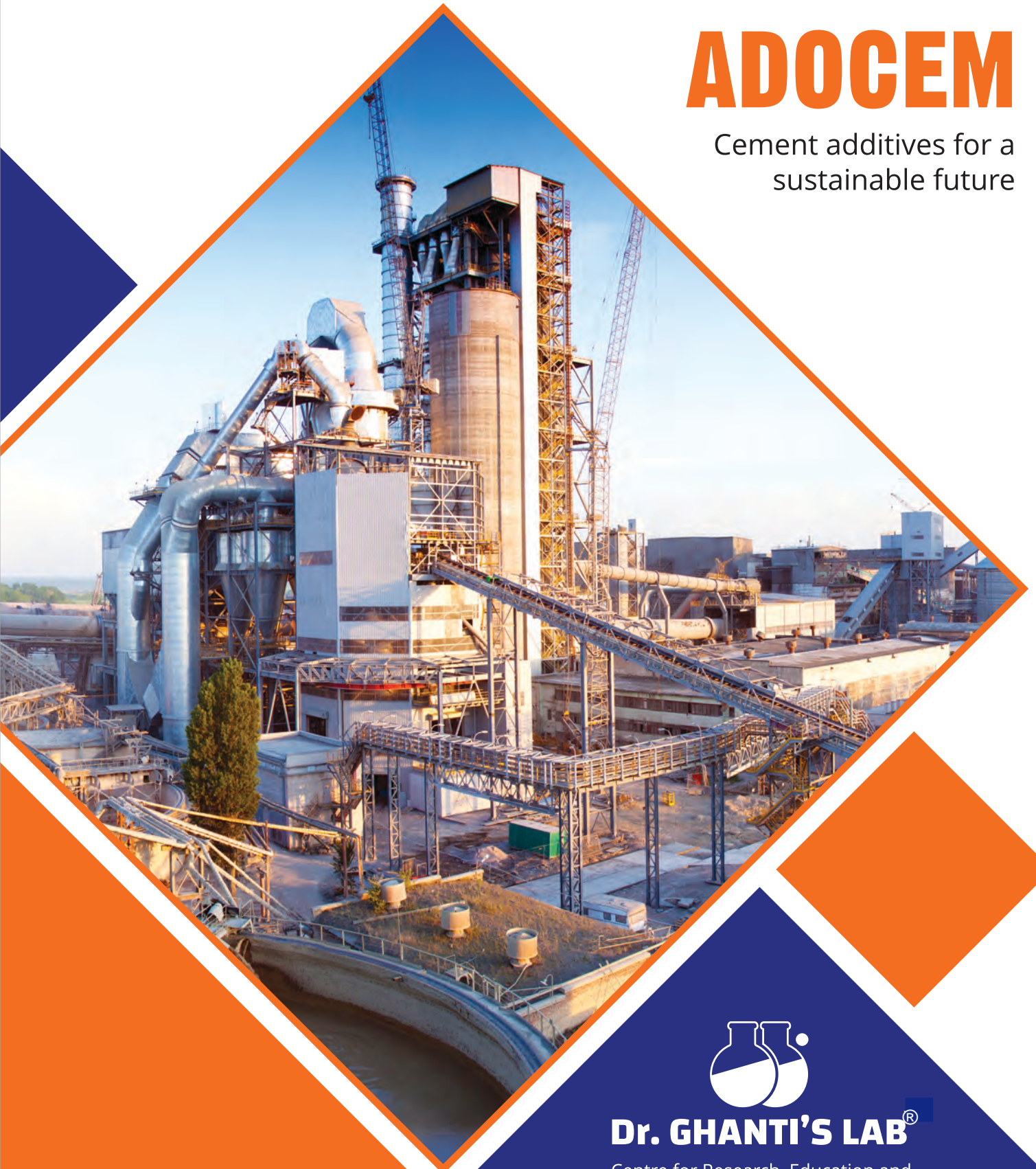


ADOCEM

Cement additives for a sustainable future



Dr. GHANTI'S LAB[®]

Centre for Research, Education and
New Product Development
in Construction Chemicals



About Us

DuraBuild stands among the forerunners in construction chemicals manufacturing industry. Our specialised portfolio of 250+ construction chemicals ensures that we meet all your complex requirements at a practical and differential pricing, and provide solutions that perform remarkably well across the life cycle of the project. In addition, we are an ISO 9001: 2008 certified company and make sure to offer consistency in our product quality and systems, at all times.

