

*Press release*

# Presse-Information

*Service de presse*

## Efficient Wear Protection in Cement Plants

### Linings Reduce Costs and Minimize Downtimes

Handling large quantities of bulk material is routine in cement plants resulting in significant abrasive wear. Systems can only be operated for short periods unless they have been protected. Appropriate linings provide a long-term remedy and enhance availability and economy – a must in view of tough international competition.

Kalenborn offers a complete array of wear protection materials: ceramics, metallics, plastics and rubber. Material flow in silos and bunkers is an additional problem in cement plants where mass flow is required instead of funnel flow. Kalenborn offers a range of slide promotion materials suitable for most applications.

Long-term duty cycles are achieved with the following materials:

- ABRESIST fused cast basalt
- KALCOR zirconium corundum
- KALCOR-S sintered zirconium corundum
- KALOCER high alumina ceramics
- KALCRET hard compound
- KALSICA silicon carbide ceramics
- KALMETALL-C hard casting
- KALMETALL-W hard overlay welding
- KALINOX slide promotion steel
- KALEN slide promotion plastics

A look at the material flow diagram of a cement plant illustrates why a large selection of materials is of vital importance for appropriate wear protection. The systems shown are complex. Wear varies just as much as the manifold shapes and functions of the different components. Consequently, it makes little sense to try to solve all your problems with a single material. Various plant components require different approaches.

The choice of the optimal material for the specific application depends on the type of wear that occurs and on the plant component itself. Quite frequently only a combination of different materials will meet all requirements. Kalenborn offer solutions for wear problems that are appropriate both from a technical and economic viewpoint.

### **From Raw Material to the Kiln**

Linings pay for themselves when used in processing raw materials. Bunkers and silos require wear protection materials that are characterized by slide promotion, as well. Unless there are problems of weight or space, the relatively thick fused cast basalt is the optimal material choice. The stress that occurs in mills demands materials that can withstand high impact. In this case tough, hard metallic wear protection is most appropriate.

The process run from the separator through pneumatic discharge and raw meal transport to the silos and further on to preheater cyclone and kiln feeding is again highlighted by very exacting demands. They are met by materials like slide promoting plastics, ceramic wear protection and hard overlay welding.

## **Coal and Other Fuels**

The hot phase of cement production begins in the preheater and rotary kiln. The energy is provided by coal and other fuels like used tires, used oil or plastics that cannot otherwise be used. The entire range of lining materials is required for the section from the bunker to the burner – i.e. from KALEN slide promotion plastics to the extremely wear resistant KALSICA silicon carbide ceramics.

## **Clinker – that is the point**

The zones behind the kiln (from the reciprocating grate plates through to the clinker crusher) are where the metallic protective materials KALMETALL-C and KALMETALL-W are preferably used. Linings made of hard compound, zirconium corundum and hard overlay welding are used for dust collecting pipes and especially for dust collecting cyclones, depending on the stress to which the different components are exposed. Combined linings have become standard choice for these cyclones. Chutes, storage vessels and continuous-flow conveyors for clinker are efficiently protected by fused cast basalt while the cement grinding section downstream is preferably lined with metallic wear protection materials.

Cement separators, dust collection cyclones and pneumatic ducts with conveying velocities of 20 m/sec and more are economically protected with ABRESIST, KALCRET, KALOCER and KALMETALL-W. The choice is governed by conveying velocity and volume flow. Aspects of space and weight may be of crucial importance as well.

## **Result: Cement**

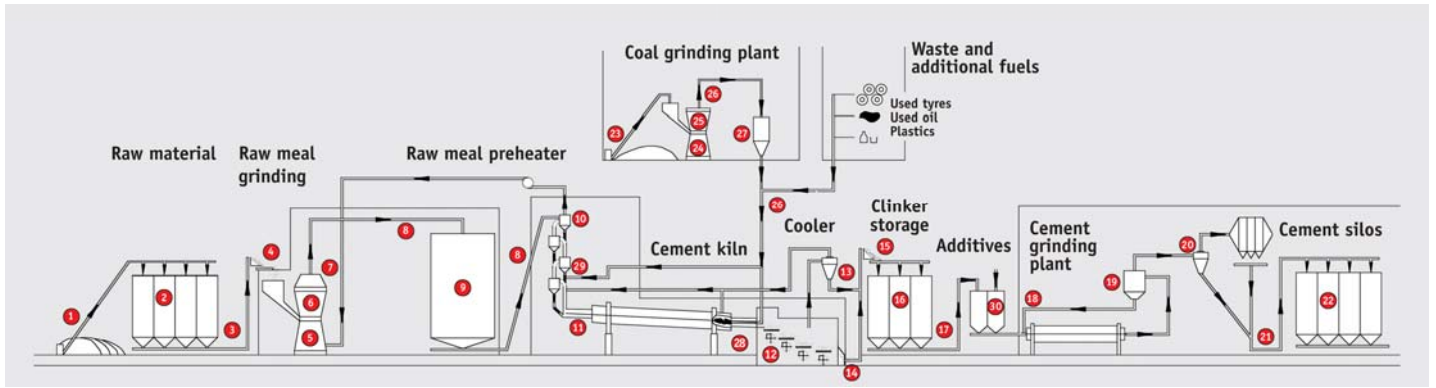
Generally, silos that receive finished cement are subjected to moderate wear. They require linings with slide promoting properties. Cost effective materials include KALCERAM hard ceramics and KALEN slide promotion plastics.

