Team 16, exp. 1

Experiment A

45 mL DI water contacted with 45 mL kerosene with variable initial concentration of acetic acid (AA). A 5 mL sample of aqueous phase was taken and titrated with 1 M NaOH. Volumes needed to neutralize listed below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Concentration of AA [M] | 0 | 0.25 | 0.5 | 0.75 | 1.0 | 1.5 | 2.0 |
| Volume added of 1M NaOH (mL) | One drop | 9.3 | 18.1 | 28.1 | 39.3 | 56.3 | 79.0 |

Experiment B

Contactors had following information listed on its face: max throughput 1.9 LPM, max P 22 psig, T 0-120 oC, volume 0.2 L, weight 32 pounds, material 316L SS.

Pump calibration, volume expelled in one minute is recorded for the settings below:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Pump speed (%) | 10 | 20 | 30 | 40 | 50 | 60 |
| Volume (mL) | 300 | 650 | 800 | 1150 | 1450 | 1700 |

Contacting 0.1 M AA in kerosene with DI water at specified flow rate and 3,000 RPM. Aqueous exit stream sample of 5 mL was titrated with 0.1 M NaOH, volume required to neutralize given below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Trial | 1 | 2 | 3 | 4 | 5 | 6 |
| Pump speed (%) | 10 | 20 | 30 | 40 | 50 | 60 |
| Volume of 0.1 M NaOH (mL) | 8.5 | 8.2 | 3.6 | 3.0 | 2.8 | 2.7 |

Experiment C

Contacting 0.1 M AA in kerosene with DI water at 40% flow rate and specified RPM. Aqueous exit stream sample of 5 mL was titrated with 0.1 M NaOH, volume required to neutralize given below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Trial | 1 | 2 | 3 | 4 | 5 | 6 |
| RPM | 3500 | 3000 | 2500 | 2000 | 1500 | 1000 |
| Volume of 0.1 M NaOH (mL) | 3.7 | 3.5 | 3.8 | 3.2 | 2.9 | 2.7 |

Contacting 0.1 M AA in kerosene with DI water at 60% flow rate and specified RPM. Aqueous exit stream sample of 5 mL was titrated with 0.1 M NaOH, volume required to neutralize given below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Trial | 1 | 2 | 3 | 4 | 5 | 6 |
| RPM | 3500 | 3000 | 2500 | 2000 | 1500 | 1000 |
| Volume of 0.1 M NaOH (mL) | 2.8 | 2.7 | 3.0 | 2.5 | 2.2 | 2.3 |