

TRIDENT F-01

CONCRETE ADDITIVE

Technical Data Sheet

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PRODUCT DESCRIPTION

Trident Concrete Additive is a revolutionary liquid admixture engineered to significantly increase concrete strength while reducing costs. Composed of modified nanomaterials dispersed in an aqueous matrix, Trident delivers exceptional mechanical property enhancements at remarkably low dosage rates (500-1300 ml per cubic meter).

This additive provides comprehensive performance improvements including increased compressive strength, enhanced resistance to corrosion, reduced **water** permeability, improved abrasion resistance, and superior bending characteristics.

KEY PERFORMANCE BENEFITS

Strength Enhancement

- 20-30% strength increase within 24 hours
- 10+ MPa (1,500+ PSI) improvement at 28 days
- Achieve 5,000 PSI using a 3,500 PSI recipe

Operational Advantages

- Plug-and-play solution
- No equipment modifications required
- Compatible with all superplasticizers

Cost Efficiency

- 300% more cost-effective than cement
- 5-7% reduction in COGS
- First additive that saves money

Sustainability

- 15-20% CO2 reduction
- PFAS-free formulation
- Supports green building certifications

CHEMICAL COMPOSITION

Component	Percentage	CAS Number
Advanced Nanomaterial	1-10%	308068-56-6

Component	Percentage	CAS Number
Proprietary Plasticizer	5-20%	-
Proprietary Stabilizer	1-5%	-
Aqueous Solution	70-95%	7732-18-5

PHYSICAL PROPERTIES

Form:	Liquid Suspension	Density @ 20C:	~1.02 g/cm3
Color:	Black	pH Range:	9-10
Odor:	Charcoal-like	VOC Content:	0 g/L

TYPICAL PERFORMANCE DATA

M25 Baseline vs. M25 with Trident (800 ml/m3)

Property	Baseline M25	M25 + Trident	Unit	Improvement
Compressive Strength	34.3	43.4	MPa	+26.5%
Flexural Strength	2.0	4.3	MPa	+115%
Water Permeability	0.07	0.04	KT/M2	-42.9%
Chloride Permeability	585	235	C	-59.8%

Customer Trial Results - 5% Cement Reduction

Mix Design	Trident Dose	7-Day Strength	28-Day Strength	Slump
Control DCA 6	0 oz/cwt	3,200 PSI	4,246 PSI	4.5 inches
Trident DCA 6	4.782 oz/cwt	3,620 PSI	5,226 PSI	4.0 inches

DOSAGE RATES & CONVERSION

Recommended Dosage Range

Metric: 500-1,300 ml per cubic meter
Imperial: 3-7 oz per cwt

Quick Conversion Table

800 grams/m3	= 3.8 oz/cwt
1,000 grams/m3	= 4.8 oz/cwt
1,200 grams/m3	= 5.8 oz/cwt

APPLICATIONS

Primary Applications:

- Ready-Mix Concrete (RMC)
- Precast Concrete
- Prestressed Concrete
- High-Strength Concrete
- Accelerated Construction Projects

Suitable For:

- Commercial and residential construction
- Infrastructure projects (bridges, highways)
- Industrial flooring and structures
- Marine and coastal structures

INSTRUCTIONS FOR USE

Mixing Procedure:

- **Pre-mixing:** Add Trident to mixing **water** before introduction to concrete mix
- **Timing:** Add at end of mixing cycle
- **Duration:** Minimum 45 seconds mixing for complete dispersion

Best Practices:

- Use with OPC 53 and Type F Fly Ash
- Conduct small-scale trials for new concrete recipes
- Test compressive strength at: 3, 7, 14, and 28 days
- Compatible with all generations of superplasticizers

STORAGE & HANDLING

Storage Requirements:

- Store in original sealed container
- Do not freeze
- Shelf life: ~18 months
- Use within 3-6 months for optimal performance

Handling Precautions:

- Wear appropriate PPE (gloves, goggles)
- Avoid skin and eye contact
- Handle in well-ventilated areas
- Wash exposed skin thoroughly after handling

PACKAGING OPTIONS

- 55-gallon drums - Standard distribution
- 250-gallon totes - Medium volume applications
- Bulk liquid delivery - For stationary tank depots
- Custom packaging available upon request

Technical Support:

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IMPORTANT NOTE

Do NOT add to cured concrete. Always conduct testing and validation before full-scale implementation.

For complete safety information, refer to the Trident Concrete Additive Material Safety Data Sheet (MSDS).

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