LubAnac agri

Diagnostic system for optimized management of agricultural machines

LubAnac AGRI is a diagnostic system for engines, transmissions and differentials, based on the scientific interpretation of in-service oil analysis, which allows the fleet manager to reduce the maintenance costs of their machine park.

LubAnac AGRI has been specially developed for agricultural machines. The measured physico-chemical characteristics in combination with the advanced interpretation rules allow a personalized diagnosis for each machine.

LubAnac AGRI is recommended for:

- ✓ A systematic follow-up of the wear of the mechanical parts and the lubricant.
- ✓ Prevention of breakdowns.
- ✓ Reinforcement of the longevity and the reliability of the material.
- ✓ Maintenance optimization for a better control of costs.
- ✓ Valuation of the machine at its resale.

Measured characteristics

Wear of mechanical parts :
Emission spectrometry (ICP) of elements: Fe, Pb, Cu, Sn, Cr, Al, Ni (ppmc)
Ferrous Debris Monitor: Measurement of large iron particles (Fe) *
For all non-engine components (transmission, differentials,…)

Lubricant contamination:
Silicium (ppm), Soot* (%), Water (%), Cooling liquid* (presence), Fuel* (%), Copper passivation*

** Only for engines*

Lubricant characteristics:
Viscosity (mm²/s) at 100°C, Oxidation (IR),
Viscosity(mm²/s) at 40 °C on Hydraulic Applications
UTTO (Universal Tractor Transmission Oil) performances on UTTO products

Options :
Additive elements Ca, Zn, P, Mg, Mo, Ba, V, Na, B, Ag
Calculated sulphated ash

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Features and specificities

- **Oxidation (IR) :** This measurement on engine-oils confirms the adequacy between the lubricant and the severity of the service and thus validate the correct drain interval. This parameter is essential in the event of optimizing the drain intervals
- **UTTO performance:** The connection of hydraulic tools can lead to contamination of transmission oils like UTTO. During UTTO oil analyzes, LubAnac AGRI automatically controls the friction performance of the lubricant. This measurement ensures the proper functioning of strategic components such as gearboxes, differentials, ...
- **Ferrous Debris Monitor (FDM):** Measurement of the content of large ferromagnetic particles (Fe, Ni) and integration in the diagnosis of non-engine parts (transmissions, differentials,…) allow a better definition of the type of wear of the parts.
- **Graphs:** Representation of measured characteristics as graphs for a more direct and quicker reading.

Did you know ?

The complexity of agricultural work requires the use of many tools and other materials for processing or transport that are often hitched to the tractor.

However, when connecting the agricultural tools to the hydraulic system, there is inevitably mixture between oils of the two circuits. On the side of the tractor, the transmission type UTTO oil and on the other side the hydraulic oil.

The so-called "UTTO" oils have friction properties to avoid the phenomena of shuddering and noise of the brakes in the oil bath. They also meet specifications for lubricating all the components of the rear transmission of the tractor, consisting of the gearbox, the rear axle and the hydraulic lift. The deterioration of this criterion by contamination of another type of oil can cause serious damage to these parts and more particularly to the transmission parts.

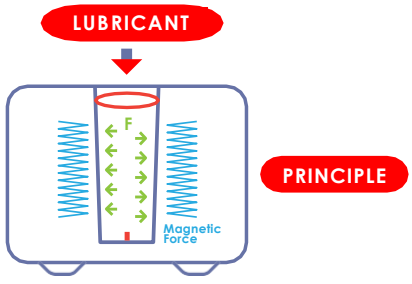
Thanks to its innovative technology, LubAnac AGRI makes it possible to control the friction performance and thus to protect the mechanical transmission components.

UTTO = Universal Tractor Transmission Oil

Did you know ?

The presence of large ferromagnetic particles (size> 5µm) often indicates a major part dysfunction.

FDM (Ferrous Debris Monitor) allows to measure the content of these large particles in the oil.
Associated with the small particles of Fe measured with ICP (<5µm), large particles allow a better diagnosis on the state of the parts subjected to high shocks and loads.



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Expertise Level : Options

Some non-engine applications such as hydraulic circuits or transmissions require additional information either to find fault or simply when the manufacturers impose levels of ownership. Options are then available to determine pollution level, non-metallic elements, cleanliness index etc ...

- ANAC FOCUS: Microscopic examination of particles present in the lubricant (transmissions).
- ANAC PARTIC LNF: Particle counting according to NAS 1638 and ISO 4406 standards (hydraulic).

