



**CLEAN OIL
BRIGHT IDEAS**

**Application Study
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CJC™ Application Study

CUSTOMER

BHP Billiton Iron Ore, Newman, W.A., Australia

THE SYSTEM

Crusher Lube Tanks, gearbox, primary and secondary crusher, at BENE Plant.

Primary Crusher Name: Allis Chalmers Gyratory

Oil Type: BP GR-XP ISO 150

Oil Volume: 2000 L

THE PROBLEM

The oil in the crusher lube tank had a high level of contamination due to dirt/dust ingress. Prior to this project, the ISO cleanliness level of this oil was generally above ISO 23/22/21. This relates to above 80,000 particles larger than 4 micron per mL of oil. This is detrimental to the crusher, as it leads to excessive wear and premature failure of the lube pumps, bushes and other wear components of the crusher.

THE SOLUTION

A CJC™ Fine Filter HDU 27/54 P (pump flow 400 L/hr) with CJC™ Filter Inserts 2 x B 27/27 was installed on each crusher to filter the oil and remove harmful contaminants.

THE TEST

The filtration system was installed in January during a BENE shut down and commissioned on 1/2/2007. The oil in the crusher lube tank was also changed out during this shut down. The oil was sampled and tested on site in the CM lab every week as per the condition monitoring schedule. This allowed the progress of the filtration system to be closely monitored.

THE RESULT

Data in the table shows a steady decrease in contamination level during the three months after the CJC™ Fine Filter was installed. Target level was set to 20/17/15. The ISO cleanliness level during this time dropped from 24/22/14 to 18/16/12. This average drop of five ISO cleanliness codes relates to the crusher lube oil being 32 times cleaner than before the installation.

NB: The complete report is available for BHP Billiton mines - please contact:

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SUMMARY

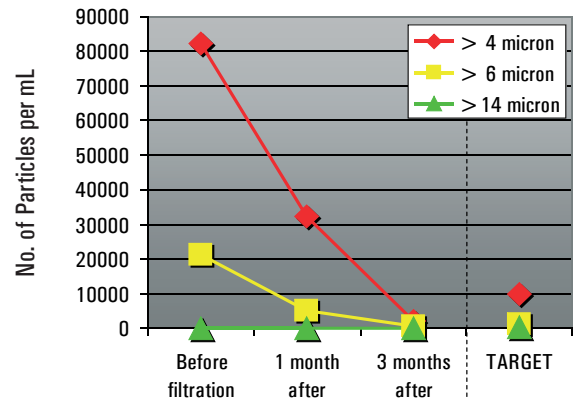
"This project successfully reduced the contamination level in the crusher to below the target cleanliness level. This has significant impact on the life of the wear components in the crushers."

Lube Oil Crusher Lube Tanks, Gearbox



The CJC™ HDU 27/54 P in BENE Lube Room

PARTICLE COUNT OVER TIME



THE RESULT

| BENE PRIMARY CRUSHER | | | | |
|----------------------|----------|---------------|----------------|----------|
| Particles | Before | After 1 Month | After 3 Months | TARGET |
| > 4 micron | 82289 | 32196 | 2133 | 10000 |
| > 6 micron | 21378 | 5126 | 497 | 1300 |
| > 14 micron | 103 | 72 | 27 | 320 |
| ISO | 24/22/14 | 22/20/13 | 18/16/12 | 20/17/15 |

No. of Particles per mL