



OIL SAMPLE ANALYSIS REPORT · THREE SAMPLES OVER 400 HOURS OF OPERATION

Compressor 2VM 100/8: oil cleared of metal on a running unit

KhKTB OPKM (114) · head — N. V. Davydkin
report dated 07.12.2006 · samples: before treatment, after 200 and after 400 hours of compressor operation

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO gel revitalizant added to the running unit	Compressor 2VM 100/8 oil samples from the running compressor	Oil analysis report KhKTB OPKM (114)

EQUIPMENT	CONDITION AT START OF OBSERVATION	WHAT WAS MEASURED
Compressor 2VM 100/8	Oil beyond any cleanliness class: chips longer than 100 µm , oxidized metal, intensive wear in progress	Oil cleanliness class per ISO 4406, size and composition of contaminant particles

Analysis — portable PALL kit: membrane filtration of a {{100 ml}} sample through a {{1.2 µm}} membrane, rated per ISO 4406.

Key result

↓ **20×**

largest metal wear particles in the oil, 100 → under 5 µm

Before treatment and after 200 hours of operation

WHAT IS IN THE OIL	BEFORE TREATMENT	AFTER 200 H OF OPERATION
Cleanliness class per ISO 4406	Beyond class — extremely high contamination	17/12
Shiny (fresh) metal particles	5-100 µm, large amount	up to 10 µm
Black (oxidized) metal particles	over 40 µm	up to 30 µm
Metal chips	longer than 100 µm	no more than 50 µm

Before treatment the contamination was off the ISO 4406 scale, so no cleanliness class was assigned to the oil.

Before treatment and after 400 hours of operation

WHAT IS IN THE OIL	BEFORE TREATMENT	AFTER 400 H OF OPERATION
Shiny (fresh) metal particles	5-100 µm, large amount	under 5 µm, small amount
Metal chips and oxidized metal	chips longer than 100 µm, black metal over 40 µm	not reported in the sample
Overall assessment of the sample	Extremely high contamination, intensive wear in progress	Practically no contamination

Samples were taken from the running compressor: between measurements the unit stayed in service.

Report conclusion

KhKTB OPKM (114) recorded the following from three oil samples taken from one and the same running compressor.

1. Sample before treatment with XADO gel revitalizant: oil of extremely high contamination, classified as beyond any class, with shiny metal particles of **5-100 µm** and chips longer than **100 µm** — “an intensive process of equipment wear is under way”.
2. Sample after treatment and **200 hours** of compressor operation: cleanliness class **17/12** per ISO 4406 — “the intensive wear process has stopped”.
3. Sample after **400 hours** of operation: the oil has practically no contamination, metal particles are finer than **5 µm** — “wear has practically stopped completely”. The worn unit, in which the instrument had seen chips and oxidized metal, remained in operation throughout this time.



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The results relate to the 2VM 100/8 reciprocating compressor and were obtained from oil sample analysis; on other equipment and at a different service life the figures may differ. The original KhKTB OPKM (114) report dated 07.12.2006 is published in full and available for download.