Diagnosis and comments

The diagnosis and comments are generated by the LubAnac AGRI system which is based on:

- More than 45 years of experience and supply of the LubAnac database, more than 8,5 million analyses on more than 1 000 000 monitored parts.
- More than 1000 analyses per day
- Customer feedback on successful corrective actions.
- A comparison between the measured wear element concentration and the wear references thanks to algorithms excluding variable parameters such as oil replenishments or excessive drain intervals
- A network of more than 30 laboratories all around the world feeding the database.

Accessibility

Personalized and secure access:

- Consultation of previous and new reports
- Graphical visualization of the results
- Possibility of additional requests
- Download results in Excel or PDF format
- Mobile version for smartphones and tablets
- Statistical modules
- Pre-data entry on new samples

A website facilitating the management of the park monitoring:

https://lubanac.totalenergies.com

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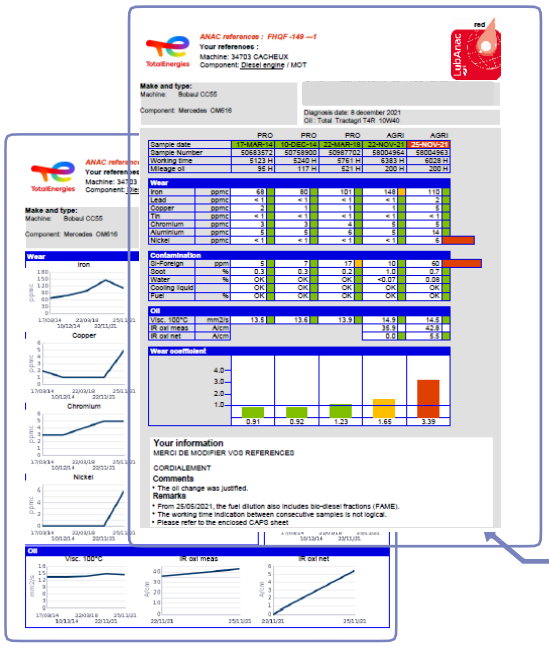
Presentation of results

The results of the diagnosis are available 2 days after reception date for 90% of the samples.
They are available by email or on the secure extranet website www.lubanac.totalenergies.com (consultation by smartphone or tablet also possible).
In an emergency, the results can be transmitted immediately after the diagnosis has been made.

ENGINE

The history of the last 5 diagnoses is recalled on the report.



- Color code : green, orange, red
- Customer, machine, part and sample data
- Wear elements and color code
- Contamination elements and color code
- Physico-chemical characteristics: viscosity, oxidation
- General Wear Coefficient : assesses the state of wear of each type of engine compared to identical engines in the ANAC database in 1 figure
- Comments and recommendations

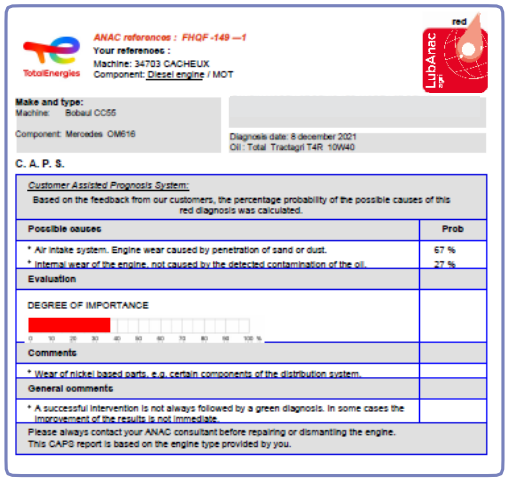
Graph Visualization

Satisfying diagnostic — Slight deviations — Anomaly found — Dangerous situation

CAPS (Customer Assisted Prognosis System) :

Only in case of red diagnosis. Relies on feedback from customers.

- Possible causes and recommended interventions are indicated by percentages of probability.
- The degree of urgency assesses the necessity of the intervention to be carried out.
- The displayed comments focus on the peculiarities of this type of part.



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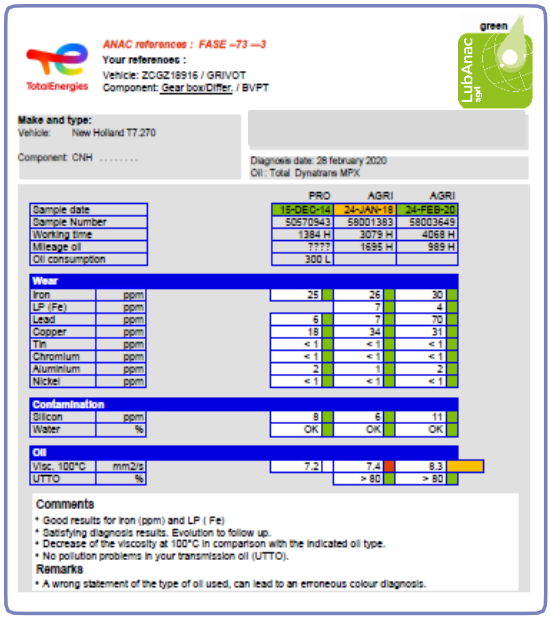
Presentation of results

Non-Engine Parts

(Transmission)



ANAC references : FASE –73 –3
Your references :
Vehicle: ZCGZ18915 / GRIVOT
Component: Gear box/Differ. / BVPT

Make and type:
Vehicle: New Holland T7.270
Component: CNH .....

