



TECHNICAL BULLETIN

Is PG antifreeze safer to use in the marine environment?

Propylene Glycol and Ethylene Glycol antifreezes biodegrade rapidly in the presence of micro-organisms in water. Both PG and EG are considered relatively harmless according to the US Fish and Wildlife Service Aquatic toxicity rating scale. In fresh and salt water tests, there was no evidence that PG or EG depleted the oxygen in water and killed fish differently. The US Coast Guard and many state fish and wildlife agencies recommend the use of PG antifreeze products in marine applications because of perceived marine toxicity differences between EG and PG, and because of the lower toxicity of PG to humans and animals.

PG Safer to the Environment

Spent or used antifreeze fluids, whether EG or PG, should never be dumped or spread into the environment, because either may contain hazardous contaminants, such as lead or benzene. However, if spilled into the environment accidentally, both EG and PG products are fully biodegradable. While there are small differences in the rates of biodegradation both fully biodegrade. It should be noted that cold temperatures cause rate of biodegradation from both EG and PG to slow or stop entirely, and that until fully biodegraded, EG, however, is significant risk to pets, humans and wildlife. PG, however, is essentially non-toxic to animals, and is safer to the environment.

Where it is impractical or not desired to dispose of waste used coolant in the proper manner

An example of this is where the waste coolant could be spread on the ground for dust suppression. Both PG and EG antifreezes become hazardous by EPA classification when they are contaminated with hazardous impurities through use in a cooling system, or are cross contaminated through improper storage and mixing with extraneous hazardous materials. The EPA lists two hazardous contaminants that normally are generated in a cooling system. Both lead (5ppm), and benzene (0.5ppm) are impurities that cause antifreeze to be classified hazardous. Lead is generated by corrosion in the cooling system such as from solder corrosion and can be generated by over treatment of coolant additives, while benzene is caused by gasoline contamination.

Testing for lead and benzene levels will determine if the waste coolant is deemed hazardous, however it should be noted that analysis of a large number of coolant samples indicates that 70% to 90% of used coolants tested do not exceed the EPA hazardous threshold limits for lead and benzene. It is incumbent upon the generator to properly segregate used antifreeze fluids to prevent cross contamination with hazardous materials. In addition, the generator would be required to test the used PG fluids for Lead and Benzene and gain formal approval from the local environmental authorities prior to disposal.