***Shear Viscosity***

***Questionnaire***

1. ***What is shear stress?***

*A force that causes deformation through the displacement of liquid sheets.*

1. ***What is a shear rate?***

*It is how fast the velocity of each plate/sheet changes due to the imposed shearing force.*

1. ***If the shear stress increases, what will happen to the shear rate?***

*For shear thinning fluids the shear rate will increase, as higher velocities are required to produce greater deformation force. For shear thickening fluids the shear rate will decrease*

1. ***As the shear rate increases,***

***the viscosity will \_****decrease or increase (depending on the shear thinning or shear thickening of the fluid). Or remain constant for Newtonian fluids.****\_***

***because*** *\_if the shear rate applied is small, the particles have enough time to reorder, however, if a high shear rate is applied, the particles do not have the required time to reorganize and a significant shear stress is built up \_*

1. ***The Newtonian viscosity is also called*** *\_zero shear viscosity\_*
2. ***While comparing the viscosity curves from a competitor to the one we are selling, you found that the competitor’s resin has a higher Newtonian viscosity than our resin does. What can you infer from such finding?***

***\_****We can infer from ¿ the competitor’s resin that: a)the used polymer has a higher average molecular weight; b) they are using a higher polymer concentration, c) they are using an expired polymer precursor (as entanglement density decreases with time), d) they are implementing high pressure values, e) they are working with low temperatures.****\_***