Team 6, exp. 9

PFR data collected with water heater at requested temperature. Samples of 10 mL were taken after conductivity plateaued, quenched with 10 mL of 0.1 M HCl as soon as possible, and titrated with noted amount of 0.1 M NaOH, using phenolphthalein as an indicator. Reactor dimensions included in email.

Effect of temperature:

|  |  |  |
| --- | --- | --- |
| Temperature set point (C) | Effluent temperature (C) | Volume of titrant (mL) |
| 25 | 24.9 | 6.3 |
| 25 | 24.8 | 6.4 |
| 25 | 24.9 | 6.2 |
| 35 | 35.0 | 6.9 |
| 35 | 34.8 | 7.1 |
| 35 | 34.9 | 7.3 |
| 45 | 44.8 | 7.5 |
| 45 | 44.8 | 7.6 |
| 45 | 45.0 | 7.3 |
| 55 | 54.7 | 9.0 |
| 55 | 54.8 | 8.5 |
| 55 | 54.9 | 8.6 |

A batch, stirred beaker at room temperature was filled with 250 mL each of 0.1 M NaOH and 0.1 M EtAc. Each minute, a 10 mL sample was pipetted into a beaker already containing 10 mL of 0.1 M HCl. The required amounts of 0.1 M NaOH to titrate these samples are given below.

|  |  |
| --- | --- |
| Time (min) | Volume of titrant (mL) |
| 1 | 5.1 |
| 2 | 5.3 |
| 3 | 5.6 |
| 4 | 5.9 |
| 5 | 5.8 |
| 6 | 5.9 |
| 7 | 6.2 |
| 8 | 6.4 |
| 9 | 6.8 |
| 10 | 6.8 |
| 11 | 7.0 |
| 12 | 7.1 |
| 13 | 7.3 |
| 14 | 7.5 |
| 15 | 7.6 |
| 16 | 7.5 |
| 17 | 7.6 |
| 18 | 7.7 |
| 19 | 7.9 |
| 20 | 8.1 |
| 21 | 8.2 |
| 22 | 8.5 |
| 23 | 8.3 |
| 24 | 8.2 |
| 25 | 8.7 |
| 26 | 8.6 |
| 27 | 8.6 |
| 28 | 8.7 |
| 29 | 8.8 |
| 30 | 9.0 |