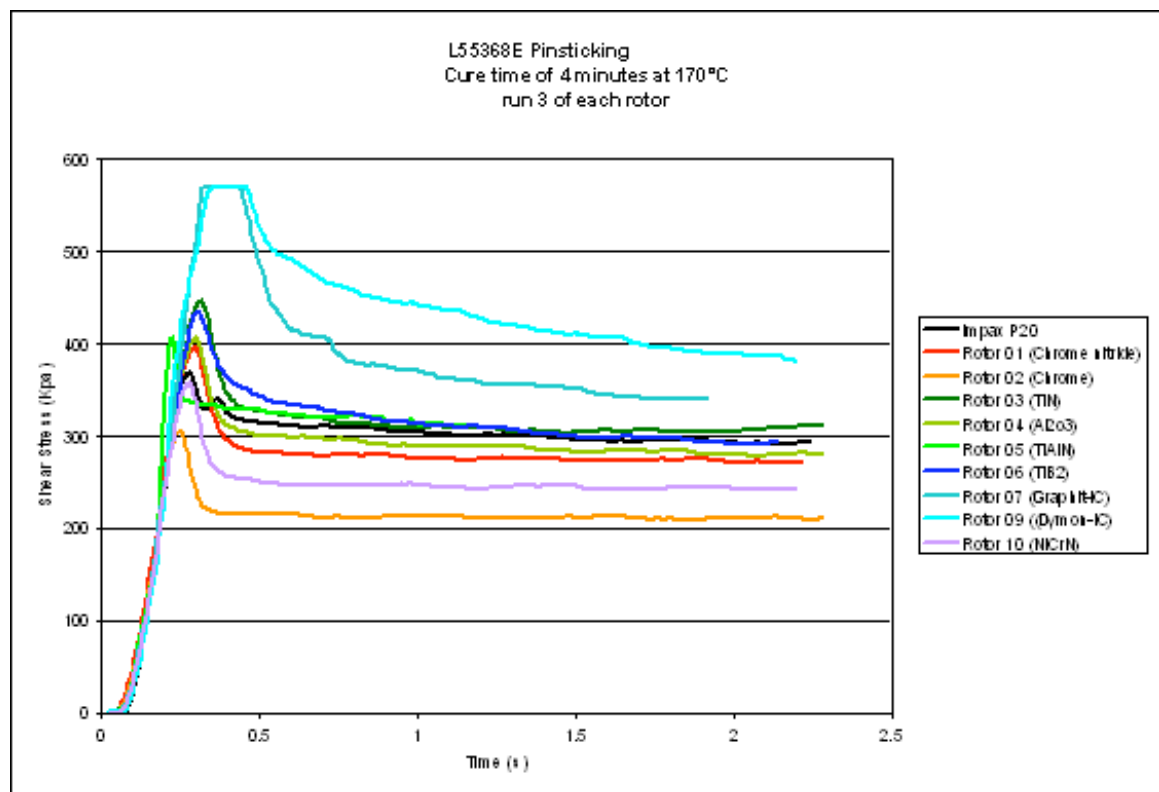


CASE STUDY 9 - Mould sticking of rubber compound

The effect of mould material selection on the ability to de-mould final product is often overlooked in the product design cycle. At ARTIS we have a facility to quantify the interaction of various compounds against different surface materials.

The compound is injected into the cavity and allowed to cure against a test rotor made of or coated with the material of interest. The rotor is then turned and the torque required to break any bond formed is measured. The latter part of the curve relates to the frictional sliding of the compound against the material.

We have used this technique to quantify the effectiveness of competing mould release agents and as in the case below the effect of different permanent mould coatings.



Mould sticking traces

It is clear that the two carbon based coatings – Graphit IC and Dymon IC give significant adhesion to the rubber compared to the P20 control. Chromite nitride makes the adhesion slightly worse but reduces the frictional component, whereas pure chrome plate reduces the sticking and the friction together. Any parts would thus be less well bonded and slide more easily where larger contact areas are present.