TREMCO
Construction Products Group

Product Specification
Euco TREMgrout NS
Precision Non-Shrink Cementitious Grout

MATERIAL SPECIFICATION

Unless otherwise shown on Engineering Drawings, a precision non-shrink cementitious grout shall be used for:

- ❑ Precision grouting applications
- ❑ Column Baseplates
- ❑ Pumps, motors, drives and machine base plates
- ❑ Pre-cast Concrete
- ❑ Structural steel
- ❑ Rotating equipment subject to static loading under 200Hp (150kW)

The non-shrink grout shall be a blended, pre-packaged cement-based grout requiring only the addition of potable water.

The non-shrink grout shall meet all the following typical performance criteria when tested at 21°C:

TYPICAL PHYSICAL PERFORMANCE			
PERFORMANCE TEST		**TEST METHOD**	**TYPICAL VALUES**
Compressive Strength	1 Day	ASTM C109 (restrained)	34 MPa
	7 Days		68 MPa
	28 Days		82 MPa
Compressive Strength	1 Day	AS 1478.2	27 MPa
	7 Days		62 MPa
	28 Days		78 MPa
Flow Rate		ASTM C1437 (Flow Table)	> 130%
Expansion	3 Days	ASTM C1090 / CRD-C 621	0.04%
	28 Days		0.08%
Flexural Strength	1 Day	AS 1012.11	4.8 MPa
	7 Days		9.5 MPa
	28 Days		11.2 MPa
Tensile Strength	1 Day	AS 1012.10	3.1 MPa
	7 Days		4.4 MPa
	28 Days		7.8 MPa
Working Time			30 Minutes
Setting Time	Initial	Gillmore Needles	3 to 4 Hours
	Final		5 to 6 Hours

A non-shrink grout that meets the requirements is:

- ❑ Euco TREMgrout NS – Available from: TREMCO CPG – www.tremco.com.au

Ancillary products from Tremco Include:

- ❑ Evencure XDS-NXGEN – Curing Compound
- ❑ Dymonic 100 – One Part Polyurethane Sealant
- ❑ Formrelease WB – Form release agent

SURFACE PREPARATION

Concrete Surfaces

- ❑ Completely remove all loose, delaminated and weak concrete from the area to be grouted.
- ❑ Clean the surface and remove any surface laitance, dust, oil, grease, paint and / or other contaminants.
- ❑ Prepare concrete using acceptable mechanical means and concrete cleaners and degreasers as necessary to obtain clean, sound and rough surfaces.
- ❑ Coarse aggregate shall be exposed to provide a mechanical key for the subsequent grout.
- ❑ Soak concrete thoroughly with potable water for a minimum of 8 hours prior to placement.
- ❑ Concrete shall be saturated and free of standing water at time of grouting (surface saturated dry). Any free-standing water should be vacuumed up immediately before application of the grout takes place.

Steel Surfaces

- ❑ Where bond to steel surfaces is not required, coat with a suitable bond breaker.
- ❑ Where bond to steel surfaces is required, the steel surface shall be clean, free of oil, grease, rust, loose coatings and any other contaminants.
- ❑ Air relief holes must be provided where base plate design and high spots will create air pockets. Diameter of the air relief holes should be approximately 6mm.
- ❑ Baseplates must be set to final alignment before grouting commences.
- ❑ Any shims and wedges that are to remain in place, should be positioned a minimum of 50mm from the edge of the baseplate & have rounded corners to reduce stresses created during grouting.
- ❑ Grout holes may be required for grout placement when grouting skid mounted equipment if not already provided by the equipment supplier. Diameter of the grout holes provided should be a minimum of 100mm.

ENVIRONMENTAL CONDITIONS

- ❑ Substrate and equipment should be pre-conditioned to between 4°C and 32°C.
- ❑ For optimum performance grout should be pre-conditioned to between 15°C & 24°C
- ❑ Shade the material from direct sunlight as necessary.
- ❑ Store material in an area that is clean, dry & protected from the elements.

FORMWORK

- ❑ Formwork shall be rigid, securely anchored & strong enough to resist the forces created during grout placement.
- ❑ Formwork shall be caulked / sealed to prevent grout leakage during placement.
- ❑ Formwork shall be coated with a suitable form release compound taking care not to contaminate the areas to be grouted.
- ❑ The clearance between formwork and base plate on the pouring side shall be sufficient to allow for a head box.
- ❑ The clearance for remaining sides shall be 25 to 50mm.
- ❑ The unrestrained shoulders of the grout must be kept to a minimum. Consult the engineer where grout shoulders exceed 75mm for direction re: anchoring of the unrestrained grout.
- ❑ Height of formwork shall extend a minimum of 25mm above the bottom of the base plate.

