

SYSTEM CONCENTRATION CONTROL

BACKGROUND

A highly important aspect of maintaining metalworking fluid systems is monitoring the desired concentration for its machining performance needs. Metalworking fluids are blends of several chemical components mixed with water. Several of these components deplete naturally over time. Two of the most important elements of a metalworking fluid are the rust preventive package and the biocide or preservative. In order to maintain these components at the proper concentration, concentrate must be added regularly to avoid rust problems and bacteria odor complaints, and to ensure consistent fluid performance.

On site, a refractometer may be used for concentration control. Over time, dirt, water hardness and oil may build up in a fluid system. These "particles" can give a falsely high reading on a refractometer. A refractometer is best suited for new charges, systems with good filtration and for checking whether a fluid is too rich or too lean in concentration.

RISKS AND CONSEQUENCES OF IMPROPER MAINTENANCE

Consequences of Improper Concentration Control	
Low Concentration	High Concentration
<ul style="list-style-type: none">- Promotes bacterial growth- Reduces rust protection- Shortens fluid life- Reduces tool life	<ul style="list-style-type: none">- Wastes product- May causes irritation and staining- Residue build up- Reduces cooling- Foam

HOW WE CAN HELP

The exact amount of concentrate needed for additions is dependent upon the size of the system, volume of the fluid carried out on parts, as well as factors such as dirt load and machining operations. Your Castrol Sales Engineer and/or distributor salesperson can help determine the proper amount of concentrate required. Through Castrol's Used Oil Analysis program, customers may submit samples on a routine basis to be analyzed. Our expert chemists can then provide recommendations to achieve optimal performance. Properly maintaining a system in this manner, along with other recommended preventive maintenance measures, increases fluid life, thereby reducing fluid disposal costs.

Industrial Technology Deployment

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