Concerns with modern antifreeze formulations for classic MG enthusiasts

Concerns over the suitability of current antifreeze formulations for use in classic cars were raised in a recent newsletter from the Federation of British Historic Vehicle Clubs (FBHVC). When you refer back to the handbook for the MGBGTV8 it recommends using Bluecol “U” Universal antifreeze but on visiting the Bluecol website, a small footnote which stated their Bluecol 5 Year product is “not suitable for classic cars”. So what does a V8 enthusiast use for antifreeze in his car today and what are the issues behind the changes to an iconic motoring product like Bluecol and the concerns for a classic car enthusiast?

The FBHVC report noted technology moves forward and new antifreeze products are constantly being launched with claims of improved formulations and performance. With the recent bitterly cold weather in the UK and Mainland Europe, antifreeze has been in the headlines with some alarming stories which at first seem to be about the well-known tendency of antifreeze to find the tiniest hole and cause leakages - but in these cases it has led to catastrophic engine problems. So what types of antifreeze are available?

Traditional blue ethylene glycol is toxic but a highly effective antifreeze and contains silicates as an inhibitor to help prevent corrosion in an engine with mixed metals in its make-up. Bluecol and Blue Star are well known brand names and both of these are declared suitable for ‘classic cars’ on their company websites. Be aware that there are also low or no-silicate ethylene glycol formulations (usually red) available which may not be suitable for all engines.

Propylene glycol is another well-known and less toxic antifreeze formulation and usually contains silicates but Comma, the main manufacturer, has now discontinued it in favour of an ethylene glycol product containing ‘bittering agents’ to make it less palatable and minimise the risk of accidental poisoning.

Both of the above products use inorganic additive technology (IAT) with iron and steel corrosion prevention provided by nitrates and nitrates, aluminium protection by silicates and phosphates and molybdates providing high lead solder protection, with borates helping to control acidity.

Recently problems have been reported concerning the use of antifreeze mixtures using Organic Acid Technology (OAT). OAT was introduced in the mid-1990s and the products are biodegradable, recyclable and do not contain either silicates or phosphates and are designed to be longer lasting. However these products do seem to cause problems in older engines; over and above the ability of antifreeze to find the smallest crevice and leak, OAT antifreezes have been accused of destroying seals and gaskets and causing a great deal of damage in ‘old’ engines. For this reason the manufacturers of OAT antifreeze products do not recommend their use in historic and classic vehicles. These products are usually coloured red, pink or orange.

The final category is HOAT. These products use hybrid organic acid technology in an ethylene glycol base with some silicates in the formulation alongside the organic corrosion inhibitors. The product is usually coloured green and is not recommended for use in historic vehicles.

The Federation is still researching this problem but their advice at the moment is:

- Only use blue coloured IAT antifreeze in historic vehicles.
- Only use OAT products (‘advanced’ or ‘long life’ antifreeze) if the vehicle used it when new and if specifically directed by the vehicle’s manufacturer.
- Never mix different types of antifreeze without thoroughly flushing out the system.
- Always replace the coolant within the time scale specified by the antifreeze manufacturer as the corrosion inhibitors break down over time.

So the useful information from the FBHVC is quite clear for classic car enthusiasts. Looking back to the driver’s handbook for the MGBGTV8 published in 1973, it recommended the use of Bluecol “U” universal antifreeze to protect the cooling system of a V8 and that if supplies of Bluecol “U” universal are not available, any antifreeze conforming to specification BS3150 may be used. Bluecol “U” universal should not be mixed with other universal antifreezes. The handbook adds that the “anti-freeze can remain in the cooling system for two years provided that the specific gravity of the coolant is checked periodically and fresh compatible antifreeze is added as necessary. After the second year the system should be drained and flushed by inserting a hose in the filling orifice and allowing water to flow through until clean. Refill with the appropriate anti-freeze solution and add a quarter of a pint (0.15 litre) of neat anti-freeze to the expansion tank.”

The RV8 Owner’s Handbook says on page 96 that “for maximum corrosion prevention, use Unipart Superplus antifreeze and summer coolant and if it is not available, use an ethylene glycol based antifreeze which meets BS6580 and BS5117, with renewal every year.”

Looking at the Bluecol website today you find they have three products on offer – Bluecol 2 Year, Bluecol 5 Year and Bluecol “U” Universal top-up. But which product do you use with a classic MG?

Bluecol 2 Year Antifreeze & Summer Coolant, in a pack with a blue label, is a methanol-free, ethylene glycol based antifreeze and engine coolant for your radiator and cooling system for use throughout the year to maintain maximum protection against winter freezing to minus 36 °C and summer overheating, whilst at the same time protecting the materials in the cooling system against rust and corrosion. Bluecol 2 Year is suitable for all engine types, including aluminium. It does not evaporate in use and is not flammable. The important footnote says it “does not incorporate Organic Acid Technology (OAT) and exceeds the requirements of BS6580:1992” and BS3150. Most important it adds it is “suitable for classic cars”. But note that Bluecol 5 Year Antifreeze & Summer Coolant, in a pack with a red label, incorporates the latest in Organic Acid Technology (OAT) and the website has a footnote which warns “not suitable for Classic Cars.” Confusingly we found Bluecol “U” Universal top-up with a light blue label on the pack was shown as not suitable for classic cars. But on querying this with Bluecol we were advised their website was incorrect and in fact it is suitable for classic cars! So take care choosing your antifreeze when you next carry out your routine coolant change to maintain the corrosion prevention and make sure it is suitable for an MGV8. We will have a detailed note on Organic Acid Technology (OAT) on the V8 website later in March 2010.