We have a diverse clientele which includes major private and government institutions, pan India viz. DMRC, CPWD, PWD, DDA, NTPC, EIL, NHAI, Railways, MCD, DJB, IIT, L&T, Simplex Infrastructures, ATS Infrastructures, NHPC, GE Healthcare, Maruti Suzuki India Ltd., to name a few.

We have three manufacturing units – two in Modern Industrial Estate, Bahadurgarh, Haryana catering respectively to retail and project segments, and a third in Attibele Industrial Area, Bengaluru, Karnataka. All of them are supported by full-fledged Quality Control and Testing Laboratories with R&D, under the aegis of Dr. Ghanti's Lab.



DR GHANTI

Dr. Dhananjoy Ghanti, popularly known as the 'first construction chemicals chemist' in India, laid the foundation of Dura Build Care in the year 1998. His 35-year long association with the construction chemical segment of various multinational giants helped him nurture his product knowledge and hone his technical expertise. A research scientist with a keen eye for detail, Dr. Ghanti pioneered the field of concrete technology & construction chemicals. He is credited with the development of a diverse set of cement grouts, polymer concrete, polymerised & cementitious coatings, cement & resin anchor products, and pressure reactive acrylic adhesive and other well recognised, quality industrial brands.

Today, Dura Build Care looks up to its founder and carries his revered legacy forward.

ADOCHEM Technology

Re-defining cement market

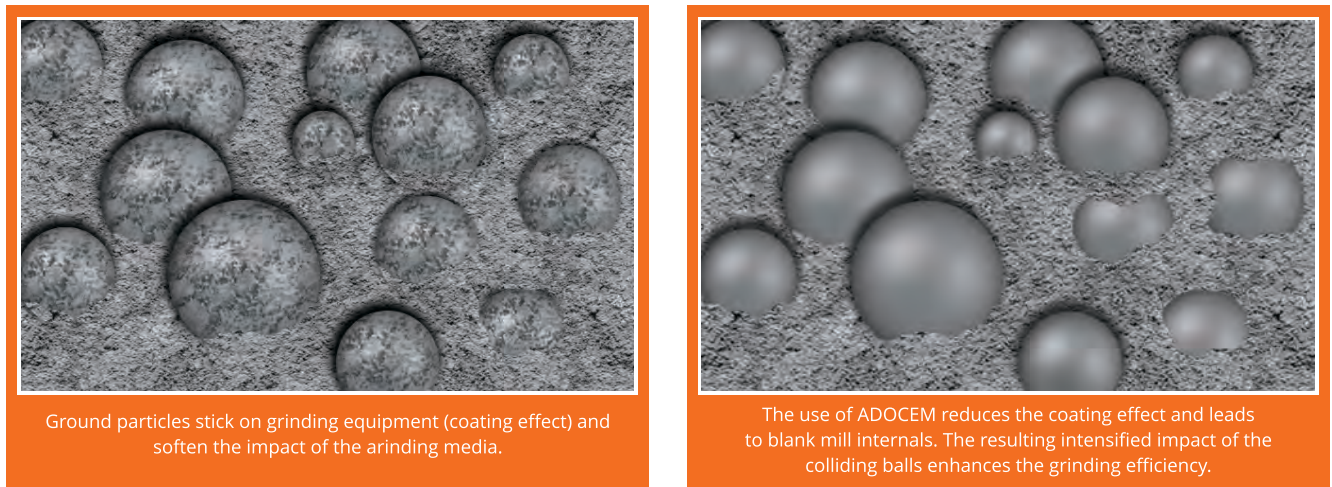
Cement manufacture is a highly technical process in which every part has a decisive impact on the product quality as well as on economical and ecological production parameters. From the origin of the necessary raw materials, the clinker burning and cooling, to the careful adjustment of the cement formulation, cement manufacturers constantly strive for homogeneous quality of their products.

