How to make cutting fluids last longer

Metalworking fluids with **Castrol® XBB technology**

Castrol Alusol XBB | Castrol Hysol XBB

In metalworking, cutting fluids are vital to maintain the optimum machining conditions needed to meet tight delivery schedules. They play a critical role in ensuring efficiency and productivity, but unless you monitor and manage them well, both of these areas will suffer.

But traditional cutting fluids can quickly degrade, and lose their effectiveness.
This can lead to:

- Expensive additive top-ups that increase production costs
- Health and safety concerns due to chemicals used to prolong fluid life
- Changes in pH as acidic fluid corrodes parts and tools
- Poor quality, or rust-stained finished components
- Unpleasant odors, biofilm deposits, and unstable or split emulsion

Ensuring the fluid is working well, safeguarding productivity and part quality, requires the regular monitoring of fluid concentration, pH testing and microbiological status.

Concentration

Too high = Increased foaming potential high drag-out rates, and residue on finished components.

Too low = Poor quality finishes, increased need to rework parts, higher scrap rates, microbiological growth, unpleasant odors, corrosion on finished components.

PH testing

Too high = Skin problems for workers.

Too low = Emulsion may split, causing poor lubrication and encouraging microbiological growth and corrosion of finished components.

Often, maintaining fluid performance also involves the use of potentially harmful chemicals (such as boron and biocides) to return it back to specification. This can cause problems with the health and safety of your working environment, with legislation in this area increasingly under scrutiny. The additive top-ups are also expensive.

Castrol

Castrol® XBB technology: a different approach

Coolants including Castrol's XBB technology offer a compelling altenative to maintaining cutting fluids using expensive additive top-ups.

The formulas in this range are formulated to neutralize acid and re-optimise the fluid with a dual-action chemical buffer that resists changes in pH.

The result? Fluids perform better, for longer than standard cutting fluids*: pH stays where it should, your costs are reduced, and formulated using FRA free and boron-free technology, your workplace—and workers—are safer.

*Based on Castrol® XBB customer feedback.

Castrol® Alusol® and Castrol® Hysol® lubricants with XBB technology reduce the time and money spent on routine fluid top-ups with biocides and service additives, and unnecessary repairs and interventions.

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Key benefits

- SOFT-WATER COMPATIBILITY
- LONG SYSTEM LIFE
- HIGHER LUBRICITY
- IMPROVED SAFETY
- FEWER ADDITIVE TOP-UPS

Engineering cleaner metalworking – without compromising on performance

Process, production and maintenance engineering leaders already make great efforts to select the right fluids for their metalworking processes, and must balance several considerations, including:

- Reducing bacterial growth in metalworking fluids
- Maintaining the correct pH
- Stabilizing emulsion to ensure continued performance
- Avoiding costly treatment additives
- Extending tool life
- Delivering consistent surface quality
- Simplifying compliance and engineer safety

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Castrol Alusol® XBB | Castrol Hysol® XBB

Success stories

Castrol® Alusol® SL 61 XBB

Problem

A prototype part manufacturer with 300 CNC machines experienced a number of issues with their current coolant, including smoke/mist in the plant, heavy residue on machines, staining and corrosion of parts resulting in 4-5% rejection rate and foam in each individual sump.

Solution

Castrol® Alusol® SL 61 XBB is well-suited for those working with a wider range of metals or in soft water areas. It is ideal for demanding aluminum work and uses a pioneering formulation designed to be more resistant to changes in pH caused by microbiological build-up.

Benefit

In addition to improved cooling and lubrication with Alusol® SL 61 XBB, the customer's smoke/mist issue was eliminated and cost savings were realized due to less frequent exhaust filter changes, extended from every 2 weeks to every 3 months. Additionally, the customer benefits included:

- Heavy residues were eliminated, allowing clear view of machine processes.
- Excellent foam control, preventing foam overs.
- Part rejection was reduced from anaverage of 4.5% to 0.5%.
- Coolant usage reduced by 33%.

Castrol® Hysol® SL 45 XBB

Problem

An aerospace component manufacturer working with aluminium, titanium, and high-temperature alloys encountered multiple issues with their 42 machines' current metalworking fluid, including foam-overs, high coolant usage and elevated concentration levels, and residue build-up on the machines. The chief complaint was production disruption due to frequent coolant top-ups, which were also costly.

Solution

Castrol® Hysol® SL 45 XBB was specifically created to address the challenges of the aerospace industry, providing outstanding machining performance on a wide range of modern aerospace alloys to the tightest tolerance. It has demonstrated excellent wetting properties when deployed in the field, resulting in cleaner machines, improving tool life and surface finish.

Benefit

After changing to Hysol® SL 45 XBB, the customer's coolant usage was reduced by 20% and the concentration was reduced from 13% to 8%. Additionally, the customer benefits included:

- Heavy residues were eliminated, allowing clear view of machine processes.
- Excellent foam control, preventing foam-overs.
- No production downtime due to foam-over maintenance.
- Achieve a >12 month sump life.

With Castrol® XBB fluids, you can simplify compliance and help improve engineer safety – without compromising on cutting performance, system life or production efficiency.

Castrol®'s XBB range can help you:

- Get ahead of increasingly stricter regulations
- Extend fluid life and reduce maintenance
- Reduce coolant drag-out and deliver cleaner tools
- Protect machine tools and parts from corrosion

Want to know more?

Contact your Castrol® Distributor for more information on the XBB range or call us at 888-CASTROL

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