C350 Tech Revised

An Old Debate; Yet Still New…

So, what is "non-toxic" antifreeze? Is it ethylene glycol or is it propylene glycol? The answer is neither! It's really an oxymoron as they are both toxic….. and it's not a simple question of one being more or less toxic than the other. To further cloud the issue *Practical Sailor* recently revealed results of the effects of both types of antifreeze upon plastics and other compounds (such as neoprene) used in our plumbing and engine cooling systems. In the post by Darrell Nicholson in December of 2013 (the article will appear in July, 2014), plastic thru-hull strainers and joker valves were severely etched and damaged by exposure to propylene glycol but barely touched by ethylene glycol. The joker valves are made of neoprene which is the principle material of impellers….we have been told for decades to remove the raw-water impeller after winterizing (and leave it with our keys so we remember to re-install in the Spring). Now it seems there is evidence that use of ethylene glycol antifreeze may further protect your impeller from the chemical attack typical of propylene glycol.

But what about the toxicity of each of these two commonly used compounds? This, too, is not a simple question to answer….there is biotoxicity vs ecotoxicity. By sifting through the information contained in the MSDSs (Materials Safety Data Sheets) for the two compounds… ....propylene glycol is four times less toxic than ethylene glycol in terms of direct exposure (biotoxicity by inhalation/ingestion/absorption). Propylene glycol, however, is as much as six times more toxic in in the environment (ecotoxicity). We are putting these compounds into our potable water systems…so, it would make sense to use the less biotoxic of the two……or does it? Let's be honest, we flush our fresh water systems thoroughly (regardless of which antifreeze we use) and where is all that antifreeze and flush-water going…..? Into the environment! It would be nice to think we collect and recycle all that antifreeze but in practice that just isn't happening….how many times in the Fall do we have someone stand near the boat and holler when they see pink coming out that thru-hull.

I am a biologist…one may argue a chemist……I volunteer at Forsythe National Wildlife Refuge at the old Brigantine Sanctuary in Oceanville, NJ…..and I dearly love these coastal and estuarine environments over and into which I plod with my 35' fiberglass bubble…..what am I going to do? I am going to use (actually I already use) the ethylene glycol antifreeze…I can oversee the cleanliness of my tanks (by my own labor flushing them thoroughly)…substantially slowing the degradation of my plumbing and engine cooling systems….while in the process spewing a little less poison into the environment.

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