

THEME LUBRICATION

ADDITIVES HARMFUL TO THE LUBRICANT

BACKGROUND

The correct lubrication is vital for the compressor. As all moving parts are fitted with millimeter precision, every aspect of the setup is expected to perform within the boundaries of an exceptionally narrow margin. Part of this setup is the lubrication, which is essential for all moving components. Especially a thin oil film between pistons and cylinders ensures their smooth operation and proper refrigerant sealing. Furthermore, the lubricant works as a cooling agent, extracting heat from the compressor and preventing overheating. Additionally, the lubricant helps to maintain the proper condition of seals of joints and hoses.

The compressor manufacturers carefully select the most appropriate lubrication type, in order to ensure maximum vitality and performance for the compressor and for the entire AC system.

PROBLEM

It is not wrong to use additives, but improper use can make them extremely harmful for the compressor lubrication. If an improper volume of additives, or the wrong kind of additives, is added to the oil, the lubricative abilities of the oil will be impaired.

When the originally applied oil is mixed with another substance, it can affect the structure and composition of the oil film and thereby weaken its lubrication abilities. This will impair the compressor performance and shorten its lifespan. A lubricant that is not optimized to the compressor specifications can lead to overheating, friction, and seizure in the compressor.

RECOMMENDED SOLUTION

It is of vast importance to always follow the compressor manufacturer's installation instructions to ensure proper lubrication. Always apply the lubricant type and volume required by the compressor manufacturer. When using an UV dye agent, leak-stop agents, or system flushing solution, always follow instructions strictly. System service procedures like flushing, drying or vacuuming require great attention to detail, following every step to the point and in correct order.

WHAT COULD BE HARMFUL TO THE PROPER LUBRICATION?



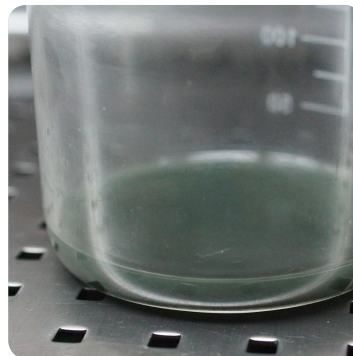
Too much UV agent - Using an excessive amount of detergent-based UV agent will dilute the oil. This will result in an improper viscosity and density of the oil, resulting in poor lubrication thus resulting in compressor failure. Adding too much lubricant-based UV agent will increase the pressure in the system, exposing the compressor to a higher load. **The amount of UV dye used should never exceed 5% of the total volume of the oil.**



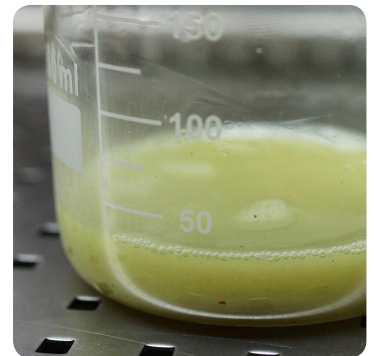
Flushing agent residues in the system - Flushing agent residues in the circuit will significantly impair the oil lubricative abilities. Furthermore, it can deteriorate the Teflon coating in the compressor, causing particles to peel off thus clog the system. **After flushing, nitrogen must always be used to remove the flushing agent remains and to effectively dry the circuit.**



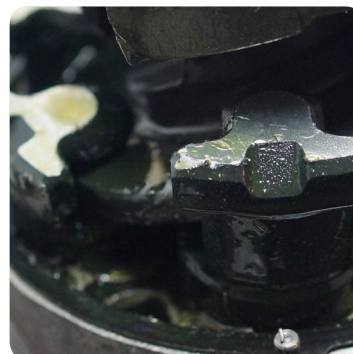
Leak-stop contaminated - Improper evacuation of vacuum will leave moisture in the compressor system. As some leak-stop agents work by crystalizing moisture in leakage areas, a poorly vacuumed system will experience extensive crystallization. This will cause contamination inside the circuit, reduce lubrication abilities of the oil, and eventually cause the compressor to seize.



Visibly dark green-discolored oil due to too much UV dye



Oil contaminated by flushing agent, milky discoloration



Crystallized leak-stop agent thickened the oil, creating visible spots on wobble plate and pistons

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