

OPTEVA™ TDA®

Quality/strength-enhancing additive

Product Description

OPTEVA™ TDA® additives are aqueous compositions of grinding aids with set-accelerating, water-reducing, and strength-enhancing compounds, all carefully controlled and accurately blended for constant quality and optimum performance.

Product specifications for the most widely used OPTEVA™ TDA® formulations are as follows:

Products	S.G.	pH
OPTEVA™ TDA® 730	1.21 (±0.01)	8 - 10
OPTEVA™ TDA® 735	1.20 (±0.01)	8 - 10
OPTEVA™ TDA® 770	1.17 (±0.01)	8 - 10

Product specifications particular to other OPTEVA™ TDA® formulations are available through GCP Field Engineers.

Applications

Laboratory mill evaluations of clinker and other additions are recommended to determine initial blend proportions, grinding efficiency, pack set index, mortar flow, compressive strengths of cements and to enable GCP Applied Technologies to formulate the most effective OPTEVA™ TDA® product for each condition.

Product Advantages

One of the key benefits of OPTEVA™ TDA® additives is their ability to increase both grinding efficiency and cement strengths to a degree unequaled by conventional grinding aids.

- Increased early and long-term compressive strengths
- Reduced cost of cement production through reduced unit grinding costs and through replacement of clinker with reactive additions such as pozzolans, blast furnace slag and fly ash, or with fillers such as limestone.
- The chemical action of OPTEVA™ TDA® additives decreases the interparticle attraction between cement grains both in dry form and in water, and increases the rate of hydration of cements.
- Increased grinding efficiency resulting in increased mill output, higher cement fineness and reduced unit power input and grinding costs.
- Increased workability (flow) of cement mortars and concretes. Increased cement flowability for reduced pack set or “silo set” of cements, resulting in lower handling costs and reduced waste.

Handling

OPTEVA™ TDA® additives are sprayed into the mill's first compartment or added onto the clinker conveyor belt. Suitable dispensing pumps with adjustable flow rates should be used for accurate dosing and for optimum performance of OPTEVA™ TDA®.

Addition Rate

Excellent results are usually obtained with OPTEVA™ TDA® addition rates of 0.10% to 0.30% by weight of cement. Lower rates of addition also have produced satisfactory results when cement formulations have been particularly responsive to the additive.

The optimum addition rate of OPTEVA™ TDA® should be determined in cement mill tests.

Dosing Equipment

OPTEVA™ TDA® additives should be accurately proportioned through a calibrated dosing system, suitable for the cement mill and output required.

Specification Compliance

OPTEVA™ TDA® is approved for use under ASTM C 465 specification as a non-harmful, processing addition for cements.

Packaging

OPTEVA™ TDA® is supplied in 210L drums. OPTEVA™ TDA® may also be supplied in bulk in certain locations. It contains no flammable materials.

Storage

Protect from freezing. Once frozen, the product should be thawed out slowly and re-mixed thoroughly prior to use. Shelf life is minimum 12 months in manufacturer's containers.

Technical Services

Field Engineers from GCP Applied Technologies are available to assist in laboratory and mill test evaluations of OPTEVA™ TDA®. Complete testing equipment and methods for analysing mill performance are also available during plant trials.

OPTEVA™ TDA® vs Current Grinding Aids

Types of Cements Treated with TDA	OPTEVA™ TDA® Product Used	OPTEVA™ TDA® Dosage Range (%)	Grinding Efficiency Increase (%)	Pack Set Decrease (%)	Motar Flow Increase (%)	Strength Development	
						Early	Longterm
						Increase %	
Rapid Hardening Ordinary Portland	OPTEVA™ TDA® OPTEVA™ TDA® N	0.20-0.30 0.15-0.25	5% to 15%	20% to 40%	10% to 25%	5% to 10%	10% to 250%
Ordinary Portland Portland & Pozzolan Portland & Slag	OPTEVA™ TDA® 730 OPTEVA™ TDA® 735 OPTEVA™ TDA® 770	0.15-0.25 0.15-0.25 0.15-0.25	10% to 20%	20% to 60%	10% to 30%	5% to 15%	10% to 30%
Portland & Pozzolan or Other Fillers i.e. Fly Ash or Limestone	OPTEVA™ TDA® 730 OPTEVA™ TDA® 735 OPTEVA™ TDA® 770	0.10-0.25 0.15-0.25 0.10-0.25	5% to 15%	10% to 20%	0% to 5%	10% to 30%	0% to 5%

Objective A) Replacement of 10% Clinker by Slag (Laboratory Test)

Additive	Blank	OPTEVA™ TDA® 735	OPTEVA™ TDA® 735
Cement Composition:			
Clinker	95%	95%	85%
Gypsum	5%	5%	5%
Slag	-	-	10%
Limestone	-	-	-
OPTEVA™ TDA® Dosage	-	0.2%	0.2%
Mill Revolutions	3500	3310	3350
Mill Production (t / h)	-	-	-
Power Input (kWh / t)	-	-	-
Blaine (cm ² / g)	3950	3980	3960
Residues 40µm	0.85%	0.78%	0.46%
Flow (mm)	100	100	100
Compressive Strength (MPa):			
Power Input (kWh / t)			
1 Day	15.3	20.1	14
3 Days	35.0	39.2	36
7 Days	-	-	-
28 Days	57.8	62.1	58

Objective B) Increase Limestone Content from 27% to 32% (Plant Test)

Additive	Blank	OPTEVA™ TDA 770	OPTEVA™ TDA 770
Cement Composition:			
Clinker	68%	68%	63%
Gypsum	5%	5%	5%
Slag	-	-	-
Limestone	27%	27%	32%
OPTEVA™ TDA Dosage	-	0.2%	0.2%
Mill Revolutions			
Mill Production (t / h)	45.0	49.0	50.5
Power Input (kWh / t)	35.0	31.5	30.9
Blaine (cm ² / g)	4930	4870	5190
Residues 40µm	-	-	-
Flow (mm)			
	93	107	105
Compressive Strength (MPa):			
Power Input (kWh / t)			
1 Day	7.0	11.5	6.8
3 Days	15.1	20.3	15.6
7 Days	19.8	25.1	20.4
28 Days	25.5	31.8	26.1

gcpat.hk | For technical information: asia.enq@gcpat.com

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate, and is offered for consideration, investigation and verification by the user, but we do not warrant the results to be obtained. Please read all statements, recommendations, and suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation, or suggestion is intended for any use that would infringe any patent, copyright, or other third party right.

OPTEVA TDA is a trademark, which may be registered in the United States and/or other countries, of GCP Applied Technologies, Inc. This trademark list has been compiled using available published information as of the publication date and may not accurately reflect current trademark ownership or status.

© Copyright 2017 GCP Applied Technologies, Inc. All rights reserved.

GCP Applied Technologies Inc., 2325 Lakeview Parkway, Alpharetta, GA 30009, USA

GCP (Hong Kong) Ltd., 6 On Chuen Street, On Lok Tsuen Ind Area, Fanling, Hong Kong

This document is only current as of the last updated date stated below and is valid only for use in Hong Kong. It is important that you always refer to the currently available information at the URL below to provide the most current product information at the time of use. Additional literature such as Contractor Manuals, Technical Bulletins, Detail Drawings and detailing recommendations and other relevant documents are also available on www.gcpat.hk. Information found on other websites must not be relied upon, as they may not be up-to-date or applicable to the conditions in your location and we do not accept any responsibility for their content. If there are any conflicts or if you need more information, please contact GCP Customer Service.

Last Updated: 2023-07-07

gcpat.hk/solutions/products/opteva-quality-improvers/opteva-tda