

Honing Success with Alusol AU 68

AUTOMOTIVE (USA)

Engine Manufacturing

Castrol Alusol® AU 68

Excellent Bore Finish Without Chlorine



THE SITUATION

A major diesel engine maker was using a coolant that was discontinued due to the chlorinated paraffin (CP) additive. CP was being eliminated from the product line due to increasing environmental concerns. This coolant was used successfully for cylinder bore honing of cast iron diesel engine blocks.

The customer needed a new fluid that would maintain good honing performance with no change in cylinder bore finish. Surface finish and bore geometry are key to maintaining low emissions and good engine performance.

BEFORE

- Previous coolant had good honing performance and satisfied their coolant needs.
- This coolant had chlorinated paraffin as an EP additive, which helped to achieve good machining performance but is becoming a larger environmental concern.

AFTER

- Alusol AU 68, a semi-synthetic with no chlorinated paraffin, was introduced.
- Production finishes have not changed and tool life is equivalent.

THE SOLUTION

- Alusol AU 68 was built on a new technology platform designed to provide the highest machining performance while eliminating CP, boron, and secondary amines.
- Castrol worked first with the hone OEM, Nagel, to test and approve the new fluid in their facility.
- Successful OEM approval gave the customer confidence to change their 16,000 gallon central system.
- Maintaining a 10% concentration provides good finishes & geometry, and the system has remained foam and bacteria free.
- Support from Castrol sales & engineering showed the customer we support our fluids and their OEM equipment supplier during the pre-qualifying stage.

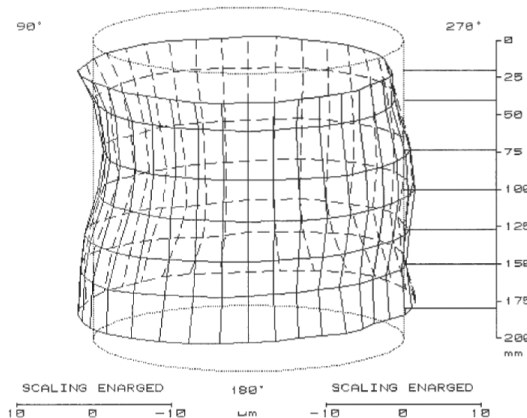
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RECOMMENDATIONS

Castrol Alusol AU 68 shows leading performance on many workpiece materials, including aluminum, carbon & alloy steel, and 400 series stainless steels.

Fluid cleanliness is a key element to successful cylinder bore honing. Tools and parts must be kept clean to avoid scratches and tool malfunction. Alusol AU 68 meets this challenge in a superior way.

Tool malfunction could lead to poor cylinder geometry, which would cause unacceptable emission test results. Concentrations of 10% were used to achieve the finish and geometry demanded by the customer specifications.



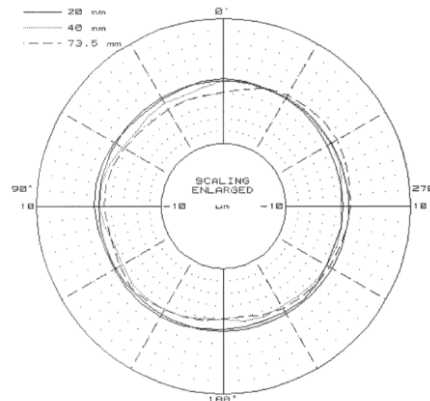
CONCLUSION

The change from the previous chlorinated coolant to Alusol AU 68 has been seamless, with no change in the day-to-day operation of the honing department. The customer could not afford any problems with their honing operations at this mature engine program.

They were very satisfied that Castrol was able to work with the OEM for approval and prove the fluid out successfully in their plant.

The customer is now in a position of having a 'greener' operation with the chlorine component eliminated from their waste stream.

Isometric and radial plot examples from hone OEM.



OTHER POTENTIAL APPLICATIONS

Alusol AU 68 is an obvious choice for operations that need high lubricity for excellent finishes and superior tool life. The excellent cleanliness makes it a good choice for honing, reaming, and other precision, finish-sensitive operations.