

THE LUBRICATION BUSINESS

Undoubtedly, maintenance is the area where faster an industrial company can make quick savings, with simple principles and minimal investment.

At the same time, among Maintenance Component areas, where you can quickly achieve maximum savings of maintenance costs, is in the area of lubrication.

However, it is necessary to distinguish between lubricants and lubrication. Typically lubricants costs do not represent even 1% of total costs of final products manufactured by the industry. Simultaneously, the cost of downtime due to lubrication, is rarely less than 50% of maintenance costs (which easily in many industries, reach up to 80% of maintenance costs).

The financial department of the companies that we visit, often incorrectly and inaccurately quantify the costs of inadequate lubrication.

Inadequate lubrication translates into downtime for wear, shorter mean time between failures, but these downtime is mixed up in many companies, with shutdowns of the plant due to other reasons, such as lack of raw materials, and/or lack of sales, that do not allow also the plant to produce.

It is therefore of most importance to involve within a plant, financial departments, together with the maintenance departments, under the principles of the ISO 4406 standard.

This rule allows us to predict significant savings due to the extension of the useful life of the assets of the company that require lubrication.

Cleaning Codes ISO 4406 are composed of three figures, as explained below:

16/14/11

- Where 16 represents 2^{16} particles greater than $4\mu\text{m}$ in 100 cm^3 of lubricating oil (this rule applies also to fuel oils).
- 14 represents 2^{14} particles larger to 6 microns in the same hundred cm^3 of oil and 11 represents 2^{11} particles greater than 14 microns in those same hundred cm^3 of oil.
- What normally happens in an industrial company that uses lubricating oils it is that nobody does measure the ISO Cleanliness Code when their lubricating oils reach the factory, assuming that the oil is clean because it is new, but without finding its ISO Cleanliness Code 4406.

In another article that appeared in this space, we explained an economical way to measure the ISO Cleanliness Code 4406 code.

Then, we will now explain what are the savings involved in Filtrating the Lubricating Oil, by applying the Life Extension Tables Assets which provides us the same standard ISO 4406.

Life Extension Table Pumps

		New Cleanliness Level (ISO Code)										
		20/17	19/16	18/15	17/14	16/13	15/12	14/11	13/10	12/9	11/8	10/7
Current Machine Cleanliness (ISO Code)	26/23	3	3.5	4	5	6	7.5	9	10	10	10	10
	25/22	2.5	3	3.5	4	5	6	7	9	10	10	10
	24/21	2	2.5	3	4	5	6	7	8	10	10	10
	23/20	1.5	2	2.5	3	3.5	4	5	6	8	9	10
	22/19	1.3	1.6	2	2.5	3	3.5	4	5	6	7	10
	21/18	1.2	1.5	1.7	2	2.5	3	3.5	4	5	7	10
	20/17	1	1.2	1.5	1.7	2	2.5	3	4	5	7	9
	19/16	1	1	1.2	1.5	1.7	2	2.5	3	4	6	8
	18/15	1	1	1	1.2	1.5	1.7	2	2.5	3	4.5	6
	17/14	1	1	1	1	1.2	1.5	1.7	2	2.5	3	5
	16/13	1	1	1	1	1	1.2	1.5	1.7	2	3.5	4
	15/12	1	1	1	1	1	1	1.2	1.5	1.7	2	2.5
	14/11	1	1	1	1	1	1	1	1.3	1.6	1.8	2
	13/10	1	1	1	1	1	1	1	1	1.2	1.5	1.8

In this table if the hydraulic oil we received, from a hydraulic gear pump, had an ISO 4406 Cleanliness Code of 21/18 and did dialysis to cleanse the oil and leave it with an ISO 4406 Cleanliness Code 13/10, the we would get is an extension of the life of the hydraulic pinion of pump 4 times.

This extension of the life of the pump 4 times implies a reduction of maintenance costs of 75% of that pump pinions, bearings and other moving parts.

If we take care of the ISO 4406 Cleanliness Code of our oils, we will have additional benefits like discard much less oil, because our lubricating oils will last two, three and n times, so our disposal will be much less and will be much friendlier with the Ecosystem.

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