



CLEAN OIL  
BRIGHT IDEAS

Application Study  
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## CJC™ Application Study

### CUSTOMER

Portlandzementwerk Wittekind Hugo Miebach Söhne KG,  
Erwitte, Germany.

### SYSTEM

**System:** Main gearbox of cement mill „ZM I“  
**Oil volume:** 2,000 litres gear oil  
**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 detailed 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 than 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 27/108** with 4 x **CJC™ Filter Inserts B 27/27** (3 µm absolute) and a pump flow of 270 L/h was installed.

Dirt and water holding capacity: approx. 8 kg / 3.6 L

### RESULT

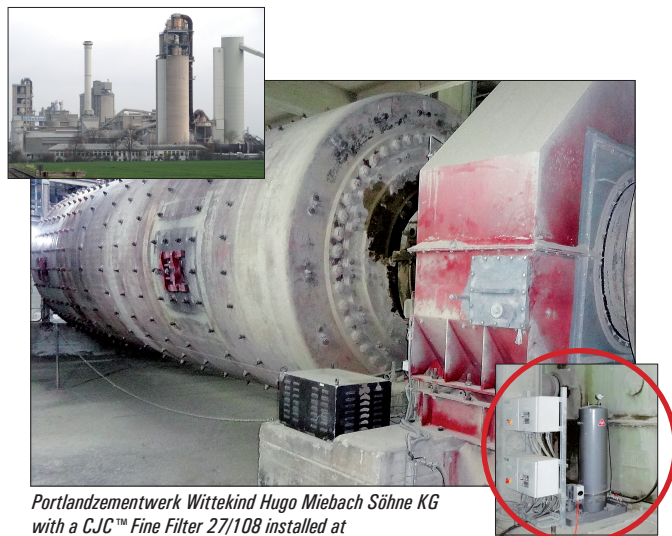
After installation of the CJC™ Fine Filter, the oil cleanliness significantly improved. The oil analyses of an external and independent laboratory showed that after only 6 days the content of particles > 4 µm was reduced by 50 % and after further 12 days by 99 %. The content of iron particles **decreased 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! Now it can be used without any problems. The third oil sample after 46 days in total confirmed that a continuous high oil cleanliness can be ensured. The water content dropped from 251 to 165 ppm.

### BENEFITS

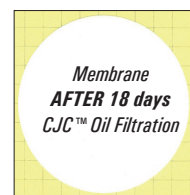
Due to the removal of particles and water from the oil, not only system and components are protected against wear, but also oil changes are avoided. That is a financial advantage and simultaneously a decision in favour of our environment.

### COMMENT

**Mr. 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™ Oil Filters.“



Portlandzementwerk Wittekind Hugo Miebach Söhne KG  
with a CJC™ Fine Filter 27/108 installed at  
the main gearbox of the cement mill ZM I



### RESULT

	Zero Sample BEFORE oil filtration	After 6 days of oil filtration	After 18 days of oil filtration	After 46 days of oil 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.

