

Cement Grinding Aid for enhancing the quality of all types of cement

Description

NIROGRIND AD500 is a liquid, ready-to-use cement grinding aid designed to enhance the quality of all types of cement. It has been specially developed to produce cements with both high early and final strength, while improving the efficiency of the grinding process by reducing surface energy forces.

NIROGRIND AD500 is specifically formulated for cement grinding in both Ball Mills and Vertical Roller Mills.

It complies with ASTM C465-99 as a non-harmful processing additive.

Uses

- ✓ Ordinary Portland Cement (OPC)
- ✓ Blended cement with limestone, fly ash, or slag.

The unique characteristics of NIROGRIND AD500 effectively activate the hydration process between cement particles and the non-reactive or reactive fillers.

For additional information on NIROGRIND AD500 and its use in developing special performance characteristics, please contact your local Nirman Chemicals Limited sales representative.

Advantages

- ✓ Increased mineral additive rates.
- ✓ Increases both the early and ultimate mechanical strengths of cements.
- ✓ Reduces setting time of cements.
- ✓ Cost savings due to lower power consumption per ton of cement.
- ✓ Improved powder flow characteristics before, during, and after storage.
- ✓ Higher plant efficiency (tons per hour) due to reduced grinding time per ton.
- ✓ Faster achievement of the desired cement fineness.
- ✓ Reduced risk of false set due to lower grinding temperature.
- ✓ Substantially reduced pack set tendencies and coating.
- ✓ Improved separator efficiency due to enhanced dispersion.

- ✓ Reduced re-agglomeration of cement particles.
- ✓ Less accumulation of material on grinding equipment (grinding balls and mills), thereby improving the life of Ball Mills.
- ✓ Reduces mill vibrations (30% to 40% reduction) in Vertical Roller Mills.
- ✓ Reduces water injection (up to 40%) at constant vibrations due to better stabilization and regulation of bed thickness in Vertical Roller Mills.

Working Mechanisms

NIROGRIND AD500 accelerates the hydration process of both the aluminate and silicate phases of cement, thereby improving both the early and ultimate strength of the cement.

Another function of NIROGRIND AD500 is to partially neutralize the charges present on the surface of cement particles, which are generated during milling. This reduces the surface free energy of the material being ground. The additive molecules are adsorbed onto the surface of the cement particles through weak electrostatic forces, promoting repulsion and/or steric hindrance between particles. As a result, the agglomeration of cement particles is prevented, leading to improved grinding efficiency.

Characteristics

Form	: Liquid
Colour	: Brownish
Relative Density	: 1.05 ± 0.02 at 25°C
pH	: 10 ± 2

*The uniformity parameters mentioned above may vary according to customer requirements. Kindly refer to the MTC issued for specific product configurations to measure our product parameters, which will be consistently maintained.

Dosage

Optimum dosage of NIROGRIND AD500 should be determined by site trials only.

However, as a guide, typical dosage rates will vary from 0.02% - 0.06% by weight of cement for Types I & II cements and 0.03% - 0.07% by weight of cement for Type III cements.

Higher dosage might be needed for higher percentage of clinker replacement or less reactive cement

Direction for use

NIROGRIND AD500 can be added at the clinker feed conveyer belt or directly into the cement mill's first compartment. A proper dosing pump is required to ensure the correct dosage into the cement for obtaining the optimum performance. Our technical supports are available to provide assistance in the use of NIROGRIND AD500 with the manual, automatic or computerized dispensing system.

Technical support

NIRMAN CHEMICALS provides technical advisory services for on-site assistance and guidance on mix design, optimum dosage evaluation of trials.

Packaging

NIROGRIND AD500 is supplied in 225 kg drums, 1100 kg IBC or in bulk on request.

Storage and Shelf life

NIROGRIND AD500 must be stored where temperatures do not drop below +5°C. If product has frozen, thaw at +5°C or above and completely reconstitute using mild mechanical agitation. Do not use pressurized air for agitation. Store under cover, out of direct sunlight and protect from extremes of temperature.

Shelf life is 12 months when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging.

For specific storage advice consult our local NIRMAN CHEMICALS representative.

Safety precautions

NIROGRIND AD500 does not fall into the hazard classifications. However, it should not be swallowed or allowed to come into contact with the skin and eyes.

Suitable protective gloves and goggles should be worn. Splashes on the skin should be removed with water. In case of contact with the eyes it shall be rinsed immediately with plenty of water and medical advice sought immediately. If swallowed, medical attention shall be sought immediately - Vomiting should not be induced.

Fire

NIROGRIND AD500 is water based and non-flammable.

Cleaning of Tools

Clean all tools and application equipment with water immediately

Note

All Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact our local NIRMAN CHEMICALS representative.

Disclaimer

Whilst any information contained herein is true, accurate and represents our best knowledge and experience, no warranty is given or implied with any recommendations made by us, our representatives or distributors, as the conditions of use and the competence of any labor involved in the application are beyond our control.