

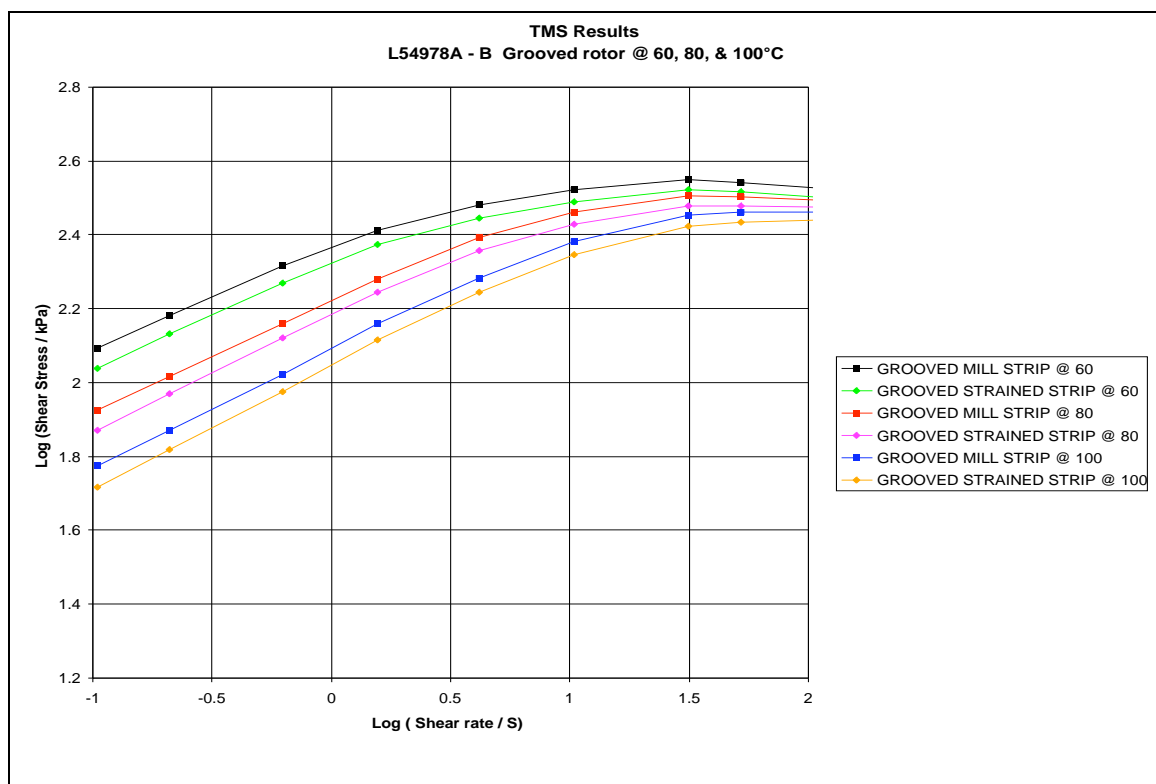
CASE STUDY 8 – Effect of straining on viscosity of a rubber compound

Brief

ARTIS were asked to quantify changes in compound viscosity, which would be experienced if a compound were strained through a fine mesh using a gear pump prior to extrusion.

Investigation

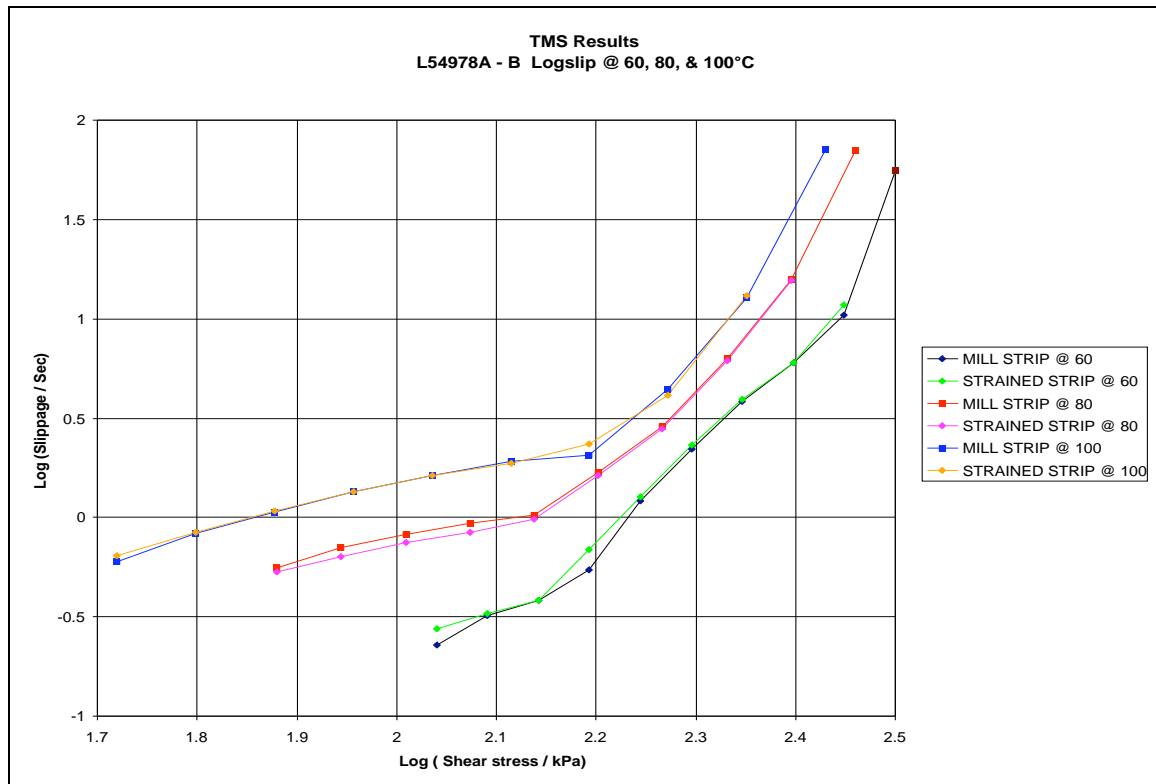
Rheology of strip direct from the dump mill was compared with compound stripped through a gear pump mesh.



Shear rate dependence of strained and mill strip

The slip characteristics of the two variants at the extruder wall can also be investigated using a wallslip test developed at ARTIS.

The data shows a small reduction in viscosity for all temperatures investigated but no significant change in wallslip.



Conclusion

It was anticipated that production rates could be increased with a strained compound offsetting the cost of the extra process. A bench top tape extrusion also showed that finished strip surface finish was improved.