Diagnosis date: 28 february 2020
Oil : Total Dynatrans MPX

		PRO	AGRI	AGRI
Sample date		15-DEC-14	24-JAN-18	24-FEB-20
Sample Number		50570943	58001383	58003649
Working time		1384 H	3079 H	4068 H
Mileage oil		????	1695 H	989 H
Oil consumption		300 L		
Wear				
Iron	ppm	25	26	30
LP (Fe)	ppm		7	4
Lead	ppm	6	7	70
Copper	ppm	18	34	31
Tin	ppm	< 1	< 1	< 1
Chromium	ppm	< 1	< 1	< 1
Aluminium	ppm	2	1	2
Nickel	ppm	< 1	< 1	< 1
Contamination				
Silicon	ppm	8	6	11
Water	%	OK	OK	OK
Oil				
Visc. 100°C	mm2/s	7.2	7.4	8.3
UTTO	%		> 80	> 80

Comments
* Good results for iron (ppm) and LP (Fe)
* Satisfying diagnosis results. Evolution to follow up.
* Decrease of the viscosity at 100°C in comparison with the indicated oil type.
* No pollution problems in your transmission oil (UTTO).

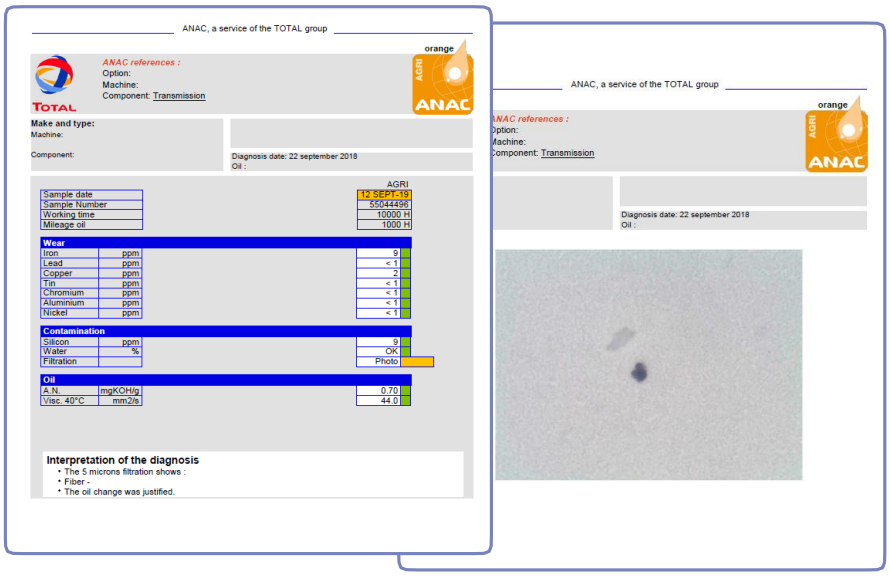
Remarks
* A wrong statement of the type of oil used, can lead to an erroneous colour diagnosis.

← Integration of the large ferromagnetic particle content in the diagnosis for transmission and differentials

← Diagnosis of wear elements according to the type of machine

← If hydraulic system, Viscosity at 40 °C is measured.
← UTTO performance

(Transmission with option LubAnac FOCUS)



ANAC, a service of the TOTAL group

ANAC references :
Option:
Machine:
Component: Transmission

Make and type:
Machine:
Component:

Diagnosis date: 22 september 2018
Oil :

		AGRI
Sample date		12 SEPT-18
Sample Number		55044496
Working time		10000 H
Mileage oil		1000 H
Wear		
Iron	ppm	9
Lead	ppm	< 1
Copper	ppm	2
Tin	ppm	< 1
Chromium	ppm	< 1
Aluminium	ppm	< 1
Nickel	ppm	< 1
Contamination		
Silicon	ppm	9
Water	%	OK
Filtration		Photo
Oil		
A.N.	mgKOH/g	0.70
Visc. 40°C	mm2/s	44.0

Interpretation of the diagnosis
• The 5 microns filtration shows :
• Fiber -
• The oil change was justified.

ANAC, a service of the TOTAL group

ANAC references :
Option:
Machine:
Component: Transmission

Diagnosis date: 22 september 2018
Oil :

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