

NINE FLEET TEST REPORTS · OCTOBER 2008 — FEBRUARY 2009

Fleet petrol engines: compression rose and evened out, no teardown

OJSC ArcelorMittal Kryvyi Rih, motor pools No. 10, No. 12 and No. 14 · measurements by plant specialists together with a representative of XADO LLC

Kryvyi Rih, Ukraine · measurements 15–19.10.2008 and 02–05.02.2009 · reports dated 20.03.2009

PRODUCT

XADO revitalizants
for petrol engines

full oil-system treatment cycle ·
VitaFlush cleaner before the oil
change

TEST OBJECT

Engines of nine fleet
vehicles

VAZ-21099 (two vehicles) · GAZ
3110 · GAZ 22171 · UAZ 31514 ·
Nissan Patrol · OPEL OMEGA ·
SKODA OCTAVIA · VOLVO S80

DOCUMENT TYPE

Nine technical reports
of OJSC ArcelorMittal
Kryvyi Rih

VEHICLE, PLATE NUMBER	MOTOR POOL	ODOMETER AT START, KM	DISTANCE OVER CYCLE, KM
GAZ 22171, AE 3678 AA	No. 14	273 639	36 556
GAZ 3110, AE 3742 AT	No. 10	533 911	11 236
Nissan Patrol, AE 2962 AT	No. 10	556 450	21 612
OPEL OMEGA, AE 2829 AT	No. 10	404 290	16 993
SKODA OCTAVIA, AE 8851 AV	No. 10	382 135	18 076
UAZ 31514, AE 3478 AT	No. 12	57 835	11 747
VAZ-21099, AE 2825 AT	No. 10	398 122	22 418
VAZ-21099, AE 2807 AT	No. 10	246 456	13 535
VOLVO S80, AE 3146 AT	No. 10	496 281	13 340

The engines were not dismantled: the vehicles stayed in the plant's everyday service all winter, and the measurements were taken before and after the treatment cycle.

What repeated on all nine vehicles

compression evened out across the cylinders

↑ **5.6-14.6 %**

cylinder compression, 7.7-12.4 → 8.5-13.0 kgf/cm²

Compression across the fleet: before treatment, gain, evening out

VEHICLE, PLATE NUMBER	COMPRESSION BEFORE, KGF/CM ²	GAIN BY CYLINDER, KGF/CM ²	SPREAD BEFORE → AFTER, KGF/CM ²
GAZ 22171, AE 3678 AA	10.7-12.4	0.1-2.1	1.7 → 0.8
GAZ 3110, AE 3742 AT	8.1-10.3	0.2-1.8	2.2 → 0.6
Nissan Patrol, AE 2962 AT	9.2-11.0	1.0-1.6	1.8 → 0.6
OPEL OMEGA, AE 2829 AT	10.0-11.9	0.3-2.1	1.9 → 0.3
SKODA OCTAVIA, AE 8851 AV	9.8-12.1	0.1-2.0	2.3 → 0.4
UAZ 31514, AE 3478 AT	7.7-8.2	0.4-0.8	0.5 → 0.2
VAZ-21099, AE 2825 AT	10.1-11.5	0.4-1.8	1.4 → 0.4
VAZ-21099, AE 2807 AT	10.8-12.0	0.2-0.9	1.2 → 0.6
VOLVO S80, AE 3146 AT	7.7-9.5	0.7-2.5	1.8 → 0.4

Measured with a ZEGA 362 compression tester before and after the cycle. Averaged per engine, compression rose by 5.6-14.6 %, and the cylinder-to-cylinder spread narrowed on all nine vehicles.

Conclusions of the plant commissions

All nine reports of OJSC ArcelorMittal Kryvyi Rih recorded one and the same thing: "the maximum compression pressure evened out and increased across the cylinders". The largest gains came from the most worn cylinders — **2.5 kgf/cm²** on the VOLVO S80 and **2.1 kgf/cm²** on the OPEL OMEGA and the GAZ 22171 — while the sound ones barely moved: the coating builds up where there is wear and stops at the factory nominal. Hence the commissions' conclusion: "The increase in compression across the cylinders indicates the formation of minimal thermal clearances in the cylinder-piston group through the build-up of a layer of XADO metal ceramics on the working surfaces of the parts, which contributes to higher engine power, optimises the fuel combustion process and ultimately leads to lower fuel consumption during engine operation". The engines were not opened up, and the vehicles kept running the plant's ordinary routes.



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The results apply to the petrol engines of passenger and combi vehicles in the fleet of OJSC ArcelorMittal Kryvyi Rih with odometer readings from 58 thousand to 556 thousand km; on other equipment and under other operating conditions the figures may differ. The originals of all nine signed reports are published in full and available for download.