The cement grinding process is the final chance to adjust the cement quality to meet the demands set by relevant standards and cement customers. It combines influences from different areas like the mechanical grinding process, the chemical and physical raw material properties and the cement formulation itself. Interactions between these effects result in a very challenging process which needs skilled and experienced people on all sides.

Optimization of the cement formulation and the cement grinding process creates value. Application of the **ADOCHEM** Technology can help you to further improve your process and profitability.

Small Drops with a Huge Impact

During cement grinding, unsatisfied charges develop on the newly created particle surfaces, which then cause an electrostatic attraction of the cement particles. The higher the targeted fineness, the more surface charges are generated. Increasing electrostatic attraction forces agglomeration of ground particles leading to basic actions like coating effect as shown in the image below:



Grinding aids are usually added at low dosages, typically in a range of 0.02% - 0.05%, either onto the mill feed or directly into the mill itself. They are based on substances of high polarity. While being adsorbed on the existing and newly created cement particle surfaces, they neutralize the surface charges. As a consequence, the particle surfaces do not attract each other anymore. Three different effects can be observed:

- 1) Grinding aids enhance the grinding and separating efficiency which leads to an increased production rate.
- 2) The resulting lower content of over ground particles meets the characteristics of a more favorable particle size distribution with better cement quality.
- 3) **ADOCEM** allows producers to economically achieve the desired fineness and quality of cement. The magnitude of the production increase is related among others to the grinding aid dosage. Up to the maximum reasonable dosage of a specific grinding aid, the production rate increases and the separator rejects decrease. Further increased dosage results in a shorter time for the cement to pass through the mill. If the mill retention time is reduced too much, the cement is insufficiently ground which leads to increased separator rejects and hence a reduced production rate (Fig a).

