AKG Coolant Specification for Water-To-Air Heat Exchangers (Radiators)

Water based internal fluid within the cooling system of an internal combustion engine is designated as coolant.

Coolant has to protect the engine, heat exchanger and other components within the cooling system against freezing, boiling and corrosion.

Coolant is a mixture of water and coolant concentrate, which contains antifreeze and corrosion protective agents and can be purchased in premixed form. Generally, the percentage of coolant concentrate needs to be in the range of 40% to 60% of total coolant system volume.

Several requirements for the coolant are:

## 1 Water requirements for coolant systems not using premixed coolant

(Preferably Demineralized Water)

| Characteristic | Minimum Requirement |
|---|---|
| Appearance | Colorless, clear |
| Sediments | None |
| pH value | 6,5 to 8,5 |
| Total water hardness | < 3,6 mmol / l (sum of alkaline metals) |
| Chloride content | < 100 mg / l |
| Sulphate content | < 100 mg / l |

Under no conditions should water from sources such as standing surface water, sea water, brackish water and etcetera be used.

## 2 Engine coolant / antifreeze requirements

“Premixed” (Preferred) or the mixture of coolant concentrate and water used in AKG heat exchangers must meet the requirements of the specifications of the engine and vehicle manufacturers for which the heat exchanger is produced. **An approved letter of application from the engine manufacturer should be obtained by the OEM manufacturer prior to production release.**

**Since the OEM manufacturer has ultimate responsibility for selecting all components within the cooling system, AKG is not liable for any warranty and/or other damages that might occur as the result of an interaction between the coolant and other components within the cooling system including the heat exchanger/s.**

The OEM manufacturer should therefore conduct appropriate testing to ensure that any possible interactions between the engine, coolant, heat exchanger and other components do not occur.

Under no conditions should different coolants be mixed.

## 3 Coolant monitoring and replacement intervals

OEM manufacturers with consultation from engine manufacturers and coolant suppliers must publish service bulletins to ensure the proper concentration and quality of coolant is maintained over the life of the equipment. These service bulletins need to include but are not limited to service interval for checking the quality of the coolant and replacement time.

Corrosion inhibitors within the coolant can deplete over time resulting in corrosive coolant that can damage components within the cooling systems including heat exchangers. Service intervals must be set up to avoid this type of conditions.

It is recommended that the cooling system be thoroughly flushed prior to the coolant being replaced.