Team 6, Exp. 1

Experiment A: A known initial concentration of AA in 0.01 M nitric acid was contacted with kerosene in a separatory funnel. A 5 mL sample of the aqueous phase was collected and titrated with 0.1 M NaOH in triplicate---volumes recorded below.

Acetic acid initial concentration (M)	Titrant volume trial 1 (mL)	Titrant volume trial 2 (mL)	Titrant volume trial 3 (mL)
0	0.4	0.5	0.5
0.1	4.9	4.6	5.2
0.2	9.0	9.4	9.1
0.3	13.5	13.3	13.5
0.4	18.0	18.0	18.2
0.5	22.2	22.0	22.0

Experiment B

Pump calibration, time to reach one liter recorded for the settings below:

Pump speed (%)	10	20	30	40	50	60
Duration (seconds)	210	92	76	50.	45	35
Replicate 1 (seconds)	205	94	75	59	41	38
Replicate 2 (seconds)	199	96	75	53	43	35

Experiment C

The extraction of acetic acid (AA) from a 0.01 M nitric acid aqueous solution to a kerosene organic phase in a centrifugal contactor was studied. Presumed AA inlet concentration was supposed to be 0.17 M. For each trial, a sample was taken after flow became steady, and 5 mL was titrated with 0.1 M NaOH. Results are provided below.

RPM	Flow rate (%)	AA inlet concentration (M)	Titrant volume (mL)
3000	30	0.17	7.2
3000	30	0.17	7.5
3000	30	0.17	7.0

Experiment D

The extraction of acetic acid (AA) from a 0.01 M nitric acid aqueous solution to a kerosene organic phase in two centrifugal contactors was studied. The raffinate from the first contactor was the feed for the second, and both contactors had independent clean kerosene feeds as the extract. Presumed AA inlet concentration was supposed to be 0.17 M. For each trial, a sample was taken at the outlet of each contactor after flow became steady, and 5 mL was titrated with 0.1 M NaOH. Results are provided below.

RPM	Flow rate (%)	AA inlet concentration (M)	Contactor 1 Raffinate Titrant volume (mL)	Contactor 2 Raffinate Titrant volume (mL)
3000	30	0.17	7.3	6.1
3000	30	0.17	7.1	6.3
3000	30	0.17	6.8	6.0