

WARNING NOTICE: The experiments described in these materials are potentially hazardous and require a high level of safety training, special facilities and equipment, and supervision by appropriate individuals. You bear the sole responsibility, liability, and risk for the implementation of such safety procedures and measures. MIT shall have no responsibility, liability, or risk for the content or implementation of any of the material presented. [Legal Notices](#)

3.2. Expert Experimentalist Rating: “What's With Those High-Altitude Recipes?”

Techniques Checklist:

- Glassware setup for reduced pressure distillation
- Running reduced pressure distillation

Pre-lab Discussion:

- Differences between atmospheric pressure and reduced pressure distillation

Equipment:

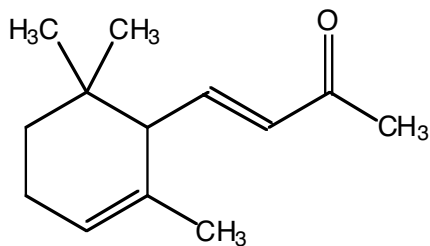
- 25-mL Round-bottomed flask
- Vacuum distillation kit (distillation head, cow adaptor)
- Collection flasks
- Ground glass thermometer
- Keck clips
- Glass wool and aluminum foil
- Heating mantle (w/ sand) and Variac

Goal:

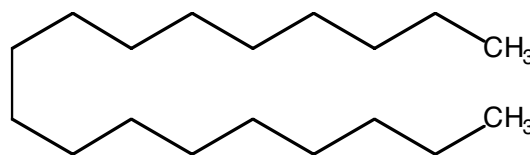
- To purify a mixture of two liquids by reduced pressure distillation.

Experiment Outline:

- You will receive a vial containing 7.50 g of a mixture of α -ionone and octadecane.
- Repeat procedure for CC level distillation using a Vigreux column and the high vacuum line - see *Distillation Guide*.



α -Ionone
(BP ~ 265 °C)



Octadecane
(BP 317 °C)

Results:

- To obtain your "EE Rating" in Purification of Liquids by Distillation you must predict the boiling points of the compounds in your mixture at 0.5 torr. You must also obtain at least 4.00 g of α -ionone that is 93% pure or better as determined using GC analysis.

The picture below is a **nomograph**. Using it and a ruler, you can determine at what temperature a liquid will boil under vacuum.

