

Ternal NT 203

Updated 10/16/15

1 General Characteristics

Ternal NT 203 is a calcium aluminate based mineral accelerator in which the reactivity is strictly controlled. It is specifically designed to be used as a setting and hardening accelerator for Portland cement. Ternal NT 203 has a built in admixture system that has been specifically designed to further enhance the early age performance and stability of the final mix.

TERNAL NT 203 is designed to accelerate a wide variety of Portland cements. It is known that Portland cements can contain varying amounts of free lime, alkalis and also can be optionally sulfated with gypsum, hemi-hydrate, anhydrite or various proportions of these sulfates. All of these variables have been taken into account during the TERNAL NT 203 product design so that quick hardening profiles are easily achieved when combining TERNAL NT 203 with a wide range of Portland cements. Portland cements with a low amount of clinker (high addition rate of slag, fly ash, etc.) will produce lower strength performance than traditional production. ASTM Type I/II cements typically provide the best results. Each Portland cement will exhibit a unique profile of acceleration performance and substituting one type of Portland cement with another in well balanced formula may require reformulation.

TERNAL NT 203 is compatible with all types of Portland cement, fillers and all current types of polymers and organic additives. TERNAL NT 203 is suitable for use in products like fast setting repair mortars and concretes. It is also possible to formulate a wide range of applications such as self leveling compounds, anchoring mortars and non shrink grouts.

TERNAL NT 203 includes a special admixture system which provides enhanced early age properties and a good consistency of the final mix. For particularly

difficult Portland Cements, the addition of a small amount of commonly available hydrated lime can increase the performance of the accelerator or be used as a quality control tool to manage setting time and hardening rates across various sources and deliveries of Portland cement.

TERNAL NT 203 is dark gray in color.

TERNAL NT does not contain crystalline silica.

TERNAL NT does not contain Lithium compounds.

TERNAL NT is a non chloride accelerator.

When TERNAL NT 203 is combined with Portland cement in a simple EN-196 sand mortar you can achieve the following typical results using 2 inch cubes.

Typical Mortar Acceleration Results						
80% EN 196 sand – 20-X% Portland Cement – 11% water						
X		Vicat	3h	6h	24h	28d
3	203	90 m	250 psi	500 psi	1000 psi	5000 psi
5	203	45 m	500 psi	750 psi	1500 psi	5000 psi

TERNAL NT is produced and controlled within a quality management system that is certified according to the standard ISO 9001.

2 Specifications

TERNAL NT 203 produced and distributed in North America adheres to the following specifications:

Chemical constituents (% by XRF chemistry)				
Al ₂ O ₃	CaO	SO ₃	SiO ₂	Fe ₂ O ₃
≥ 25.0	≤ 40.0	≤ 15.0	≤ 6.0	≤ 13.0

Physical Properties

- Specific Surface Area > 0.45 m²/g, as measured and calculated by a Malvern Laser Particle Size analyzer (using dry presentation method)
- d50 < 12 µm, as measured by a Malvern Laser Particle Size analyzer (using dry presentation method)
- Residue at 150 microns (+100 mesh) as measured with an Alpine Sieve analyzer: < 3%

Reactivity

- pH at 3 minutes: >10.0 (in a stirred dilute solution of 10:1 with distilled water)

For detailed test procedures, please contact a Kerneos Technical or Quality Manager.

3 Additional Physical properties

Physical Properties (using EN-196 sand mortar)

- Flow at 0 min: ≥ 140-150% (ASTM C1437)
- Vicat Initial Set: 150-300 min
- Vicat Final Set: 200-400 min

Modified ASTM C191 - Needle weight is 1000g, needle diameter is 1.16 mm, samples in air.

Note that product is not designed to be used as the sole binder as tested above.

- Bulk density: 1.04 – 1.20 g/cm³ (65 – 75 lb/ft³)
- Specific gravity: approx. 3.10
- Blaine fineness: 3500-4700 cm²/g (ASTM C204)

4 Packaging & Shelf Life

TERNAL NT is available palletized in 50 lb bags or 3000 lb. super sacks. It is also available in bulk semi-tanker.

TERNAL NT packaging is designed to protect it from humidity. However, as with all hydraulic binders, it is recommended that TERNAL NT not be placed outdoors or in direct contact with the ground. When correctly stored in dry conditions, the properties of TERNAL NT will remain within specification limit for at least 6 months. In most cases, its properties will be retained for over a year.

KERNEOS LIMITED WARRANTY

Kerneos warrants that this product, at the time of shipment, conforms to the Specifications set forth in section 2 of this Product Data Sheet. All other information provided in this Product Data Sheet is for guidance only. ALL OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED. Kerneos' sole obligation and the sole and exclusive remedy under this limited warranty shall be the replacement of any nonconforming product, or, at Kerneos' option, the refund of the purchase price. No warranty is given for any technical advice or recommendations provided by Kerneos. Buyer waives all claims under this limited warranty unless it has given written notice of nonconformity within 30 days of delivery.