



CLEAN OIL
BRIGHT IDEAS

Quench Oil Holcroft Conveyor Furnace

CJC™ Application Study

Application Study
written by:

Mr. Stefan Molborg
C.C.JENSEN IBÉRICA, S.A.

In co-operation with:

Mr. Santiago Moreno
García,
Laboratory Manager
and

Mr. Andrés Casado Díaz,
Thermal Treatment
Manager
NISSAN MOTOR
IBÉRICA, S.L.
Transmission Plant

2004

THE CUSTOMER

NISSAN MOTOR IBÉRICA, S.A. is a manufacturer of all-terrain vehicles, single-volume cars, lightweight vans and diesel engines. The car models manufactured are Almera, Tino, Terrano and Primaster.

THE SYSTEM

Thermal treatment is part of the processing of gears and gearboxes. The plant is equipped with a Holcroft Conveyor Furnace with a 16,000 litres oil capacity, and 2 discontinuous IPSEN furnaces with volumes of 4,500 litres. The oil type is FUCHS Termison 5450.

THE PROBLEM

The Holcroft TT 137 Conveyor Furnace operates daily to quench transmission components. A formation of sludge bigger than 3 microns was observed. This stained the pieces being processed. Surface filters to remove residues from 50 microns to 1 micron were replaced 3 times in 4 days. Ingress of particles into the quench oil bath was inevitable because the pieces being processed carried particles from former processes and from outside contamination. Furthermore, the pieces came in at a temperature of 850°C every 20 minutes affecting the oil molecules so oil oxidizes and forms sludge. The very high temperatures are the cause of oxidization and as a consequence a dramatic rise in sludge formation is seen.

NISSAN MOTOR IBÉRICA, S.A. had to change 16,000 litres of oil due to oxidation sludge and rising acidity.

THE SOLUTION

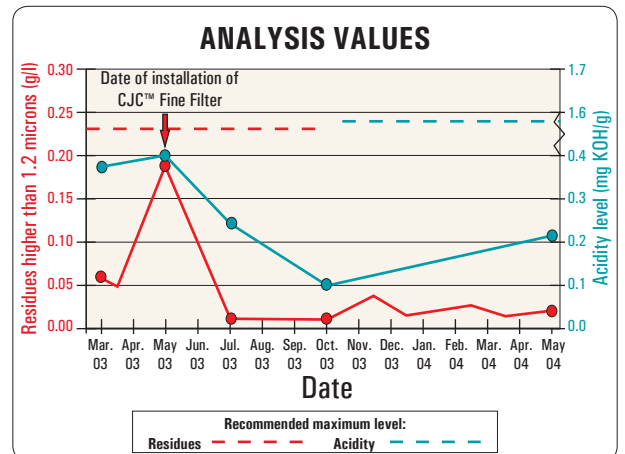
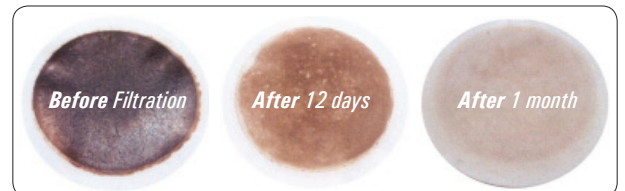
NISSAN MOTOR IBÉRICA, S.A. wanted to extend oil lifetime and thus to reduce its oil costs. The possibility of installing equipment to ensure clean and dry oil was studied. A CJC™ Fine Filter HDU 427/81 MZ-EQV was installed at the 16,000 litres quench bath with CJC™ Filter Inserts 12 x A 27/27 to remove existing residues and solve the problem of the continuous formation of sludge.

THE RESULT

Five months after the installation of the CJC™ unit, it had removed the residues which caused the biggest problems and at the same time decreased oil acidity. At present a good level of oil cleanliness has been achieved as well as a longer oil lifetime.



The CJC™ Off-line Fine Filter and Messrs. Casado and Moreno



THE RESULT

	Before	After 2 months	After 5 months	After 1 year
Residues, g/l	0.158	0.010	0.010	0.018
Acidity, KOH/g	0.40	0.24	0.12	0.23
Level of oxidation residues - membrane colour	Dark brown	White	White	White

COMMENTS

Comment by Mr. Santiago Moreno García:

When we installed the CJC filtering equipment we thought it would be necessary to replace all the oil in our quench bath in a short time owing to the levels of residues and acidity it would reach. With the installation of these filters both the residues and acidity came down to very acceptable levels. At present (a year and a half later) we are still using the same oil and our deterioration indicators are showing no signs of having to change it.