

# CEMENTIUM<sup>®</sup> 2101 ES

**Cement additive engineered for enhancement of cement's compressive early strength and reduction of unit grinding energy / increase of cement mill throughput. Chloride free.**

## Description of Product

CEMENTIUM 2101 ES belongs to BASF's range of Performance Enhancers. These products, in addition to acting as grinding aids, improve specific cement properties thanks to the activity of their functional groups. They act in the modification of clinker characteristics and in the enhancement of its hydraulic properties.

CEMENTIUM ES products are specifically designed to increase cement's early strength. These benefits can be used either for delivering superior product performance or for further cement optimization while maintaining the original performance. In addition, CEMENTIUM ES acts as a grinding aid and improves cement flow. Typical early strength improvement is 10-25% @ 1-2 days vs. plain control. However, product performance is strongly dependent on raw material properties, grinding equipment characteristics, process conditions and cement type. To best benefit from cement additives, mill and separator process parameters may need to be adapted.

Cement additives improve the flow characteristics of the cement through the mill and in subsequent handling: the so called "pack-set".

## Fields of Application

CEMENTIUM 2101 ES has been developed for application in the cement grinding process:

- Ball mills (main application)
- Vertical mills
- Other cement grinding systems

## Features and Benefits

CEMENTIUM 2101 ES offers the following benefits to cement production:

- **Cost reduction** due to lower unit grinding energy and cement optimization while maintaining cement properties. Possible gain of carbon credits.
- **Sustainability** due to reduced Clinker Factor and specific CO<sub>2</sub> emissions.
- **Product differentiation** due to enhanced product performance and improved cement properties for the final application.
- **Higher production efficiency** due to higher mill throughput and lower specific maintenance cost. Fewer plant stops and faster cement conveyance through the plant and silos, and in subsequent distribution logistics.

## Application Procedure

CEMENTIUM 2101 ES is a liquid, ready-to-use cement additive to be metered onto the clinker mill feed or directly into the mill

## Technical Data

Appearance	Liquid, clear to slightly turbid, brownish colour
Specific gravity @ 20°C	1,095 – 1,135 t/m <sup>3</sup>
pH-value @ 20°C	Slightly basic
Chloride ion content	Chloride free

### Dosing

The recommended dosage rate is between 500 and 1,500 g per ton of cement (0.05-0.15% mass). Other dosages may be required in specific situations. Lab tests or plant trials are recommended to determine the optimum dosage. For further questions please consult our Technical Services Department.

Adequate, calibrated dosing equipment with adjustable flow rate and appropriate dosage range is required to obtain the maximum performance of the product.

### Compatibility

CEMENTIUM 2101 ES is compatible with all types of cements.

### Standards

CEMENTIUM 2101 ES fulfils the European cement standard EN 197.1.

### Packaging

CEMENTIUM 2101 ES is available in bulk, 1'000 l containers and 208 l drums.

### Storage

It is recommended to store CEMENTIUM 2101 at temperatures above 5°C and protect it from freezing. Tubes and pipes shall possibly be isolated. If phase separation occurs, product must be mixed before dosing. If stored in unopened containers according to manufacturer's instructions, the shelf life is minimum 12 months.

### Handling and transportation

No special requirements must be observed while the product is used. Protective gloves and glasses are recommended. Do not eat, drink or smoke during application. CEMENTIUM 2101 ES is non-flammable, non-toxic, non-irritant, and is not subject to special transport requirements. CEMENTIUM 2101 ES can be diluted with water. Please refer to the MSDS for more detailed information.

### Technical service

BASF assists customers in all phases of cement additives implementation in cement manufacturing by following a well structured process. This starts with the assessment of the customer's needs and the technical limitations, continues with lab and field grinding trials, and ends with a comprehensive performance evaluation of the added value of cement additives.

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