**Chemical Engineering Laboratory – II**

**Distillation Column Applications (1. Experiment)**

**Experimental Data**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Experimental Data** | **Group 7** | **Group 8** | **Group 9** | **Group 10** | **Group 11** | **Group 12** | **Group 13** |
| Initial volume of the boiler (V) | 10 Liters | 15 Liters | 25 Liters | 16 Liters | 24 Liters | 18 Liters | 20 Liters |
| Refractive index of the sample taken from the boiler at the beginning | 1,453 | 1,445 | 1,468 | 1,436 | 1,457 | 1,462 | 1,429 |
| Methylene chloride (Mw) | 84,9 g/mole | 84,9 g/mole | 84,9 g/mole | 84,9 g/mole | 84,9 g/mole | 84,9 g/mole | 84,9 g/mole |
| Methylene chloride (ρ) | 1,33 g/cm3 | 1,33 g/cm3 | 1,33 g/cm3 | 1,33 g/cm3 | 1,33 g/cm3 | 1,33 g/cm3 | 1,33 g/cm3 |
| Trichloroethylene (Mw) | 131,4 g/mole | 131,4 g/mole | 131,4 g/mole | 131,4 g/mole | 131,4 g/mole | 131,4 g/mole | 131,4 g/mole |
| Trichloroethylene (ρ) | 1,46 g/cm3 | 1,46 g/cm3 | 1,46 g/cm3 | 1,46 g/cm3 | 1,46 g/cm3 | 1,46 g/cm3 | 1,46 g/cm3 |
| Final still contents (W2) | 105 mole | 95 mole | 90 mole | 125 mole | 115 mole | 100 mole | 98 mole |

**NOTE 1**: In the calculations part of the report, there must be mass fraction of M.C. in boiler (w/w), mass fraction of TCE (w/w), density of the mixture (g/L), weight of the mixture (kg), number of M.C. moles in the boiler, number of TCE moles in the boiler, number of mixture moles (W1), the M.K mole fraction in the boiling vessel as a result of the distillation process (xw2), and also the homework question involved in the ppt presentation must be included.

**NOTE 2:** Each group should use the experimental data under its own group number when calculating mass fraction of M.C. in the boiler (w/w), mass fraction of TCE (w/w), density of the mixture (g/L), weight of the mixture (kg), number of M.C. moles in the boiler, number of TCE moles in boiler, number of mixture moles (W1).

**NOTE 3**: At the end of the distillation process, all groups will use the following graph in common to calculate the M.C. mole fraction (xw2) in the boiling vessel. (The M.C. mole fraction (xw2) in the boiler can be calculated using the Rayleigh equation and graph.).

*Distillation data for the M.C.-TCE system*