Gear Oil
Main Gearbox, Cement Mill

CJC® Application Study

CUSTOMER
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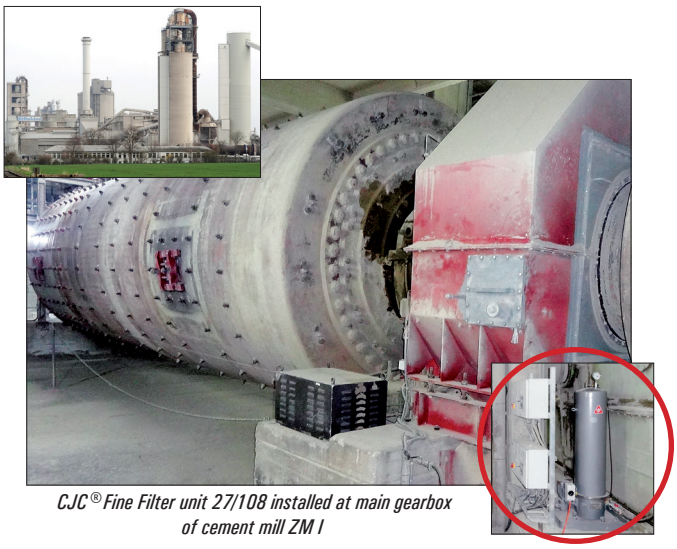
SYSTEM
Main gearbox of cement mill „ZM I"
Oil: 2,000 litres gear oil type Addinol Eco Gear 320 M

PROBLEM
Although the oil was changed 2 years ago the gear oil was heavily contaminated especially with metal particles and swarf as well as other abrasive solid particles. A detailled oil analyse (zero sample) showed that the content of magnetisable iron with 68 mg/kg and also the PQ indizes (particle quantifier) were very high - both indicators for abnormal and mostly acute wear and tear. Furthermore, a high content of particles which cause sliding abrasion and fatigue wear was measured. The analysed oil cleanliness class was 25/22/16 (ISO 4406). The water content in the oil was with 251 ppm also higher then usual. If such an extremely contaminated oil is used the lifetime of components will be reduced by factor 2 (source: Noria Corporation).

SOLUTION
CJC® Fine Filter Unit 27/108 with **CJC® Fine Filter Insert B 27/108** (3 μm absolute) was installed.
Filter material: 100 % renewable raw material
Dirt holding capacity: up to 40 kg

RESULT
After installation of the CJC® Fine Filter unit the oil cleanliness significantly improved. The oil analyses of an external and independent laboratory showed that after only 6 days the content of particles > 4 μm was reduced by 50 % and after further 12 days by 99 %.
The content of iron particles **decreased from 68 to 10 mg/kg** and the determined value for wear returned to a normal level. With an oil cleanliness of **ISO 17/15/11** the oil is cleaner than new oil so that it can be used without any problems.
The third oil sample after 46 days in total confirmed that a contiuous high oil cleanliness can be ensured. The **water content dropped** from 251 **to 165 ppm**. Due to the removal of particles and water from the oil not only system and components are protected against wear but also oil changes are avoided. That is a financial advantage and simultaneously a decision in favour of our environment.

COMMENT
Michael Peitz, leader locksmithery:
„The comprehensive oil analyses of OELCHECK convinced us. They clearly show the continuous improvement of the oil quality – further gearboxes will be retrofitted with CJC Filters."

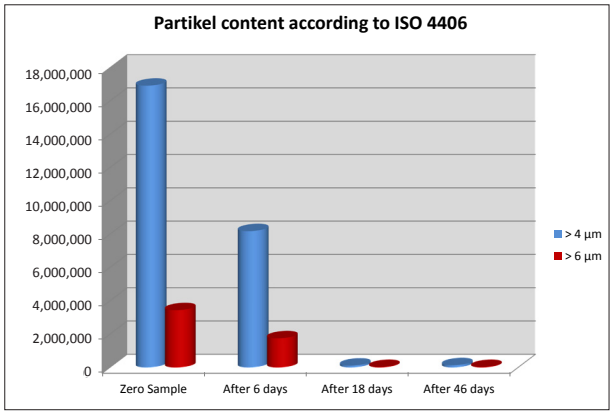


CJC® Fine Filter unit 27/108 installed at main gearbox of cement mill ZM I

RESULT

	Zero Sample BEFORE fine filtration	After 6 days of fine filtration	After 18 days of fine filtration	After 46 days of fine filtration
Particle > 4 μm	16,923,488	8,187,414	116,141	137,653
Particle > 6 μm	3,439,634	1,752,108	29,974	29,425
Particle > 14 μm	49,145	14,100	1,351	616
ISO Code 4406*)	25/22/16	24/21/14	17/15/11	18/15/10
Water, ppm	251	198	172	165
Iron, mg/kg	68	*not measured*		10
PQ-index	59	*not measured*		< 25

**) Further information on cleanliness classes are available on request.*



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