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## Coolant confusion

Let's start by defining what a coolant does. To the obvious question "Why not just use water" the answer is that a coolant additive is fundamentally designed to reduce the boil-point of the cooling medium in the radiator, hoses, engine and other related parts of the vehicle cooling system. It also contains some form of corrosion inhibitor and may deposit fine particles onto metal surfaces to repair minor damage.

**Concentrate versus pre-mix.** Coolant is available from parts stores either as concentrate OR as a pre-mix. The former should be used as a mix with clean (preferably demineralised) water in proportions stated in your vehicle manual. (Usually between 25% and 50% coolant concentrate to water) Never use 100% coolant instead of a water/coolant mix.

**Types of coolants.** If you are concerned over the choice of coolants for your Land Rover, you are not alone. Reading the information printed on the pack may only confuse you further. It is essential that the choice reflects the model/age of the vehicle and what is already in the system. Contrary to information on some websites/forums, do NOT mix red and green coolants because they can create sludge in the cooling system. Also the beneficial long-life properties of the higher-priced OAT orange coolant will be significantly reduced

**Green Coolant** is the "original" inorganic blend containing phosphates and silicates as pH buffers for corrosion protection in an ethylene glycol base. If you are concerned about toxicity/environmental issues, then propylene glycol is a suitable alternative, though slightly more expensive. Either may be considered a universal type because it can be used in virtually any vehicle of any age. However, the corrosion inhibitors have a fairly short life, so the coolant needs to be changed about every 50,000 Km. If this is not done, damage to the radiator and other components is inevitable.

**OAT coolants** are known as DEXCOOL and are mostly used in European and some US vehicles. These are based on organic acids and do contain silicates to offer protection for aluminium engines.

**Orange coolant** is based on 2-ethylhexanoic-acid or 2-EHA and other organic acids. It does contain corrosion inhibitors that form a thin coating on metal components, These are NOT silicates or phosphates and are slower acting, but offer a longer active life, typically up to 5 years or 200,000 Km. Just to add to the confusion, orange coolant may NOT actually be orange. Some brands may be pink, red, blue, yellow or a very dark green so care must be taken when selecting something that will be added to coolant already in the system because they are NOT generally compatible.

**Hybrid coolants** may comprise variants of any/all of the above but generally do NOT contain the phosphates that may cause unwanted deposits in modern engines. Just to add to the potential confusion, some brands actually offer "with" and "without" phosphates.

**Other options** might potentially include using isopropyl alcohol instead of proprietary antifreeze. This is definitely NOT recommended. Not only will it be more expensive, it lacks the essential inhibitors.

**Graeme Cooper Automotive** use PENRITE coolants exclusively. This brand includes ALL of the variants described above and the experts at GCA will know precisely which option best suits your vehicle.