

Trouble Shooting: Effects of Water

Effects of Water on Water Based Fluids

Because water typically makes up about 95% of the total volume in a coolant tank, the quality of the water plays a major factor on the life and quality of the fluid. While the water source cannot always be changed, the effects of the water can be measured and sometimes problems can be avoided.

Soft water, typically less than 75 parts per million (4.5 grains), can cause foam but contains less ions that can be detrimental to fluid life. Soft water can be "hardened" by installing a water hardening system to your water source.

Hard water, typically greater than 200 parts per million (12 grains), reduces foam but contains high ion levels which can lead to corrosion, residue scums, and bacterial problems. Hard water can be "softened" by installing water softeners and purifiers to your water source.

Softening:

a process by which calcium and magnesium ions are exchanged with sodium ions. This reduces the potential for soap formation and thus residual scumming. It can, however, promote corrosion.

Demineralization or deionization:

a process which removes ions by forcing water, under high pressure, through a semi-permeable membrane.

IONS seen in the water are typically:

- Chlorides - typically any level over 50 ppm can cause corrosion
- Sulfates - typically greater than 100 ppm can cause bacteria and ultimately corrosion.
- Phosphates - contribute to alkalinity and stimulate bacterial growth, which can lead skin irritation and rancidity.

These maintenance tips will enhance tool performance, increase tool life, reduce costly down time and save you money



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