

Technical
Data Sheet



Willamette Valley Company

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PERFORMANCE PRODUCTS

Partnering through service,
innovation, and integrity

POLYQuik® Tower Foundation Grout (TFG)

High Strength Footing Compound

DESCRIPTION

POLYQuik® Tower Foundation Grout (TFG) was designed specifically for wind turbine footings. TFG is a tough, 100% solids, two-component urethane that sets quickly, allowing fast return to service. Can be used in other applications that require a fast setting, high strength material.

WHERE TO USE

- **Wind Turbines**—Strong, durable footing compound
- **Other Applications**—Versatile

FEATURES AND BENEFITS

- **Easy to Use**—Applied through a meter
- **Fast Curing**—Quick return to service
- **Non Brittle**—Absorbs impact and stress
- **Excellent Adhesion**—Bonds strongly to itself and concrete
- **Low Viscosity**—Flows into place easily
- **Cures at Low Temperatures**—No conditioning required
- **No Preconditioning or Post Curing** - Less down-time & fast return to service

PACKAGING

- 5-gallon Buckets
- 50-gallon drums

COLORS

Gray or Black

YIELD

- 600-mL Cartridge = 36.61in³
- 5-Gallon Bucket Sets (10-gal total) = 2310in³
- 50-Gallon Drum Sets (100-gal total) = 13.36ft³

SHELF LIFE

1 year when properly stored. Mix Before Using.

STORAGE

Store and ship this product in a clean, dry, low-humidity, shaded or covered environment at 60 to 90° F (15 to 32° C).

TECHNICAL INFORMATION

Typical Properties

VOC , lbs/gal (g/L), ASTM D 2369	0
Viscosity , cps, ASTM D 4878, mixed	400
Service Temperature ° F (° C)	-30 to 170 (-34 to 77)
Potlife , min., 70° F (21° C)	2
Set Time , min., 70° F (21° C)	2.5
Tack-free Time min., 70° F (21° C)	3
Hardness , Shore D, ASTM D 2240	85
Concrete Adhesion psi (MPa), ASTM D 4541	836 (5.8) 100% substrate
Flexural Strength , psi, (MPa) ASTM C 580-02	12,233 (84.35)
Linear Coefficient of Thermal Expansion , 1/°F (1/°C), ASTM C 531-00	5.0 × 10 ⁻⁵ (8.9 × 10 ⁻⁵)

Cure Time (Resin was conditioned at 70° F)

Temperature, 50% RH	Gel Time, min.	Tack-free Time, min.
0° F (-18° C)	5-10	20-30
40° F (4° C)	3-5	7-10
70° F (21° C)	2-3	4-5
107° F (42° C)	2-3	3-4

Compression (ASTM C579) 2" cubes

Time (hrs)	Max Load, lbf (kN)	Comp. Strength, psi (Mpa)
6	21,420 (95.3)	5,355 (36.9)
24	43,000 (191.3)	10,750 (74.1)
168	46,120 (205.2)	11,529 (79.5)

Processing Parameters

Ratio by Volume	1 to 1 (Resin to Iso)
Ratio by Weight	0.867 (Resin to Iso)
Application Temp. , ° F (° C)	10 to 110 (-12 to 43)
Mixer Dimensions	13 mm diameter with 32 elements

APPLICATION

PREPARATION

CONCRETE

1. The concrete footing must be fully cured 28 days, structurally sound (200 psi or greater according to ASTM D7234), clean (ASTM D4258), and dry (less than 5%, ASTM E1907).
2. Concrete surface must be dry and clean. Water or oil present can result in poor adhesion. Apply product only if surface temperature is 5° F (3° C) above the dew point to avoid application over damp surface.
3. Remove any contaminants before profiling surface.
4. It is recommended to profile surface according to ICRI Guide 03732 to a minimum of CSP 3 by abrasive blasting.
5. Use a minimum 150 PSI continuously dry compressed air to blow out loose debris, dirt and dust prior to applying product. Moist concrete can be torched dry. If moisture returns immediately after torching, stop and do not install TFG in this area.
6. Use a steel bristle brush to remove dirt on vertical and horizontal concrete surfaces and use compressed air to blow out prior to applying product.
7. As necessary, plug all gaps or joints in the footing area with foam backer rod and choose a rod width that fits tightly in the area.
8. Priming all concrete surfaces is recommended. Prime with POLYQuik® 1K Primer or POLYPrime.
9. Honor all joints or moving cracks in the footing area by saw-cutting after TFG has cured.

OTHER MATERIALS

Previously installed polymer materials must be tested to determine the best method of preparation to achieve acceptable adhesion. Consult manufacturer for recommendations. Typically, methods will include solvent-cleaning, abrading, and vacuuming surface.

GRAVEL INFORMATION

1. Use WVCO approved gravel to achieve typical properties. Gravel may be purchased from multiple sources. Gravel should be approximately 3/8" round rock that is washed and dried.
2. Gravel makes up 40-50% of the footing volume.
3. Typically 20-lbs (9 kg) of gravel is required for each gallon of mixed resin/iso.
4. Gravel can be approved by WVCO. Contact WVCO for gravel testing and approval.

PROCESSING

1. Use WVCO meter or equivalent at a 1 to 1 ratio by volume. For various metering applications contact Willamette Valley Company Precision Technologies Division for equipment recommendations.

2. Precondition the RESIN, ISO and GRAVEL to 70°F (21°C) for 24 hours before using. Gravel must be dry and free of dust.
3. Mechanically mix RESIN for at least 15 minutes before proportioning begins. Use a mixer fitted with blades that are 1/3 the diameter of the container to redistribute any settled material.
4. Test the meter operation and TFG before dispensing in footing area using a 13 mm diameter mixer with 32-elements. Dispense in test area to verify TFG color is uniform and the material sets up in 2-10 minutes. Dispense the Resin and Iso separately, measuring a 1:1 volume of each to ensure proper ratio.
5. Stopping more than 45-seconds can clog mix-tubes. Change mix-tubes if dispensing stops more than 45-seconds at 70°F (21°C). Elevated temperatures decrease mix-tube life.
6. Periodically inspect applied material for uniformity and proper set. If inspected areas are non-uniform; stop, change mix tube and check meter operation for compliance.

APPLICATION

1. Place gravel in footing below surrounding surface by 0.25 inches (0.60 cm).
2. Line outside of footing area with foam insulation tape to limit material from spilling onto the pad before penetrating the gravel.
3. Insert mix tube nozzle in the lowest elevation of the gravel and dispense until TFG floats on the gravel. Move the mix tube to higher elevations while dispensing until the entire footing is flooded with TFG.
4. Trowel (plastic) TFG level with surrounding surface if necessary. Avoid overfilling footing area.
5. For larger footings, a subsequent skim coat may be applied within 1-hour after the initial application has solidified. Use skim coat to apply additional topping sand for desired texture or to bring repair to proper height.

NOTE: Material is workable for approximately 2-minutes at 70°F. Colder temperatures and cold gravel will slow the cure. Warmer temperatures will speed the cure. Return to service time is typically 1-hour at 70°F.

CLEANING & MAINTENANCE

Clean equipment with POLYQuik® Cleaner or acetone immediately after use. Cured material must be removed mechanically.

HEALTH AND SAFETY

Willamette Valley Company recommends that you read and become familiar with the MSDS before using this product.

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