

# CASTROL® HYSOL® SL 36 XBB

## LONG-LASTING METALWORKING SOLUTION FOR EFFICIENT METAL MACHINING

### INTRODUCTION

Castrol Hysol SL 36 XBB is a semi-synthetic metalworking fluid for light to medium machining of cast iron, low-medium alloyed steel and aluminum alloys. It has been designed to deliver long life in soft water and is suitable for a wide range of applications: broaching, drilling & deep drilling, grinding, milling, turning, reaming, tapping and boring of cast iron, as well as drilling & deep drilling, milling, turning and grinding of low-medium alloyed steel and aluminum alloys.

Suitable for large central systems and single sump machines, Castrol Hysol SL 36 XBB has been developed on a platform which delivers a greater resistance to bacterial growth. This resistance does not deteriorate in the same way that formaldehyde based biocides can, and so can extend the life and effectiveness of the fluid for metalworking.

Castrol Hysol SL 36 XBB is suited for machining applications across a range of markets and sectors, including automotive component manufacturing Tier 1 and Tier 2 OEMs and distributors, machinery manufacturing and fabricated metal goods.

#### Sales Card for Castrol and Distributors internal use only

### KEY QUESTIONS

What would it mean if you could extend the life of your metalworking fluid? Are there signs that your metalworking fluid is compromised by contamination from bacteria and fungi, such as bad odours, corrosion of parts or poor long term performance? Does this, in turn, lead to an increase in unproductive downtime as equipment is taken offline for fluid replenishment, cleaning or repair? Do you have to add regular anti-foam to avoid machining stop or tank overflow?

### KEY FACTS

In around 50% of cases, the biocides used in soluble metalworking fluids are based on formaldehyde. These degrade over time, especially in warm factory conditions, which is why contamination from bacteria and fungi can occur. Castrol's new metalworking fluid is specially formulated to provide greater resistance to contamination from bacteria and fungi, thus reducing the need for biocides. In field trials we have seen impressive results, with customers reporting significant increases in system life and improved factory conditions on switching from alternative metalworking fluids which contain biocides.

### KEY CLAIMS

Castrol Hysol SL 36 XBB is formulated to help provide a long system life for multi metal machining and can remain effective for longer than conventional<sup>1</sup> machining fluids because the formulation provides greater resistance to microbiological breakdown.

Field testing has shown Castrol Hysol SL 36 XBB was able to deliver a reduced need for maintenance additives and antifoam additives, reduced incidence of corrosion and overall reduction in generated waste thanks to a longer system life.

Castrol Hysol SL 36 XBB is free from boron, biocides, organic chlorine and nitrites.

<sup>1</sup> Conventional European market leading metalworking fluids containing formaldehyde based biocides that were tested against Castrol Hysol SL 36 XBB by Castrol.



# 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 4–6%, General Machining 5–10%, Suggested water hardness operating range 50–400 ppm CaCO<sub>3</sub>



# TECHNICAL CHALLENGES

## CHALLENGE: Productivity problems caused by coolants with a short life

Example questions to ask	<ul style="list-style-type: none"> <li>• Do you find machining quality declines over time, until you change coolant?</li> <li>• How quickly does that happen? Is the effective life of the coolant acceptable to you?</li> <li>• How often do you have to clean out lines?</li> <li>• How do you manage waste coolants?</li> <li>• Do operators complain of foul smelling coolants or skin complaints as a result of handling service additives?</li> </ul>	
Possible customer need	<ul style="list-style-type: none"> <li>• Consistent machining quality over an acceptable period of time with minimal disruption and downtime.</li> </ul>	
Problem implications	<ul style="list-style-type: none"> <li>• Frequent change-out of coolant, leading to waste disposal costs.</li> <li>• Downtime and resources required for cleaning and fluid replenishment.</li> <li>• Biocide additives may be required.</li> </ul>	<ul style="list-style-type: none"> <li>• Operators can experience skin problems.</li> <li>• Unpleasant odours.</li> <li>• Poor finish and corrosion may be seen.</li> </ul>
Potential solution	<ul style="list-style-type: none"> <li>• Castrol Hysol SL 36 XBB shows a long system life without the need for biocide additives. This characteristic helps to prevent problems such as foul odours and an unpleasant working environment, which may be a result of bacteria and fungi and their by-products in the sump.</li> <li>• Greater resistance to coolant breakdown also lowers the risk of poor machining performance or equipment corrosion.</li> <li>• In field trials, Castrol Hysol SL 36 XBB has repeatedly been shown to extend system life compared to the biocide-containing metalworking fluids previously used. Extending system life helps reduce unproductive downtime for recharging, and means that less fluid is required, and less waste is generated.</li> </ul>	

