



TRIBOTECHNICAL TREATMENT REPORT — GEARBOX No. 401

Gearbox ZB-360Pm: less current to the drive, treated without disassembly

«Nikolaev Alumina Refinery» CJSC · work performed by XADO LLC: technical director S. N. Aleksandrov,
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Ukraine · report dated 21.05.1999 · inspection teardown after 168 hours of operation

PRODUCT	TREATED UNIT	DOCUMENT TYPE
XADO tribotechnical compound applied by XADO technology to the running gearbox, without disassembly	Gearbox No. 401, type ZB-360Pm gear drive: wheel — pinion · bearings · electric drive	Report signed by both parties and sealed by the refinery

EQUIPMENT	CONDITION AND DUTY	WHAT WAS MONITORED
Gearbox No. 401, type ZB-360Pm	In service; treated under normal duty, without disassembly	Current drawn by the gearbox electric drive
Gear drive: wheel — pinion pair	168 hours of operation after treatment, then taken out of service	Condition of the tooth working surfaces at the inspection teardown
Gearbox bearings	same	Radial play, condition of the surfaces

Current was measured at a constant resistance torque on the input shaft and with unchanged voltage and speed of the drive motor.

Key result

↓ **9.1%**

current drawn by the gearbox electric drive, 550 → 500 A

Treatment results for gearbox No. 401

PARAMETER	BEFORE TREATMENT	AFTER TREATMENT
Current drawn by the electric drive	550 A	500 A
Working surface of the wheel — pinion teeth	Traces of metal corrosion	Appearance of a smooth ground surface, traces of corrosion gone
Radial play of the bearings	Present	Eliminated; gear and bearing surfaces hardened

The surfaces and bearings were examined at the inspection teardown after **168 hours** of gearbox operation.

Conclusion of the report

The conclusion of the report states: «Use of XADO technology makes it possible to considerably extend the interval between repairs and to partly replace scheduled preventive repairs with tribotechnical treatment; reducing the friction coefficient to **0.007** units makes it possible to: extend oil service life by at least **3×**; extend the service life of worn equipment; prevent wear and optimise clearances in new equipment». The treatment was carried out on the running gearbox, without disassembly and without stopping production. Over the **168 hours** that followed, the drive current dropped, the teeth of the mating pair took on the appearance of a smooth ground surface, traces of corrosion disappeared, the radial play of the bearings was eliminated, and the noise of the running gearbox fell considerably.

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The results refer to gearbox No. 401, type ZB-360Pm, of the Nikolaev Alumina Refinery, treated by XADO technology without disassembly; on other equipment and under different operating conditions the figures may differ. The original report dated 21.05.1999, signed by both parties and sealed, is published in full and available for download.