



**CLEAN OIL  
BRIGHT IDEAS**

# Hydraulic Oil Hydraulic Hammer, Coal Mine

## CJC™ Application Study

Application Study  
written by:

Mr. Adrian Lane  
IQ Oil Filtration  
South Africa  
and  
Mr. Boeta Smit  
IQ Oil Filtration  
South Africa



In cooperation with:

Jaco Wolmarans  
Tribologist  
Exxaro Grootegeluk Coal  
South Africa



2010

### CUSTOMER

Exxaro Grootegeluk Coal, South Africa

### THE SYSTEM

**System:** Hydraulic Hammer, O&K RH6  
**Oil Type:** ISO VG 68 hydraulic oil  
**Oil Volume:** Approx. 600 L

### THE PROBLEM

The customer experienced high ingress of particles into the hydraulic system due to very difficult environment in which the hydraulic hammer operates. The Hydraulic Hammer operates at the stock feed, primary tipping bin grid where Komatsu 730 E, Euclid 3500 and Euclid 4500 haul trucks dump between 180 ton and 280 ton of coal up to 10 times per hour. The hydraulic hammers are required to do their work during this very dusty operation.

### THE SOLUTION

A CJC™ Fine Filter HDU 27/27 P, using a CJC™ Filter Insert B 27/27 with pump flow of 400 L/h.

### FINANCIAL BENEFITS

The customer saved oil replacement costs as well as reduced wear and tear on all hydraulic components.

### THE TEST

The customer wanted to test the CJC™ Filter on the hydraulic hammer to see if it could outperform the competitor products in terms of ISO Code and to see how close the CJC™ Filter could get to the target level of ISO Code 19/17/15. A HDU 15/25 PV was initially installed with a 250 L/h pump. After 3 months it was clear that the dirt ingress on this particular application was faster than estimated and a larger CJC™ Filter had to be fitted. At that stage a CJC™ HDU 27/27 P was installed with a 400 L/h pump.

### THE RESULT

The ISO Code prior to installing was around 28/25/19 and was reduced to and maintained at a level of around 15/14/11 over the following months with the CJC™ Filter fitted.



*The Hydraulic Hammer at Exxaro Grootegeluk Coal Mine*



*The CJC™ Fine Filter HDU 27/27 P installed on the Hydraulic Hammer*

### THE RESULT

	Before CJC™ Filtration	After CJC™ Filtration
Particles > 4 µm	nc *)	23,400
Particles > 6 µm	nc *)	10,000
Particles > 18 µm	< 500,000	1,800
ISO Code 4406 (1999)	28/25/19	15/14/11

*Oil Watch, South Africa, Particle Count per 100 ml  
\*) not countable*

### COMMENTS

**Mr. Jaco Wolmarans, Tribologist at Exxaro Grootegeluk Coal:**  
*"The CJC™ Filter is approved as the solution on this application. Since the test, five out of seven hydraulic hammers at Grootegeluk have been fitted with CJC™ Filters and plans to fit the last 2 are underway."*