

## LIMESTONE ADDITION CONTROL IN CEMENT MILLING WITH COSMA DP

**REGULATIONS** around the world, including many States of the US, permit the addition of up to 5% limestone in Portland cement. In Europe and Canada limestone has been used successfully for decades as an extender in cement, providing equivalent performance to cements without limestone.

**ENVIRONMENTAL BENEFITS** from the use of limestone in cement, is a key component of the cement industry's commitment to a reduction in the level of greenhouse gas emissions by the year 2020.

**FINANCIAL BENEFITS** also flow from the substitution of clinker in the cement milling process, as less costly limestone is used, instead of valuable clinker.

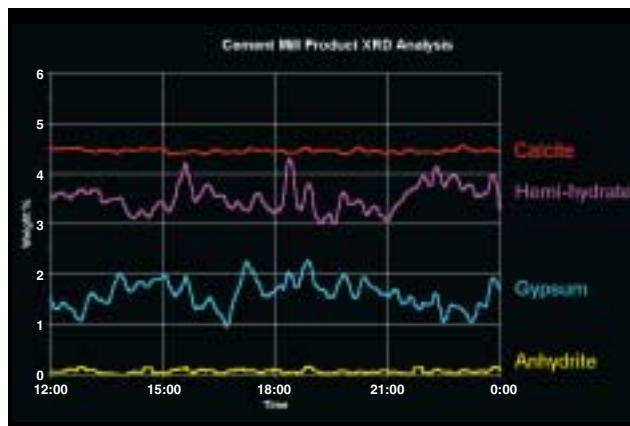
**SOLD OUT PLANTS** enjoy even more significant benefit as the clinker substituted by limestone is available for additional cement production, maximizing sales whilst demand remains high.

**THE CHALLENGE FOR CEMENT PRODUCERS** is to maximize the value of clinker production by working as close as possible to the prescribed limit of limestone addition. Traditional control by infrequent spot samples taken from the process for laboratory analysis, which measures the chemistry rather than the limestone mineral itself, do not permit tight control. Thus a target level of addition well below the limit must be adopted, to provide large but costly room for error.

**LOST OPPORTUNITY** and significant lost revenue will result if limestone addition levels are not able to be accurately and confidently controlled close to the prescribed upper limit, due to inadequacies of analysis.

**THE SOLUTION IS COSMA DP**, the first on-line mineral analyser to continuously monitor a sample stream of material for mineral components. The actual amount of limestone in the cement, in per cent, is output from COSMA as a real time trend, which is available for manual control actions or may be integrated into process control systems for automatic corrections. It is therefore possible to work at targets close to the 5% limit rather than around 3%.

**ADDITIONAL BENEFITS** of COSMA's live mineral data include the control of gypsum addition and gypsum dehydration; optimisation of grinding and reduction of laboratory requirements. Compounded, these benefits alone, provide a payback in less than two years for most cement operations.



COSMA trend output showing actual and target limestone levels

### WHAT COSMA CAN DO... FOR YOU

Limestone Substitution	US\$
Clinker cost per tonne . . . . .	\$28
Limestone cost per tonne . . . . .	\$8
Difference per tonne . . . . .	\$20

#### For a 1 mtpa plant

Substituting 3% LS saves	\$600,000
Substituting 4.5% LS saves	\$900,000
COSMA control saves \$300,000 p.a.	

#### Sold Out plants

Maximising limestone addition means an extra 1.5% of clinker is available for cement production and sale.

With margins of \$30/t the bonus profit from extra sales resulting from COSMA control in a 1mtpa plant is:

$$[(1 \text{ mt} \times 1.5\%) \times 1.045] \times \$30/\text{t} = \text{US\$}470,250 < 12 \text{ months payback!}$$

**CALL US NOW** and learn what COSMA can do for you... in real time.

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