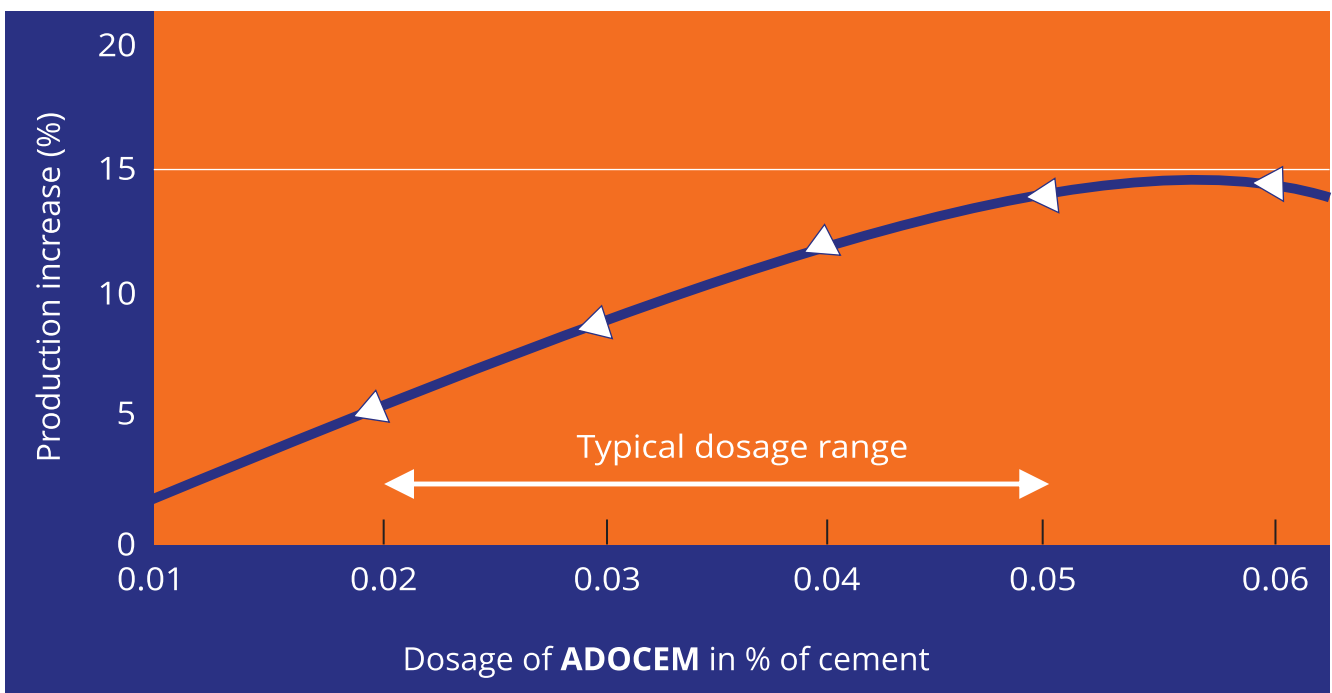
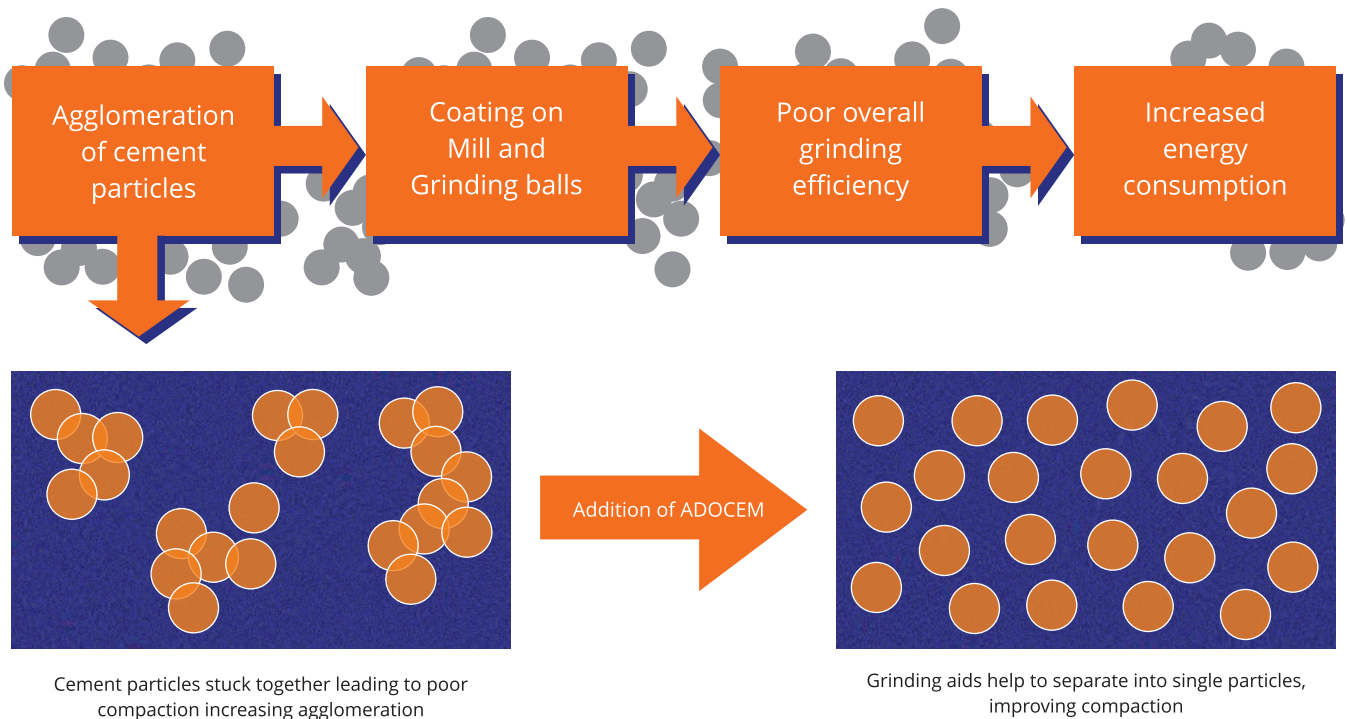