The know-how necessary for installation of the linings is just as important as the selection of the most appropriate material.

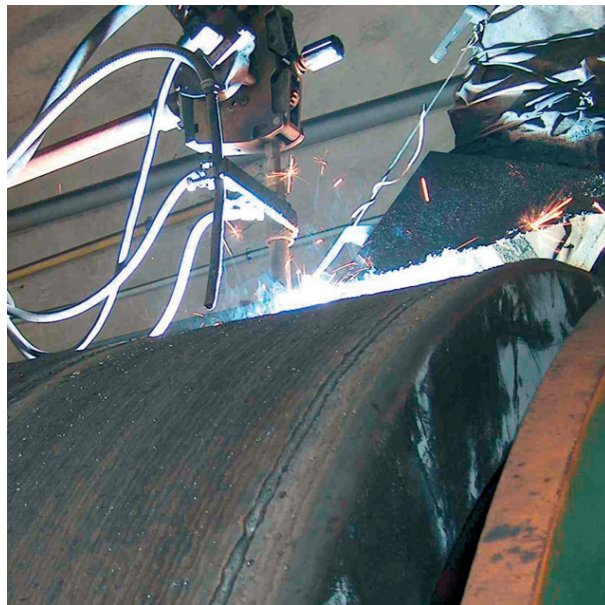
During repair and changeover periods it is very important that installation go smoothly due to the expense of lost production.

With their extensive experience, Kalenborn experts are capable of offering optimal solutions for any application – up to and including complete preventive maintenance service.

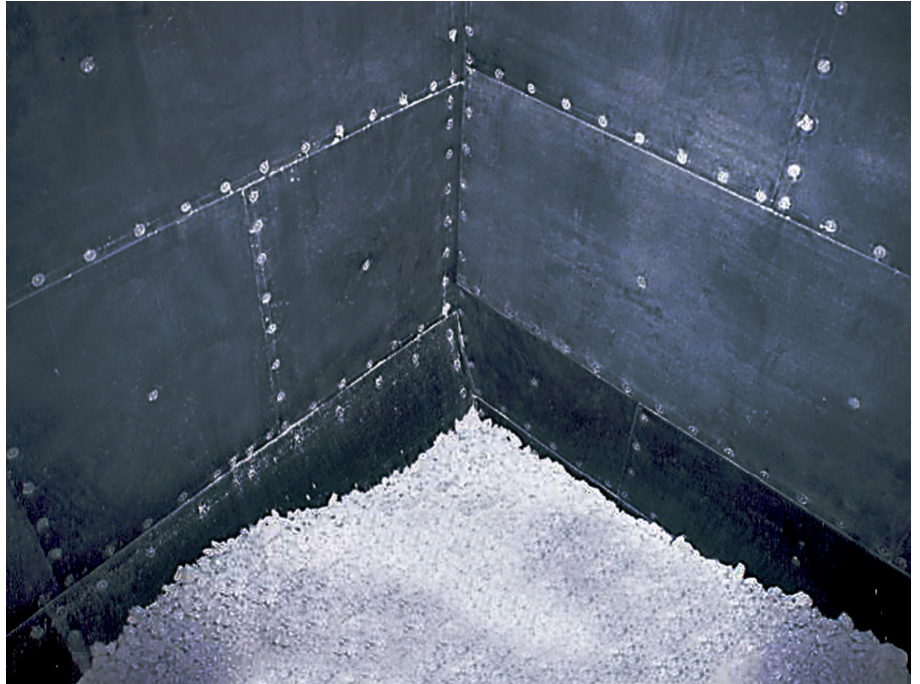
Kalpraxis brochure of 05.06 contains 14 pages of detailed information and numerous applications of typical wear protection materials for planning experts and operators of cement plants. To download this informative brochure visit [www.kalenborn.de](http://www.kalenborn.de).



Wear is a continual problem in all phases of cement production – a cement plant will become more economical only by using the most suitable linings



Kalenborn Service:  
regeneration of a grinding roller with the application of  
KALMETALL-W 100 hard overlay welding



Raw meal bunker fitted with KALEN-1006 slide promotion plastic lining



Cones of cement separators designed as self-supporting structures with plates made of KALMETALL-W 100 6+4 hard overlay welding; their diameter is 3 000 mm



Pulverized coal pipe protected by KALCRET-BTS hard compound – the wear protecting material is sprayed on at a rate of more than 5 m<sup>2</sup> per hour