

**Titan America
Pennsuco Cement Plant**

TriForce™ Cement Technical Data Sheet

TriForce™ cement, from the Titan America Pennsuco cement plant, is formulated with portland cement, limestone, and a natural pozzolan for high performance at a low CO₂ footprint. TriForce cement is designed for the concrete industry, offering low water demand, fast strength development, and the ability to batch SCMs at the concrete plant.

Features

- Meets ASTM C595 and AASHTO M240
- Low water demand
- Fast setting
- Fast strength development
- Excellent durability
- Low heat of hydration
- Low embodied CO₂
- Highly consistent (not a by-product)

Approvals - Codes & Specifications

TriForce cement can substitute Type I/II and IL cement. Since TriForce cement contains pozzolan while maintaining a strength development profile similar to that of Type I/II and IL, TriForce Cement may provide a range of options depending on mix design requirements, including:

- Reduce or eliminate SCM addition at concrete batch plant
- Maintain SCM addition at concrete batch plant for even greater durability and CO₂ reduction

Benefits

- Reduced concrete CO₂ footprint
- Improved durability associated with SCMs while maintaining setting and strength development associated with portland cement
- Simplified SCM sourcing
- Continued ability to add SCMs at the concrete batch plant



Usage

The use of TriForce cement is allowed in the following:

- ACI 318 Building Code Requirements for Structural Concrete
- ACI 301 Specifications for Concrete Construction
- ACI 350.5 Specifications for Environmental Concrete Structures
- ASTM C94 Standard Specification for Ready Mixed Concrete
- ASTM C90 Standard Specification for Load bearing Concrete Masonry Units
- Florida Building Code
- FL Department of Transportation
- US Army Corps of Engineers
- Masterspec®

Concrete Mix Design

A concrete testing program is recommended to optimize and validate performance, including field mock-ups where relevant. The following other changes should be considered when adjusting concrete mix designs:

- Pozzolan content may eliminate the need for SCM addition during concrete batching; however, TriForce cement is compatible with further SCMs added during concrete batching.
- Low water demand and good slump retention may enable reduced water content, resulting in improved hardened concrete performance.
- Routine adjustments to air entraining and other admixtures may be needed.
- Lower density of TriForce cement results in less aggregate needed to achieve yield.
- Performance is further enhanced at 56-days and beyond due to ongoing pozzolanic reactions.

Additional Resources

For more information, including Mill Certificates and Safety Data Sheets (SDS), contact your sales or technical service representative or visit TitanAmerica.com.