Fig a : Effect of dosage rate on productivity

Cementing efficiency

Apart from improving the overall performance of cement, **ADOCEM** also increases the efficiency of the following plant components:

- ♦ Grinding media
- ♦ Diaphragms and grids
- ♦ Separators
- ♦ Filters
- ♦ Grinding process
- ♦ Transportation systems, within the plant and outside



DURABUILD's **ADOCEM** can be used effectively in blended cement (cement with addition of pulver flyash, ground granulated blast furnace slags and other useful and reactive pozzolanic material) to give the same performance characteristics of Ordinary Portland Cement (OPC).

More benefits include:

- ♦ Reduction of grinding energy leading to lower production costs
- ♦ Reduction in clinker factor which helps conserve limestone "belts" for a longer service life
- ♦ Improvement in overall cement quality
- ♦ Improvement in particle size distribution of the cement particles
- ♦ Improvement in separator efficiency
- ♦ Improvement in the adaptability to multiple clinkers as it can be difficult to ground some hard clinkers without cement additives
- ♦ Reduction of agglomeration of cement grains
- ♦ Reduction of pack-set problems
- ♦ Elimination of total/partial "coating" effect on grinding media
- ♦ Ease of material handling due to fluidity of particles
- ♦ The increase in output during seasonal demand peak to match surge in cement use

Technical Benefits

ADOCEM has the potential to increase early strengths (1 day & 3 days) later day strengths (7 days & 28 days) at equal cement composition and same cement fineness (Fig b). It can also be used

- ♦ When clinker reactivity is low and strengths are not complying with the standards specification,
- ♦ When the objective is to reach a higher cement strength class,
- ♦ When the objectives is to reach higher performance.

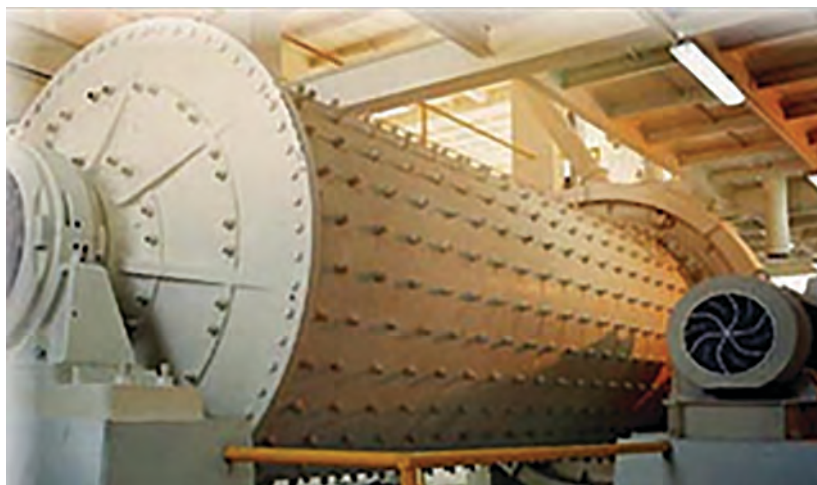
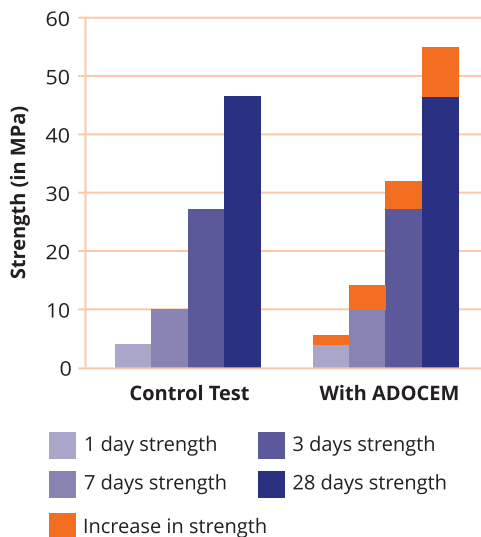


