**STUDY PROJECT**

CHEM F266

Instructed by Prof. Ranjan Dey

**Topic :** Thermophysical properties of binary liquid mixtures

**Outline :**

Thermophysical properties are the properties that are used to define a systems’ physiochemical behaviour and comprehend the molecular interactions going on in a thermodynamic system. The study project will be mostly focusing on ultrasonic velocities and viscosities of different binary mixtures. Starting off I will be validating data of the above mentioned properties, using already published papers. Later, different models will be used to calculate the values from different data sets and validate them experimentally. This will include models such as **Zhang Junjie, Danusso, Nomoto, Van Dael and Nutsch-Kuhnkies** for ultrasonic velocity and **Bingham, Kendall-Munroe and Sutherland–Wassiljewa** for viscosity.

**References :**

1) Dey, R., & Harshavardhan, A. (2014). A Comparative study of Ultrasonic

Velocities of Binary and Multicomponent Liquid Mixtures at 298.15 K. *Journal*

*of Energy and Chemical Engineering*, *2*(1), 1–7.

2) Shukla, R., Shukla, S., Pandey, V. and Awasthi, P., 2008. Excess internal pressure, excess energy of vaporization and excess pseudo-Gruneisen parameter of binary, ternary and quaternary liquid mixtures. *Journal of Molecular Liquids*, 137(1-3), pp.104-109

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