**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<br>added to the running unit | Compressor 2VM 100/8<br>oil samples from the running compressor | Oil analysis report<br>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.

XADO

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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.