

There are three reasons antifreeze coolant is used in automobile cooling systems:

- Remove and control heat by circulating the coolant through the engine block, pulling heat away from the metal and out to the radiator where it is cooled by air passing through the radiator.
- Lower the freeze point of the water/coolant mixture below that of straight water and raise the boiling point of the mixture to prevent overheating.
- Protect and lubricate vital internal engine components such as the water pump and engine seals plus the radiator from corrosion and scale buildup.

(IAT) - (Green) Ethylene Glycol:

Back before 1995, putting antifreeze in your American or classic British car's radiator was a relatively simple matter. There was only one type of antifreeze available. For over seventy years the green stuff, "ethylene glycol" was what you used. In most cases, a 50/50 mixture was the accepted norm. This antifreeze, based on an "inorganic acid technology" (IAT), contains silicate and phosphate additives which makes it suitable for cast-iron, copper, brass and aluminum. This antifreeze, which is still available, should be flushed every 36,000 miles or every three years.

(OAT) - (Orange) Extended Life, DEX-COOL:

In 1995, an "extended life" coolant was introduced to North America by General Motors. This coolant, called DEX-COOL, is orange in color and is designed for use in GM vehicles manufactured since 1996. This extended life coolant is based on an "organic acid technology" (OAT). This coolant has a propylene glycol base which makes it less poisonous to humans and animals. The orange DEX-COOL coolant is advertised as being good for three to five years or 150,000 miles. Audi, Jaguar, Porsche, VW, Land Rover, Toyota, Nissan, Honda, Mazda, and other Asian makes made the switch to the DEX-COOL coolant in 1996.

(HOAT) - Yellow:

HOAT, which stands for "hybrid organic acid technology", is usually dyed yellow, but comes in green, pink, blue, red and orange....which leads to a lot of confusion. The packaging on this coolant usually refers to the product as being "global" and states that it meets or exceeds the specification "G-05" for most European cars, and "G-II" or "G-12" for VW and Audi. This coolant is advertised as having a five-year effective life in a cooling system. HOAT coolants are usually specified for vehicles newer than 2002, specifically Mercedes, Volvo, Ford, VW, Mini Cooper, Audi, Chrysler, BMW, and SAAB. The OAT and HOAT coolants can extend the life of rubber hoses because they conduct less electrochemical degradation than the old green antifreeze that was used for so many years.

In conclusion:

So what type of antifreeze should you use? Depending on the year and manufacturer of your car, follow these rules:

1. Don't mix coolants.
2. Don't substitute.
3. Follow the car manufacturer's recommendation.
4. There is no such thing as "one size fits all".

There is plenty of information on the internet about antifreeze. One of the handiest things I discovered is that there are "Antifreeze Coolant Application Charts" available. Please use the information in this article only as a guide. I don't profess to be any kind of antifreeze guru. Do research and seek advice from an expert if you intend on changing your own antifreeze. Keep in mind that not all antifreeze you find on a store shelf is necessarily compatible with hoses, engine seals, gaskets, and alloy metals used on today's modern engines.

Happy Motoring.....Ron Couturier

References for this article: Hemmings Motor News—Dec. 1, 2006. Antifreeze Colors Like A Rainbow, by Jim O'Clair.

www.Auto-inspection-maintenance.suite101.com/article.cfm/antifreeze-engine-coolant-basics

www.factoidz.com/basic-car-maintenance-tips-antifreeze-and-coolant/

Popular Mechanics, Aug. 2010. Coolant Confusion, Author Paul Weissler.

www.Whitfieldoil.com/Zerex Antifreeze Coolant Application Chart for Passenger Vehicles & Light Duty Trucks. ZEREX—Selecting the Right Chemistry. Copyright 2006 Ashland.

www.Whitfieldoil.com/www/docs/164.244 Demystifying Modern Antifreeze/Coolant

www.filtercouncil.org Technical Service Bulletin 05-2 - The Color of Antifreeze.