

Care and maintenance of Mobil aqueous metalworking fluids



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Machine preparation

Using a system cleaner*

1. Introduce the emulsion system cleaner at the recommended percentage solution into the machine. Circulate for up to 48 hours.
2. Pump out all used emulsion and washings. Remove all oily waste swarf from the machine sump.
3. If possible, repeat cleaning procedure with a fresh solution of system cleaner in clean water and circulate for one to two hours.
4. Clean the machine completely and flush with fresh diluted coolant.
5. Introduce new coolant into the machine at the correct concentration.

*Consult your ExxonMobil representative for detailed guidelines for first time fluid change.

Coolant maintenance and monitoring










Daily and weekly actions

1. Check concentration of coolant with a refractometer at the beginning of every day/shift.
2. Check pH with pH meter or pH paper at the beginning of every day/shift.
3. Check water and coolant hardness with water hardness test strips every week.
4. Remove as much Tramp oil as possible every week after the coolant has been static for one hour.
5. Always top up with diluted coolant, never with just water.
6. Keep records of coolant maintenance using monitoring charts. Take timely corrective actions as required.

Do's	Don'ts
<ul style="list-style-type: none"> ▶ Add the concentrate to the water instead of the other way around. ▶ Ensure sufficient and correctly positioned coolant flow on the workpiece and tool without excessive pressure. ▶ Monitor and record coolant condition regularly and take the necessary corrective measures in a timely manner. ▶ Keep systems clean by avoiding addition of contaminants, such as food, drinks, cigarettes, etc. ▶ Remove Tramp oil frequently. ▶ Ensure that all leakage of hydraulic oil, gear oils and other machine tool lubricants are attended to immediately. ▶ Actively seek advice and training on coolant maintenance and control from your local ExxonMobil representative. ▶ Practice "first in/first out" inventory control to use the freshest concentrates possible. 	<ul style="list-style-type: none"> ⊗ Use water from potentially infected sources, such as fire hose, borehole, header tank, etc. ⊗ Put clean coolant into dirty machines. Use a system cleaner and follow the specified cleaning procedure carefully. ⊗ Leave machines full of coolant standing idle for long periods, particularly when contaminated with Tramp oil. ⊗ Use an aqueous metalworking fluid beyond its working life. ⊗ Prepare diluted products in dirty or galvanized containers. ⊗ Top up with water. Always use diluted emulsion. ⊗ Eat, drink or smoke near machine tools. ⊗ Use concentrates that are beyond their rated shelf life.

Troubleshooting Guide

Having trouble with your aqueous metalworking fluids? The table below shows some of the commonly observed issues as well as the corrective action which you should take to mitigate them.

Observation	Corrective Action
 <p>Corrosion</p>	 <ul style="list-style-type: none"> ⚠ Emulsion is below recommended concentration. ✅ Correct concentration to recommended dilution. ⚠ Emulsion pH level is low (< 8.3). ✅ Increase concentration and consult your ExxonMobil representative. ⚠ Water hardness level is high. ✅ Either increase concentration or change the coolant and consider water treatment.
 <p>Smell</p>	 <ul style="list-style-type: none"> ⚠ Emulsion is below recommended concentration. ✅ Correct concentration to recommended dilution. ⚠ Emulsion pH level is low (< 8.3). ✅ Increase concentration and consult your ExxonMobil representative. ⚠ Excess Tramp oil contamination. ✅ Remove Tramp oil more frequently.
 <p>Poor surface finish</p>	<ul style="list-style-type: none"> ⚠ Emulsion is below recommended concentration. ✅ Correct concentration to recommended dilution.
 <p>Skin irritation</p>	 <ul style="list-style-type: none"> ⚠ Emulsion is above recommended concentration. ✅ Correct concentration to recommended dilution. ⚠ Emulsion pH level is high, ideal pH is 9.0. ✅ Top up with diluted emulsion to adjust pH. ⚠ Contamination in the sump like Tramp oil, foreign particles, grease, etc. ✅ Investigate potential leaks, remove Tramp oil and eliminate source of contamination.
 <p>Foam</p>	 <ul style="list-style-type: none"> ⚠ Emulsion is above recommended concentration. ✅ Correct concentration to recommended dilution. ⚠ Water hardness is low or cutting oil not suitable for soft water. ✅ Either decrease concentration or change the coolant and consider water treatment. ⚠ High pressure of coolant and circulation flow not optimal. ✅ Consider changing nozzle direction and flow and reduce fluid pressure. ⚠ Contamination in the sump like Tramp oil, foreign particles, grease etc. ✅ Investigate potential leaks, remove Tramp oil and eliminate source of contamination.