Fig b : Strength comparison of cement with **ADOCEM** additive Vs control

Commercial benefits

Savings on Clinker

The cost of SCM (Supplementary Cementitious Materials) is lower than the cost of clinker. By substituting SCM to clinker, the total cost of cement is reduced while boosting performance by use of **ADOCEM**

Reduction of CO₂ emissions

CO₂ emission is caused by the calcinations of limestone (CaCO₃) during the clinker manufacturing process. As each ton of cement produced requires less clinker, CO₂ emissions are decreased. Therefore, CO₂ quotas can be respected, CO₂ taxes reduced or C/K ratio company target can be achieved

Significant reduction of production costs

The addition of **ADOCEM** results in improvement in clinker grinding efficiency. This allows for a shortened cement retention time in the mill which, in the end, leads to significant energy savings per ton of cement. **ADOCEM** can allow for up to 20% Energy consumption (KWh/ton)

Reduction of maintenance costs

Shortened cement retention time in the mill leads to a less intensive use of the grinding system, therefore reducing mill maintenance cost per ton of cement. Moreover, the reduction of the mill media coating and the improvement of pack set prevent the mill stoppage due to blockage (caused by diaphragm and outlet grit cleaning, silo blockage)

Increase of productivity

ADOCEM has an impact on improving grinding mill efficiency as a result of which productivity can be increased up to +25%, without any additional energy consumption.

Fast truck loading and packing:

Pack-set improvement positively reduces interruptions due to blockage. Truck loading speed and packing are therefore improved thanks to better cement fluidity.

Dosing system

The ease of use of the operating system is reassuring. The metering pump comes fully equipped with controllers and sensors and even a storage tank, providing an efficient unit that handles the task of dosing with utmost convenience. It merely requires appropriate electrical and hydraulic connections. There are mainly two types of dosing systems:

- Manual system – It is recommended for long term application of **ADOCEM**.
- Dosing system with metering pump and calibration column – It is suitable for trial purposes or evaluation of cement additives.

Product selection guide

	Portland Cement	Blended Cement	White Cement	Masonry Cement	Sulphate Resistant Cement	Slag	Lime Stone	Raw meal	Vertical mill	Horizontal mill	Roller press	Blended Cements			
												CaCO3	Pozzolana	Flyash	GGBFS
ADOCEM	PC series	BC series	WC series	AE seriesS	RC series	SL series	LS series	SX series	VM series	H series	RP series	BC- GA	BC- GA	BC- HS	BC- HES
Performance enhancer	★★★		★★★	★★★					★★★	★★★	★★★	★★		★★★	★★★
Energy saver	★★★				★★		★★	★★★	★★★	★★★	★★★	★★★		★★	★★
High early strength		★★★	★★★										★★		
High Late strength		★★★		★		★★		★★	★★★	★★★	★★	★★★	★★★	★★★	★★★
Pack-set reduction	★★★	★★★	★★	★★	★	★★★			★★★	★★★		★	★★	★★	★★
Workability	★★★	★★★	★★	★★★		★	★★	★★			★		★	★★★	★★★
High water reducer	★★	★★★	★		★★			★	★★★	★★★	★★		★★	★★	★★

PRODUCT RANGE



WATERPROOFING



PROTECTIVE COATING



CONCRETE REPAIRS



TILE INSTALLATIONS



CONCRETE ADMIXTURES



SEALANTS



ADHESIVES



INDUSTRIAL FLOORING



GROUTS & ANCHORS



CEMENT ADDITIVES

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