



TEST REPORT ON XADO SPECIAL HIGH-TEMPERATURE GREASES

Waffle oven mould: friction units at 450 °C run without lubricant top-up

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Dnipropetrovsk, Ukraine · treatment 05.06–12.06.2001 · inspection 13.07.2001 · report 20.07.2001

PRODUCT	TEST OBJECT	DOCUMENT TYPE
XADO special high-temperature greases consistent grease — initial treatment · gel grease — layer build-up and maintenance	Waffle oven mould No. 8 plain bearings: 4 support rollers, cam-follower roller, latch, 2 flap hinge pins	Test report at a working production site signed by the plant and the contractor, stamped

EQUIPMENT	DUTY AND CONDITION AT THE START OF THE TRIALS	WHAT WAS MONITORED
Waffle oven, German-made, in service since 1989	Three-shift duty; temperature at the friction units 450 °C, conveyor speed 6 m/min	Lubrication interval of the friction units
Mould No. 8, plain bearings of the rollers, latch and hinges	Rear support rollers and the cam-follower roller did not turn because of coking; carbon deposits, scratches, metal flaking; hinge rotation about 30°	Condition of the friction pairs at the weekly teardown

The standard grease required lubrication of the units every 3 h of oven operation and selective teardown of the moulds every 1–2 weeks to clear the slag build-up.

Key result

↑ **31 days**

lubrication interval of the friction units, 3 h → 31 days

Friction units of mould No. 8 — before and after treatment

PARAMETER	BEFORE TREATMENT	AFTER TREATMENT, 13.07.2001
Lubrication of the units	Every 3 h of oven operation	31 days of service with no lubricant top-up
Bearing rotation	Rear support rollers and the cam-follower roller did not turn	Turn freely, no seizing
Friction pair surfaces	Carbon deposits from the standard grease, scratches, metal flaking, mechanical wear	Covered with a metal-ceramic layer; no scoring, flaking or wear marks
Slag build-up on the mould	Cleaning by selective teardown every 1-2 weeks	No traces of coking on the friction surfaces

Monitoring — weekly teardown and inspection of the mould friction units; the oven ran on three shifts, and the treatment was carried out without taking the equipment out of production.

Decision of the plant following the trials

DECISION	DETAILS
Roll-out	Treat all moulds of the waffle oven by the XADO technology
Initial treatment	7 g of consistent grease per point after cleaning the friction pairs of carbon deposits
Layer build-up	After 2 and 4 days of operation — 5 g of gel grease per point, without dismantling the units
Layer maintenance	5 g of gel grease per point once a month
Continuation of the trials	Mould No. 8 stays in service without a repeat treatment, with weekly inspection — the maximum running time on a single lubrication cycle is being determined

Maintenance lubrication is carried out without stopping the process line.

Report conclusions

Before the treatment the rear support rollers and the cam-follower roller did not turn because of coking, and the parts carried carbon deposits, scratches and metal flaking. After a month of operation the bearings turn freely, with no scoring and no traces of coking. The conclusions of the report state:

1. XADO grease keeps the friction units working under heating up to a temperature of **450 °C** for a month (as of the date of the report);
2. The use of XADO greases as the standard lubricant is advisable in all units of equipment operating at temperatures up to **450 °C**;
3. The use of XADO greases will make it possible to: eliminate the costs of stopping the equipment for maintenance; extend the service life of units with plain bearings; substantially cut spending on spare parts for the moulds; free the operating personnel from having to lubricate the moulds every three hours.



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The results refer to plain bearings of waffle oven moulds operating at temperatures up to 450 °C on a three-shift schedule; under other conditions the figures may differ. The treatment was performed by the official XADO dealer LLC "Prydniprovskaya Transport Company"; the report is signed by representatives of the plant and the contractor. The original report with signatures and stamp is published in full and available for download.