

How *NOT* to PROLONG Engine Life

Oxidation testing in additized samples of new oil produced gels, which appear to lead to sludge formation.



Oil Analyzers Inc. (OAI) has recently performed oxidation testing on samples of new motor oil treated with chlorinated aftermarket oil additives and compared the results to oxidation testing of untreated new motor oil in an effort to determine the cause of severe sludging in the field. The treated samples produced gels (shown at left). Unadditized motor oils do not. The gels appear to lead to sludge formation.

Additionally, Four Ball Wear (D-4172B) tests performed by AMSOIL INC. in 1997 on AMSOIL Synthetic 10W-30 motor oils showed that those treated with chlorinated aftermarket oil additives allowed the formation of larger wear scars (0.40 mm) than untreated samples (0.36 mm) did.

Although a link between sludging in the field and chlorinated aftermarket additives has not yet been established, AMSOIL strongly recommends against the use of aftermarket additives, particularly those containing chlorine.

WHY CHLORINE?

Chlorine is an excellent extreme pressure agent, and is used as such in industrial lubricant applications. Those who market chlorinated automotive aftermarket oil additives market them as engine protectants, substances that will help engines last and maintain like-new performance.

However, chlorine is extremely reactive, which makes it corrosive to engine metals and interactive with many oil components. "The environment within an internal combustion engine consists of high operating temperatures, combustion and blow-by gases, moisture, acid and oxidation precursors, wear debris [and] unburned fuel," Maurice E. LePera, former associate director for fuels and lubricants at the U.S. Army's Tank-Automotive Research, Development and Engineering Center told *Lubes 'N' Greases* (Aug. 1998). "The combination of these ingredients when combined with the catalytic effects of metallic surfaces and trace soluble metals such as copper will cause chlorine to hydrolyze - forming hydrochloric acid and other associated reaction products. Once generated, these acidic reaction products can cause serious internal engine corrosion problems, especially on ferrous and aluminum alloys."

In fact, the oil and automotive industries used chlorine as a motor oil component until the 1930s. Then it was replaced by zinc dialkyl-dithiophosphate (ZDDP), a much safer antiwear agent for engine use.

The reactivity of chlorine increases as temperatures climb, which makes it more dangerous for hot-running contemporary cars than it was for older,

cooler-running models. Interestingly, chlorine additives were used at about a one percent treat rate by the auto industry when they were used. Aftermarket Oil additives today contain treat rates as high as 30 percent chlorine.

DON'T BE FOOLED

Some chlorinated aftermarket additive manufacturers claim that their products are non-corrosive. However, the corrosion inhibitors used in such products are a short-term fix, leaving engines open to corrosion after the additives have lost their effectiveness.

WHAT'S THE ANSWER?

Look at the labels of various on additives, and you'll see many note what they don't contain. AMSOIL recommends against the use of all additives. They're not needed. Why risk your engine by using any aftermarket additive?

To ensure longest engine life and best engine performance over time, perform regular vehicle maintenance and use a top-quality motor oil without the aftermarket additives.

How can I tell if an additive has chlorine?

Aftermarket oil additives with product claims such as

- CONTAINS NO TEFLON
- CONTAINS NO PTFE
- CONTAINS NO GRAPHITE
- CONTAINS NO SOLIDS

May CONTAIN chlorine compounds.

Unless the package states, "no halogenated or chlorinated materials," the consumer CAN'T tell if an additive contains chlorine.