

## Die Casting :

### 40% Plunger Lubricant Savings and Improved Performance

#### PLUNGER SLICK® 202

#### The Challenge

A global manufacturer of high pressure aluminum die castings for major automotive companies was looking to replace the plunger lubricant being used in their die casting operations. The manufacturer was specifically looking to:

- Reduce cost
- Improve performance by increasing lubrication to the tip and sleeve

#### The Solution

Quaker Houghton, analyzed the customer's process and developed PLUNGER SLICK® 202; a premium low viscosity plunger lubricant formulated for high pressure die casting. Due to the increased thermal stability of PLUNGER SLICK® 202, Quaker Houghton was able to provide several benefits to the customer and obtained unanimous approval by all departments including operations, engineering, purchasing, and safety, health and environmental.

#### Process and Equipment

Parts	Engine block (4-cyl and 6-cyl)
Material	Aluminum 383
Machine	3,200 - 3,900 ton die cast machines
Plunger Tip Material	Beryllium copper
Plunger Tip Diameter	150 to 190 mm (5.9 to 7.5 in)

#### The Product

PLUNGER SLICK® 202 is a high performance plunger lubricant formulated for aluminum die casting operations. Engineered chemistries provide excellent boundary protection for plunger tips and shot sleeves. The low viscosity of this plunger lubricant is perfect for spray applications.

#### The Benefits

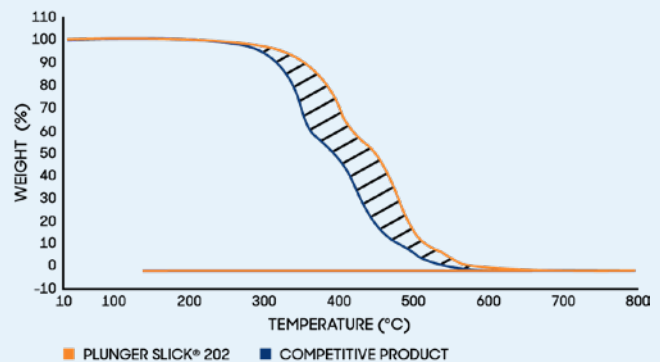
By switching their plunger lubricant to PLUNGER SLICK® 202 the customer achieved the following results:

- Provide consistent performance in high temperature environments
- Limit potential decomposition products that contribute to process defects

Which ultimately resulted in:

- Substantial savings of 40% through lower cost of product
- Improved performance

#### Thermal Gravimetric Analysis (TGA)



#### INCREASED THERMAL STABILITY OF PLUNGER SLICK® 202

Limits potential decomposition products that may contribute to porosity.