

**HEM****Performance  
Source****Your Source for Straight Cuts!****Sawing Fluid Trouble  
Shooting Guide**

## **TROUBLE SHOOTING GUIDE - EFFECTS OF WATER**

### **EFFECTS OF WATER ON WATER BASED FLUIDS:**

Because water typically makes up about 95% of the total volume in a metal processing fluid sump, 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 a detriment to fluid life.

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

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 to skin irritation and rancidity.

**These maintenance tips will save money, decrease  
downtime, and get better tool and blade life.**

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