

CASTROL® ALUSOL® SL 61 XBB

BORON- AND BIOCIDES-FREE SEMI-SYNTHETIC CUTTING FLUID FOR ALUMINUM

INTRODUCTION

Castrol® Alusol® SL 61 XBB is a semi-synthetic metalworking fluid specifically designed for the high-end cutting of aluminum alloys. It can also be used for machining low-to-medium-alloyed steels. Castrol Alusol SL 61 XBB is suitable for a wide range of applications, from grinding to broaching.

You can use Castrol Alusol SL 61 XBB in central systems and single-sump machines. It is free of boron, biocides, chlorine and nitrites.

Castrol Alusol SL 61 XBB is suited for machining applications across a range of markets and sectors, including automotive component manufacturing, aerospace, machinery manufacturing and fabricated metal goods.

KEY QUESTIONS

What would it mean if you could extend the tool life in the aluminum-cutting process? Would productivity be improved if you could perform the same operation at a lower concentration? What would it mean if you could extend the life of your metalworking fluid? Would production efficiency be improved by less downtime for refills or cleaning? How would your workers react if bad coolant odors were eliminated? Would less fluid waste to dispose of mean reduced costs? Would you see some benefit in reducing the handling and use of biocides to maintain your system?

KEY FACTS

Castrol estimates that in around 50% of cases, the biocides used in soluble metalworking fluids are based on formaldehyde. These can degrade over time, especially in warm factory conditions, which is one reason why contamination from bacteria and fungi can occur. Castrol Alusol SL 61 XBB is formulated using Castrol unique technology, proven to maintain pH at a constant level and assure constant productivity for longer than standard cutting fluids.

Castrol Alusol SL 61 XBB provides precision performance while machining aluminum without compromising your productivity.

KEY CLAIMS

Castrol Alusol SL 61 XBB is formulated to match the highest lubrication demand on aluminum-cutting processes.

Castrol Alusol SL 61 XBB can remain effective for longer than conventional machining fluids because the formulation is inherently more resistant to microbiological breakdown.

Castrol Alusol SL 61 XBB is formulated to produce a high quality finish when machining low-to-medium-alloyed steels and aluminum alloys.

Castrol Alusol SL 61 XBB is free from boron, biocides, organic chlorine and nitrites.

Castrol Alusol SL 61 XBB neutralizes acids from bacteria and fungi and keeps the pH where it should be, for longer than other standard cutting fluids*.

**Sales Card - Internal use only
(Castrol and Distributor)**

* Proven in lab tests and seen in real production conditions.



PRODUCT APPLICATION GUIDANCE

	Cast iron	Low-to-medium-alloyed steel	High-alloyed stainless steel	Aluminum alloys	Magnesium alloys	Yellow metals
Grinding		•	•	• •		
Milling, turning (general machining)	•	• •	• •	• •		•
Drilling	•	• •	•	• •		•
Reaming, tapping	•	• •		• •		•
Broaching	•	•		• •		•

• • Suggested core application • Possible application; please consult a Castrol representative prior to use

Recommended concentrations: Grinding 6–7%, General Machining 6–8%, Drilling 6–10%, Reaming and Tapping 6–10%, Broaching 6–10%, Water range 100–800 ppm CaCO₃



TECHNICAL CHALLENGES

CHALLENGE: Address productivity problems caused by conventional coolants

Example questions to ask	<ul style="list-style-type: none"> • Do operators complain of foul-smelling coolants? • How do you manage waste coolants? How often do you have to clean out lines? • Do you find machining quality declines over time until you change coolant? • How quickly does that happen? 	<ul style="list-style-type: none"> • Do you have difficulty maintaining fluids to avoid downtime? • Do you spend a significant amount of time (up to 4 hours) conducting daily tests and system fluid corrections to deal with bacteria? • How often are you handling and using biocides to maintain system stability?
Possible customer need	<ul style="list-style-type: none"> • Consistent machining quality and performance at the lowest total system cost and with minimum disruption 	
Problem implications	<ul style="list-style-type: none"> • Frequent change-out of coolant, leading to waste-disposal costs • Downtime; resources employed in cleaning • Possible need for biocide additives 	<ul style="list-style-type: none"> • Unpleasant odors • Visibly poor finish and corrosion • Filter blockage
Potential solution	<ul style="list-style-type: none"> • Castrol Alusol SL 61 XBB shows excellent resistance to microbiological breakdown without the need for biocide additives. Castrol Alusol SL 61 XBB neutralizes acids from bacteria and fungi and keeps the pH where it should be, for longer than other standard cutting fluids*. This resistance to coolant breakdown also lowers the risk of poor machining performance or equipment corrosion. • In field trials, Castrol Alusol SL 61 XBB has been shown to extend system life compared to the formaldehyde-based biocide-containing metalworking fluids previously used. • Castrol Alusol SL 61 XBB is proven to maintain pH at a constant level and assure constant productivity for longer than other standard cutting fluids, significantly reducing or eliminating the need for biocides. Castrol Alusol SL 61 XBB is boron- and biocide-free. 	

* Based on titrating 9 fluids until a pH of 8.5 is reached.

TECHNICAL CHALLENGES

CHALLENGE: Achieve excellent machining performance

Example questions to ask	<ul style="list-style-type: none"> • What product concentration do you currently use? • Do you have problems achieving adequate surface quality? • How long is your tool life? • Do you observe metal build-up (creation of a built-up edge) on the tool at the point of cut?
Possible customer need	<ul style="list-style-type: none"> • Consistently high machining performance and low total cost of operations
Problem implications	<ul style="list-style-type: none"> • Inadequate lubrication can promote the formation of a built-up edge at the point of cut which can lead to increased costs if replacement tooling is needed or finished components are rejected. • Swarf or fines can lead to a poor surface finish, diminished tool lifetime and diminished machining efficiency. • High concentrations required to achieve the required surface quality can lead to higher drag-out and higher consumption of cutting fluid.
Potential solution	<ul style="list-style-type: none"> • Castrol Alusol SL 61 XBB is formulated to help achieve the highest-quality finish when machining low-to-medium-alloyed steels and aluminum alloys. • The excellent wetting properties of Castrol Alusol SL 61 XBB help to keep machines clean and free from swarf build-up. • Because drag-out rates are low with Castrol Alusol SL 61 XBB, top-up concentrations also tend to be low, which helps to reduce the total amount of fluid used.

CHALLENGE: Foam

Example questions to ask	<ul style="list-style-type: none"> • Do you have to reduce speed, feed or pressure to avoid overflowing the system? • How often do you need to add an anti-foaming agent? • How often does your system stop due to foam?
Possible customer need	<ul style="list-style-type: none"> • Uninterrupted part production utilizing optimum cutting parameters (feed rate, speed and pressure) with soft water
Problem implications	<ul style="list-style-type: none"> • Higher consumption of cutting fluids to combat overflow • Lowered production due to machining stoppage as a result of high foam levels • Investment in anti-foam additives and using manpower to add them • Slippery environment • Higher consumption of filter paper, or filtration issues
Potential solution	<ul style="list-style-type: none"> • Castrol Alusol SL 61 XBB shows excellent foam-dispersing properties in soft water, removing the need for additional treatments with anti-foams. The use of Castrol Alusol SL 61 XBB helps ensure constant production processes even at higher pressures and with softer water.

OEM APPROVALS

Across the Castrol Alusol product family there are a variety of OEM approvals. For up to date approvals, please check the Lubricant Oracle – <https://thelubricantoracle.castrol.com/>