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Coolant Maintenance

"Quality With Integrity"



Registered
ISO 9001:2000

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Coolant Maintenance and it's Significance



IMPORTANCE OF MAINTAINING CONCENTRATION:

- Optimum Tool Life
- Optimum Surface Finish
- Maximum Rust Protection
 - a. To work piece
 - b. To machine tool
- Optimum Chip Settling Characteristics



CONCENTRATION IS TOO RICH:

- Can Promote Skin Irritation
- Wasteful
- Film is Too Heavy-Sticky, Oily Residue
 - a. On work piece
 - b. On machine tool
- Decrease In Tool Life (Too Much Heat, Chip Welding)
- Decrease In Chip Settling
- Foaming



CONCENTRATION IS TOO LEAN:

- Reduced Bio-Resistance
 - a. Increase in bacterial growth
 - b. Rust
 - c. Odors
- Reduced Lubricity
 - a. Effect tool life
 - b. Effect surface finish



IMPORTANCE OF MAINTAINING COOLANT SUMPS:

- Increased Coolant Life
- Increased Machine Cleanliness
- Reduce Potential For Bacterial Growth
- Reduce Potential For Rust & Corrosion



TRAMP OIL:

- Cuff Layer Is Breed Ground For Bacteria
- Causes Sticky/Tacky Residues
- If Emulsified In Coolant, Can Reduce The Coolant's Effectiveness and Coolant Life



SWARF & CHIPS

- Breeding Ground For Bacteria
- Can Cause Corrosion On Parts
- If Held In Suspension, And Recirculated, Can Cause Skin Irritation
- Can Deplete Rust Preventive Additives In Coolant

How to Monitor Your Metalworking Fluids



CONCENTRATION

- Refractometer:
Calibrate with a drop of water on the prism and close the top. It should read zero. If not, adjust the setscrew until you are reading zero. Check your machine tools three times a week by taking a drop of coolant from the coolant nozzle and placing it on the prism. Close the top and read the number on the scale. Refer to your coolant chart for the concentration. If you are getting a fuzzy reading, collect some coolant in a cup and let it stand for several minutes and draw your sample from below the tramp oil.
- Pre-mix Valve:
These valves will enable you to add premixed coolant and water to your sumps. They should be checked several times a week with your refractometers.



pH:

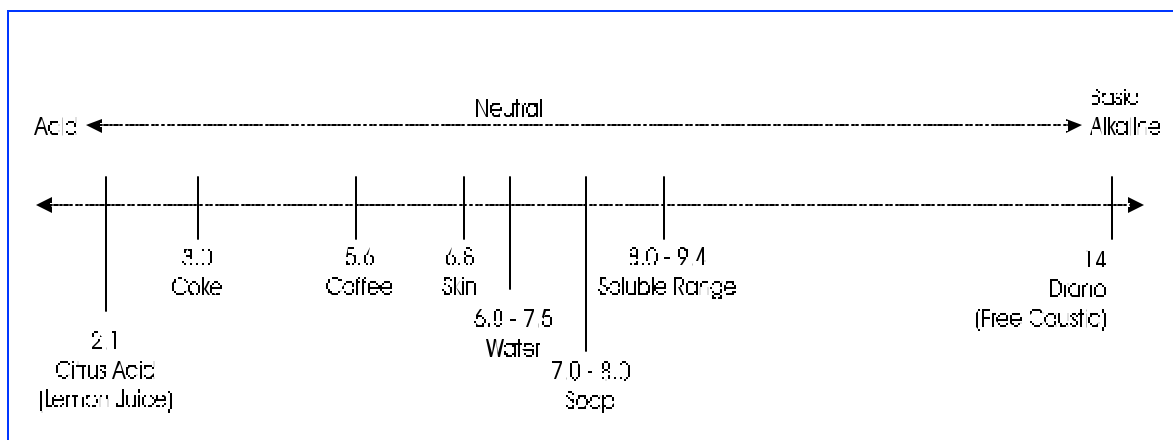
Every coolant has a pH that is normal. When the pH of a fluid is on target, the fluid should perform at optimum levels. Any great deviation from the norm indicates the contamination levels may be overtaking the fluid's balance and a drop in performance may occur. The normal pH range for our fluids is 8.5 - 9.5. A drop within this range is Ok. To check pH, simply place a drop of the fluid from the coolant nozzle on the pH paper and compare the color change to the chart. To better understand pH:

- 1). 0 - 7 is acidic
- 2). 7 is neutral
- 3). 7 - 14 is alkaline



COOLANT CHARTS:

Coolant Charts should be maintained for each machine, recording concentration, pH and operator comments.



As pH Drops Below 8:

- 1). Bacteria growth rate increases
- 2). Rust protection starts to decrease
- 3). Dermatitis can increase below 8 or above 9.5
- 4). Emulsion becomes less stable