

Synthetic Oil: The Right Choice?

The answer is not as simple as “yes” or “no”, but is synthetic oil the right oil for my application? Synthetic oil can be the best choice for any application, but does it make sense or add more value than conventional oil?

There are many benefits to using synthetic oil vs. a mineral oil, but that doesn't necessarily mean it is the right choice. First you have to consider the major advantages of common types of synthetic oils and then identify the conditions for which these advantages become benefits. The most popular synthetic oils are PAO's (polyalphaolefins), PAG's (polyalkaline glycol), diester and polyolester.

PAO's are the most common type of synthetic base oils used today. They are moderately priced and provide excellent performance. The advantages come from the fact they are built, rather than extracted and modified making it more pure. The potential benefits are improved thermal stability, excellent demulsibility, a high VI, and a very low pour point. The negative attributes of PAO's are the price and poor solubility, which create problems for dissolving additives, and most of all, high finished price.

PAG's have many unique properties that allow them to work well in certain applications. They have excellent thermal stability, high VI and great film strength. PAG's may also be the only type of base oil with significantly lower fluid friction, which may allow for energy savings. They also have the ability to absorb water and maintain lubricity. There are actually two different types of PAG's, one that demulsifies and the other absorbs water. The latter can be useful if you have a compressor application. The negatives are the same as above with the high finished price as well as hydrolically unstable.

Diester's are a little similar to PAG's in their high VI, thermal stability and excellent solubility, which makes for a great finished product for reciprocating compressors. Another common application would be synthetic engine oil. The negative aspects are high finished price, and poor hydrolic stability.

Poly Ester's are very similar to diester's, but offer better fire resistance. Of the synthetic oils stated in the article, it is the best choice for high temperature applications. The two most common choice for poly ester's are fire-resistant hydraulic oils and jet engine oils.

In closing, we have discussed the common synthetic base oil types, identified the advantages and disadvantages, and the common applications. The answer to the question above is not to use the best lubricant in every application, but use the right quality of lubricant, because every application is different. Please direct any question to Universal's Technical Service Department @ 1-800-444-6457.

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