

Organic Chemistry Laboratory I

Prep List

Extraction of (+) and (-)-Carvone from Oil of Caraway and Oil of Spearmint

Students work individually in this experiment. Each student will run a TLC on the crude oil against the standards of authentic carvone and limonene. Each student will run a column on 0.5g of caraway or spearmint oil and collect fractions from the column into test tubes. Fractions will be analyzed by TLC. Isolated carvone will be analyzed by IR spectroscopy and polarimetry.

Chemicals/Supplies	1 student	24 students	250 students
Spearmint Oil (g)	0.5	12	125
Caraway Oil (g)	0.5	12	125
(-) carvone (ml)	*	*	100ml
(+) carvone (ml)	*	*	100ml
limonene (ml)	*	*	100ml
silica gel (g)	7	168	1750
columns (plastic, 20ml syringe)	1	24	250
sand (g)	2	48	500
hexane (ml)	60	1440	15000
ethyl acetate (ml)	30	720	7500
test tubes (13 X 100mm)	23	552	5750
test tube racks	1	24	24
TLC plates	6	144	1500
TLC solvent(s) (ml) (10% EtOAc in hexane)	30	720	7500
Micropipets	4	96	1000
Vials (4 dram)	1	24	250
Polarimeter	*	*	6
Salt Plates	*	*	6 sets
Kim Wipes	*	*	6 boxes

Preparation

Each bench should be stocked with the following:

- ~20ml pure (neat) Oil (benches A, B, C spearmint; D, E, F caraway)
- ~20ml 1% solution of carvone in hexane or petroleum ether
- ~20ml 1% solution of limonene in hexane or petroleum ether
- ~20ml 1% solution of spearmint oil in hexane or petroleum ether
- ~20ml 1% solution of caraway oil in hexane or petroleum ether
- ~100g Silica gel
- ~20g sand
- ~10cm X 10cm piece of cotton
- 4 20ml plastic syringes
- ~20 TLC Plates (replenished after each section)
- 4 Test tube racks with 23 test tubes (tubes will be cleaned by students after use and reused)
- 1 Sharpie
- 4 vials (replenished after each section)
- One set of salt plates

Other

Polarimeters should be checked for operation (bulbs, power supply)

IR should be checked for operation.

TLC drawers should be checked for micropipets and other TLC supplies (rulers, pencils etc)