (500 rpm or less) drill and Jiffy Mixer (mixing paddle). Add aggregate (Part C), mix to a uniform consistency. Pour the material into the form.

**Application:**

Always sweep (pour) from one side of the base toward the other to eliminate entrapped air. The storage temperature of the unmixed kits of K-829 will greatly affect both the ease of pouring and the cure time. For best results, kits should be stored in a warm room for at least 24 hours before use. Do not pour if the grout is below 50 °F (10 °C).

During cold weather (below 50 °F or 10 °C), it is important that the foundation be enclosed and maintained above 50 °F (10 °C). The cure time of the grout will be longer during cold weather and it is important that the grouted area be kept warm (above 50 °F or 10 °C) until the grout has cured completely.

Uncured K-829 can be removed from tools and equipment with Copps Enviro Kleen or isopropyl alcohol.

**Packaging:**

Volume/Kit:

K-829-89, 1209 $in.^3$ = 0.7 $ft.^3$, approximately (0.02 $m^3$)
K-829-178; 2419 $in.^3$ = 1.4 $ft.^3$, approximately (0.04 $m^3$)

## 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.** Avoid skin or eye contact. Wash skin with soap and water if contact occurs. If eye contact occurs flush with water for 15 minutes and obtain medical attention. Read and understand all cautions on can labels and safety data sheets before using this material.

***FOR INDUSTRIAL USE ONLY***