## CHALLENGE: Soft water suitability

Example questions to ask	<ul style="list-style-type: none"> <li>• Do you currently use water hardener additives?</li> <li>• Does foaming cause stoppages, mechanical wear and wasted product?</li> <li>• Do you have to add regular anti-foam additives?</li> <li>• Do you have to reduce speed, feed or pressure to avoid overflowing the system?</li> <li>• How often do you need to add an anti-foaming agent?</li> <li>• How often does your system stop due to foam?</li> </ul>	
Possible customer need	<ul style="list-style-type: none"> <li>• Low total cost of operation</li> <li>• Continued, effective production line performance</li> </ul>	
Problem implications	<ul style="list-style-type: none"> <li>• Higher consumption of cutting fluids to combat overflow</li> <li>• Lowered production due to machining stoppage as a result of high foam levels</li> <li>• Investment in anti-foam additives and using manpower to add them</li> </ul>	<ul style="list-style-type: none"> <li>• Slippery environment</li> <li>• Higher consumption of filter paper, or filtration issues</li> </ul>
Potential solution	<ul style="list-style-type: none"> <li>• Castrol Hysol SL 36 XBB shows excellent defoaming properties at water hardness around 50 ppm <math>\text{CaCO}_3</math> in the field and may eliminate the need for anti-foam additives.</li> <li>• Castrol Hysol SL 36 XBB is low foaming in recommended water conditions (50–400 ppm <math>\text{CaCO}_3</math>) at typical operating pressures – as a result it helps production areas remain clean with less risk of operator injury due to slipping.</li> </ul>	

# TECHNICAL CHALLENGES

## CHALLENGE: Compliance without compromising performance

Example questions to ask	<ul style="list-style-type: none"><li>• Are you concerned that complying with legislation today and in the future could compromise your metalworking performance?</li><li>• Will you need to move away from your current metalworking fluid to meet possible future legislation?</li></ul>
Possible customer need	<ul style="list-style-type: none"><li>• Hassle-free compliance.</li><li>• Continuation of performance unhindered by possible future legislative requirements surrounding boron and formaldehyde-releasing biocides</li></ul>
Problem implications	<ul style="list-style-type: none"><li>• Operators may have to find new metalworking fluids to comply with possible future legislation.</li><li>• Compliance with current and future laws may compromise the performance of the metalworking fluid.</li></ul>
Potential solution	<ul style="list-style-type: none"><li>• Castrol Hysol SL 36 XBB already contains no boron or formaldehyde releasing agents and can help operators meet aspects of possible future legislation which prohibit the use of these chemicals.</li><li>• With no formaldehyde releasing agents, Castrol Hysol SL 36 XBB can last longer than conventional* metalworking fluids which contain these biocides.</li><li>• In Anticorrosion test DIN 51360/2 Castrol Hysol SL 36 XBB showed better corrosion resistance than a range of metalworking fluids.</li></ul>

\* Conventional European market leading metalworking fluids containing formaldehyde based biocides that were tested against Castrol Hysol SL 36 XBB by Castrol.

For further information, the Product Data Sheet and the Material Safety Data Sheet, please visit [thelubricantoracle.castrol.com](http://thelubricantoracle.castrol.com)