

NOAT Myths

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Introduction:

Many customers have expressed a desire for a simple explanation of the benefits of NOAT coolant compared to advanced fully formulated coolants and common-sense advice in their use and compatibility.

Discussion:

The traditional color for engine coolant has been green. The green color is used primarily by informal convention to differentiate the coolant from other fluids used in automotive applications such as engine lube oil, transmission fluid and windshield washer fluid. Fifteen years ago, Nalco Chemical (now Penray), in concert with major engine manufacturers introduced a dark pink (fuchsia) colored engine coolant to the marketplace. This coolant provided what is now referred to as "fully formulated" technology, an embodiment of the common sense concept that antifreeze, when purchased by the end user, should be ready to mix with water and use in the cooling system without further chemical modification (i.e. pre-charging with SCA). Fleetguard® followed suit a few years later, introducing "Compleat®" brand, formulated with their DCA-4® chemical technology. Compleat is blue. Penray has also supplied green-dyed fully formulated coolant to Freightliner, Peterbilt®, Kenworth®, and Mack®. In 1997, when Texaco® introduced organic acid technology (OAT) inhibited antifreeze, green usually indicated conventional automotive coolant, and pink or blue suggested fully formulated, heavy-duty technology. A few green coolants were fully formulated.

Texaco elected to dye their OAT technology orange. After testing revealed liner damage with regular OAT, Caterpillar® insisted that nitrite be added to make NOAT for heavy-duty diesel engines. Texaco added some red dye to the nitrite-containing (Caterpillar) version to distinguish it from the non-nitrited (GM Dexcool®) product. The NOAT coolant, however, is still distinctly orange to red-orange. Few people who see it alone would describe it as "red". Nevertheless, you can imagine Penray's astonishment that Texaco had the poor judgment to select a color so close to the existing and well established DDC and CAT heavy-duty coolant products already in the marketplace! Two shades of reddish coolants were certain to cause end user confusion.

It is very important that everyone understand that all these coolants are made primarily of ethylene glycol and water. The differences are limited to the chemical additives used to prevent corrosion. In fact, recently the two technologies have become more similar; as problems experienced by Texaco have forced them to create hybrid chemistries that now are closer to the original fully formulated formulations. The only significant remaining difference is that, in the OAT and NOAT products, 2-ethyl hexanoic acid replaces silicate used in conventional coolants as the aluminum protector. In either case, these inhibitor chemistries represent less than 5% of the coolant as used in cooling systems.

Extensive testing and evaluation has been conducted to determine the comparative performance benefits and possible consequences of mixing the two types of coolant. Overall, the tests have shown the following facts relative to the performance of fully formulated and NOAT coolant technologies:

Therefore, while mixing the coolants is not recommended, neither is it necessary to develop ulcers regarding the mixing of the coolants. It is most important that the end user be educated and committed to the use of one of the advanced, nitrited (not just nitrated) coolant technologies. With the exception of Volvo® Trucks, most coolants used in modern American trucks and busses will meet TMC RP-329 and ASTM D-6210 coolant specifications, and may be maintained with extended service filters or other ESI practices. Getting the user to monitor and properly maintain the coolant is, and always has been, the biggest challenge. NOAT does not solve the human problem.

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