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RESTORE

1030

Regarding Compatibility, Filtration and Refrigerant

Restore1030™ and Compressor Oil Compatibility

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Restore1030™ and Compressor Oil Compatibility

Concerning mechanical effects, RESTORE1030™ is a revolutionary, proprietary grouping of "Stage 2" energy reducing HVAC/Refrigeration technologies employing polarized bonding and nanocomposite coatings that deliver super hard, low friction properties to metal surfaces. The chemical technology, once introduced to the inner workings of the refrigeration system provides for greater load wear with reduced friction, reversed adhesion attributes of impeding deposits and increased laminar flow of heat transfer surfaces channeling refrigerant and oil.

Though relatively new for the specific application in the HVAC/Refrigeration arena, RESTORE1030™ base chemical technology has seen over 20 years of metallurgic-thermodynamic research testing and application with hydraulic and mechanical aspect operations in the Heavy Industrial, NASCAR and Military genres to reduce repetitive friction heat, metal surface scoring and seize prevention.

RESTORE1030™ has taken this heavy duty field performance and engineered a solution set of formulations to increase the operational efficiency in Air-conditioning and Refrigeration systems without adding chemically reactive, corrosive, toxic or altering additives.

RESTORE1030™ Refrigeration Treatment Optimizer (RTO) most effectively solves the problem of refrigerant system thermal transfer compromised by oil fouling, enhances refrigerant pool boiling temps and increases compressor lubrication that had previously been untreatable in large scale A/C chillers and refrigeration systems. RESTORE1030™ does not compromise system oil viscosity yet enhances its ability to channel and lubricate more effectively. RESTORE1030™ restores system operating performance to "like-new", maintains the performance, reduces runtime, aids in extending service life of the equipment in one permanent treatment.

Is RESTORE1030™ compatible with all essential compressor oils (Mineral, Alklybenzene, Polyol Ester)?

RESTORE1030™ RTO 2000 has been specially engineered with a proprietary carrier oil formulation and polymer to be compatible with all standard and recently evolved compressor oils. The complex set of chemicals provides a high purity SUS 325 Compressor Fluid Base that provides oxidative, hydrolytic and thermal stability while maintaining seal integrity. It has been tested in a wide range of refrigerant applications and utilized in many installations over the past three years with fantastic results and zero negative effects to equipment. Testing to this end has been conducted in 2008 and 2009 at separate validating performance laboratories. Due to the proprietary nature of the formulations, these tests are available upon request. The following illustrates the matrix of refrigerants tested with our formulations.

R-12	R-23	R-114	R-134A	R-409A	R-500
R-13	R-113	R-123	R-402A	R-410A	R-502
R-22	R-113A	R-134	R-408A	R-416	R-503

RESTORE1030™ and Filtration, Expansion/Reed Valves

Restore1030™ formulation is inherently a technology. This means that it's molecular composition is much smaller than the chemical elements within the operational confines of the refrigerant/ oil based HVAC system. The formulation is structured to integrate at such a level that it enhances the composition of the oil within the system and acts upon oil deposit adhesions by liquefying and returning them to their smallest and simplest form then keeping them that way. Thus the now salubrious blend not only performs at peak throughout the system but passes through the small filter and valve openings with greater ease.

Will RESTORE1030™ clog inline filters or compromise expansion valve performance?

The answer to that question is "no" it will not clog the in line filters. The reason that this cannot happen is again the particle size of the chemical components is much too small to be captured by the filter. There may briefly be in some instances a bit of accumulation on the filter medium as RESTORE1030™ removes the oil fouling inside the system. There will not be enough accumulation to cause the filters to have to be changed outside the normal maintenance schedule and is moreover the case, given RESTORE1030™ conditioning and preventing re-attachment, that the residual is broken down and is relegated back to a completely fluid/liquefied state.

The following images are C-165 filters used in a ten ton chiller. The first pictures are of a new filter installed and run with a throughput of 57,940 gal. of R-22 liquid Freon. As you can see there is very little accumulation in the filter stone. This filter was replaced with a new filter prior to injecting RESTORE1030™

Before Injection

After Injection

After RESTORE1030™ was injected into the system the filter was removed after 103,399 gal. of R-22 liquid Freon had passed through the filter. As you can see there is very little accumulation on the filter stone. Subsequent filter changes are made according to the regular PM schedule with no restriction noted.

Our initial recommendation prior to this testing was to replace the filte 14 days post RESTORE1030™ treatment. Since this particular test, many other filters have been examined and it has been determined that filter change regarding RESTORE1030™ treatment is simply not necessary in almost all cases. To this end we have found expansion and reed valves to see increased functionality in performance with the enhanced cleaning and protecting properties of RESTORE1030™ present in the system.