MIXING

Drill and Paddle Mixer (Single unit mixes)

- ❑ Place the minimum amount of premeasured potable water into a clean mixing bucket.
- ❑ While mixing at a slow speed, slowly add grout and mix to a uniform consistency.
- ❑ Add remaining water to achieve desired workability.
- ❑ Do not exceed maximum water content as printed on product packaging or an amount that will cause segregation.
- ❑ Total mixing time should be between 4 to 5 minutes.
- ❑ Do not mix more material than can be placed within the working time of the grout.
- ❑ Do not re-activate the mix by adding additional water.
- ❑ Avoid splitting kits of grout i.e., only mix full units for all applications.
- ❑ Place grout immediately after mixing.

Pan Mixer (Stationary barrel with moving paddles for multiple unit mixes, or where grout is extended with aggregate)

- ❑ Do not exceed one-half the maximum capacity of the mixer.
- ❑ Pre-wet mixer ahead of mixing and then empty excess water.
- ❑ Start by adding the minimum amount of premeasured clean water to mixer.
- ❑ While mixing, gradually add the repair material and mix to a uniform consistency.
- ❑ Add remaining water as necessary to achieve desired workability.
- ❑ Total mixing time should be between 4 to 5 minutes.
- ❑ Do not exceed maximum water content as printed on product packaging or an amount that will cause segregation.
- ❑ Do not mix more material than can be placed within the working time of the repair material.

Aggregate Extension

- ❑ For pours deeper than 150mm the grout may be extended by the addition of course 6mm to 10mm aggregate
- ❑ For pours requiring aggregate extension, add aggregate before final water adjustment.
- ❑ Contact manufacturer for detailed aggregate extension guidelines.
- ❑ Do not re-activate the mix by adding additional water.

PLACEMENT

Pouring

- ❑ Grout must be placed quickly and continuously from one side only and across the shortest distance possible.
- ❑ A head box or similar device is recommended when pouring grout to avoid air pockets under the baseplate and assure complete filling of the void. Keep head box half full of grout to maintain hydraulic head of pressure and ensure continuous flow.
- ❑ Monitor formwork during grout pour for leaks. Any leaks must be sealed immediately.

- ❑ Place grout only to the bottom edge of the baseplate.
- ❑ For placements where the clearance is beyond 150mm, grout should be extended with clean, coarse 6mm to 10mm aggregate. Contact manufacturer for aggregate extension guidelines.

Pumping

- ❑ The size and type of the pump and the diameter of the discharge hose used are dependent on the installation parameters.
- ❑ The minimum inside diameter of the discharge hose shall be three times greater than the maximum aggregate size.
- ❑ Contact pump and material manufacturers for equipment recommendations and additional technical guidelines.
- ❑ The grout shall be mixed to a consistency that will not segregate while pumping.
- ❑ Before pumping, determine working time of material under jobsite conditions. Pumpability shall be determined by field testing and / or pre installation mockup trials if required.
- ❑ The pump shall be set up to minimize pumping distance and pump hoses should be kept as straight as possible.
- ❑ Immediately prior to pumping, the pump and hoses shall be primed with a slurry of grout and run until the hopper is empty.
- ❑ Once pumping has begun, it is important not to use any of the priming slurry from the discharge hoses. The primer mix must be discharged as waste.
- ❑ Pumped material shall not be used until a uniform consistency is obtained at the discharge nozzle.
- ❑ Mix enough grout to keep the pump hopper at least half full. The material shall be placed into pump hopper in a manner to prevent air entrapment and segregation.
- ❑ The pump hose should be placed under the baseplate and withdrawn while pumping. The pumping hose must be kept submerged in the grout during the pumping process.
- ❑ When the pumping hose cannot be placed under the baseplate due to tight clearances, then grout should be discharged from the pump hose into a head box to ensure continuous placement & avoid air voids under the plate. The head box shall be kept half full while pumping.
- ❑ Grout must be placed quickly and continuously from one side only and across the shortest distance possible.

Dry Packing

- ❑ Dry pack placement should only be done for small plates and where there is sufficient clearance to compact the grout properly into place.
- ❑ Field trials must be conducted to determine the water addition required to produce a consistency that can be squeezed into a ball by hand without falling apart. The mixed grout should have a moisture sheen on the surface.
- ❑ Use a solid board / back form to compact the grout against. A plunger, or appropriate tool should be used to compact the grout into place.
- ❑ If necessary, place grout in layers to ensure that it is placed evenly and without voids.
- ❑ Layers should be compacted into each other continuously until the void is filled.

FINISHING AND CURING

- ❑ If chamfer strips were not included in formwork, then exposed shoulders should be mechanically trimmed to provide a 45˚ chamfer on vertical & top edge sharp corners.
- ❑ As soon as the sheen of water disappears from exposed grout shoulders and the grout has started to stiffen, pond the exposed surfaces with water or cover with wet rags, or plastic to prevent premature drying out.
- ❑ Grout must be wet cured for a minimum of 3 days or coated with an approved curing compound after 24 hours of wet curing.
- ❑ Formwork may be removed as soon as the grout has stiffened or set sufficiently to prevent sagging away from the bottom of the baseplate.

Note: Formwork facilitates curing when left in place for as long as possible.

DISCLAIMER

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