

Experiments of Physical Chemistry Laboratory

S	Exp. Name	Description	Tools & instruments	Link
1	Refractive Index	Studying how the refractive index of alcohol changes with varying concentrations.	1. Refractometer 2. Test Tubes 3. Alcohol Solutions of Varying Concentrations	https://www.youtube.com/watch?v=-txsagjBRqw
2	Finding Molecular Weight Using Dumas Method	Determination the molecular weight of a volatile liquid by measuring the mass of gas produced when the liquid is vaporized. and the pressure, temperature, and volume of the gas are measured. The ideal gas law ($PV = nRT$) is applied.	1. Conical Flask 2. Hot Plate 3. Thermometer 4. Balance (Precision) 5. Rubber Stopper with Hole 6. Sample of Volatile Liquid	https://www.youtube.com/watch?v=0UJXa9Hd88I
3	Calorimeter	Determine the amount of heat released when an acid and a base react to form water and a salt. This is typically done by mixing a known concentration of acid and base in a calorimeter and measuring the temperature change during the reaction.	1. Calorimeter 2. Thermometer 3. Balance (Precision) 4. Burette or Pipette 5. Graduated Cylinder 6. Hydrochloric Acid 7. Sodium Hydroxide 8. pH Meter or pH	https://www.youtube.com/watch?v=ELSu7zmVRMg

4	Measuring Viscosity and Relative Viscosity	Measure the viscosity of a liquid relative to the viscosity of a reference liquid (typically water) by using a viscometer.	1. Viscometer 2. Thermometer 3. Stopwatch 4. Stirring Rod 5. Sample of Liquid 6. Ruler or Calipers	https://www.youtube.com/watch?v=I0aYfmbGmSA&t=1s
5	Spectrophotometer	Determination the absorbance of a product formed during a chemical reaction as a function of the reactant concentrations using a visible-range spectrophotometer.	1. Visible Range Spectrophotometer 2. Cuvettes 3. Pipettes and Pipette Tips 4. Volumetric Flasks 5. Test Tubes or Beakers 6. Samples of Reactants	https://www.youtube.com/watch?v=vJCnWl-p_d0