

WHAT'S UP WITH ALL OF THIS ALUMINUM?

Aluminum can certainly be a prevalent wear metal found in most used engine oils. It would likely be second in abundance next to iron and perhaps third to copper. However, regardless of its common occurrence, the deduction of its source can be elusive.

Typically, in past years, aluminum could primarily be traced back to engine pistons as the source. Other sources, like engine blocks, blowers, and bushings, might contribute some aluminum but not the magnitude that pistons would. Aluminum can also be associated with dirt contamination. Some aluminum oxide is associated with the silica that composes dirt.

Recently, a new source of aluminum has appeared. Aluminum wear can now be associated to the advent of exhaust gas recirculation as a means of reducing emissions. The EGR vapor that drops below the dew point can condense into nitric and sulfuric acids. These acids are then dumped into the aluminum intake manifold where they can corrode the aluminum from the surface, which is inducted into the engine.

Engine manufacturers will coat the intake manifold with an impervious material. However, after years of blasting the coating with soot, the coating will become worn and the manifold will be susceptible to corrosion.

A good crosscheck for the corrosion of the intake manifold is to test for the presence of nickel. Even a small increase in nickel can indicate the corrosion is occurring, as nickel is part of the alloy present in the intake valve seats.

It is certainly difficult to pinpoint a source for the aluminum. The best practice is to perform routine used oil analysis to demonstrate the service life of the engine oil and the condition of the unit's engine. Talk to your Universal Lubricants sales representative about used engine oil analysis and how it can benefit your equipment, extend your drain intervals, and monitor the concentrations of aluminum and other wear metals in your equipment.

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