CASE STUDY

Die Casting :

Reduced Consumption through Smart Polymer Technology

DIE SLICK® 4510SYN

The Challenge

A leading Japanese die casting and precision machi-ning manufacturer of aluminum automotive parts was in search of a new die casting lubricant. The customer was casting a new component, the upper part of an oil pan, and they were experiencing issues with solder due to the complexity of the new part.
The customer turned to Quaker Houghton to solve the following:

- Determine the optimal conditions for casting
- Eliminate solder
- Reduce cycle time

The Solution

Quaker Houghton analyzed the customer's challenges to determine the ideal casting conditions and introduced DIE SLICK® 4510SYN. During the trial, the customer was very pleased with the casting quality and is now expanding its use at a second plant.

The Benefits

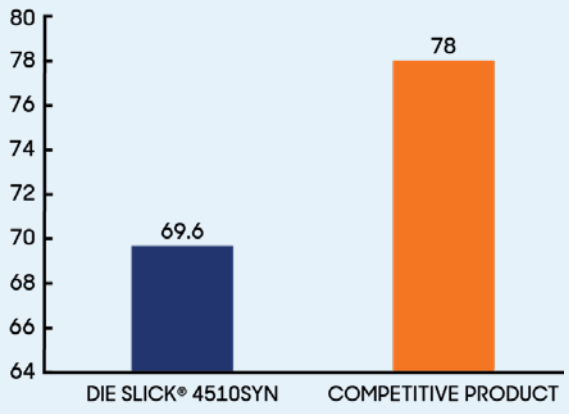
By switching to DIE SLICK® 4510SYN, the customer was able to achieve the following results:

- 10% increase in productivity due to cycle time reduc-tion
- Eliminated solder
- 45% reduction of die lubricant consumption
- Improvement in the surface quality of the part
- 45% decrease in waste water consumption

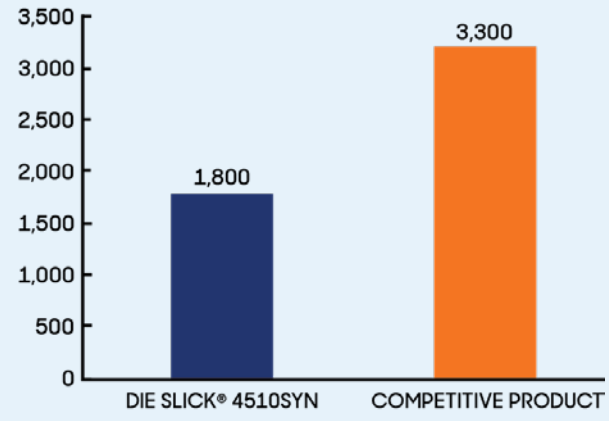
Process and Equipment

Material	Aluminum
Machine	1,250 Ton die cast machine
Part	Upper component of oil pan
Dilution Ratio	DIE SLICK® 4510SYN 80:1 Competitive Product 80:1

Average Cycle Time (seconds)



Average Spray Volume (cc/shot)



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The Product

DIE SLICK® 4510SYN is a synthetic lubricant which contains a blend of reactive polymeric lubricants. The formulation incorporates Smart Polymer technology and high molecular weight alkane cross-linking agent. Smart Polymer technology is a thermodynamically reactive polymer blend which forms a tough barrier on hot areas of the die while lightly coating cooler less demanding areas. This unique property translates to reduced solder, enhanced release and wetting characteristics while producing bright and clean castings. DIE SLICK® 4510SYN contains 49% by weight active material and no low molecular weight oil components.

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