# IMPORTANCE OF SUPPLEMENTAL ADDITIVES IN DIESEL COOLANT


Standard engine coolants come in three main types, automobile, heavy duty and universal. The main difference in these coolant types is the level of aluminium corrosion protection they provide. In conventional coolants the addition of silicates provides this protection. An antifreeze designed strictly for automotive use is high in silicate, while a strictly heavy duty antifreeze contains low silicate. A universal antifreeze meets the needs of both automotive and heavy duty applications. Universal formulations contain enough silicate to give proper aluminium protection, but keep the silicate level low enough for heavy duty applications. All antifreezes made by Old World Industries are universal formulations. When used in heavy duty applications, universal formulations require the addition of supplemental coolant additives (SCAs). SCAs provide the increased protection required for heavy duty engines. This article will detail the reasons for needing SCAs in a heavy duty coolant.

To improve heat transfer and aid in serviceability, many heavy duty engines incorporate wet sleeve liners. Under the extreme stress of heavy duty engine operation these liners vibrate. This vibration creates air bubbles that implode against the liners' outer surface. This action, called cavitation, quickly causes pitting that can damage or destroy the wet sleeve liner. Because of this problem, heavy duty coolants must contain a special nitrite inhibitor, extra defoamer and buffers. These compounds come in a separate SCA. In addition, the SCA introduces a scale inhibitor that prevents the formation of surface deposits in the cooling system. Surface deposits reduce heat transfer and increase boil over potential.

In heavy duty applications, maintaining a proper maintenance schedule for adding SCAs is equally important as adding the correct initial supplemental additive. Over time, inhibitors deplete and require replacement for proper protection. Generally maintenance SCA additions are every 200 service hours or 24,000km (consult individual manufacturers for exact recommendations). The point at which to add a maintenance SCA is determined by test kits made available from the additive suppliers.

In order to reduce the variability associated with SCA levels in both initial fill and top off, Old World Industries introduced Fleet Charge Heavy duty Antifreeze. This is a universal antifreeze pre-charged with an initial supplemental additive package. Fleet Charge antifreeze contains inhibitors and additives to provide the best cavitation corrosion protection and to limit scale build-up. Pre-charging the SCA eliminates many problems associated with over or under adding the initial or service SCAs. Being a universal formula, Fleet Charge antifreeze is suitable for automobiles as well as heavy duty engines. While Fleet Charge antifreeze eliminates initial SCA charging, the maintenance schedule for SCA addition must still be in place. Extending the service life of today's vehicles requires proper cooling system maintenance. In heavy duty vehicles proper maintenance begins with an initial fill of either fully formulated coolant or universal coolant and SCA. After initial fill, a proper maintenance schedule of SCA will ensure a long cooling system life.