

Activity 01**Simple distillation.****Compétences travaillées exigibles.**

- | | |
|----------|--|
| 1 | Synthèses chimiques - séparation et purification : réaliser une distillation simple, une distillation fractionnée. |
| 2 | Maîtriser le langage technique et expliquer à l'oral le fonctionnement de la distillation simple. |

Separating the components.

Here is a video about the distillation process. Let's take a look at it and let's try to understand the main points.

<http://www.youtube.com/watch?v=mP4Hgui-g6U&feature=related>

- 1. Watch** the video.
- 2. Listen and isolate** the words used in the following sentences:

"The process involves the liquid until and then capturing and the resulting vapors. Theof liquids is usually achieved at their boiling points. The morecomponent..... at its boiling point and then in the condenser while the otheris left behind in the Thus, separation of theis achieved."

"Firstly, take the mixture in a fitted with a Observe carefully how the is arranged. Then, heat the mixture giving a close watch at the thermometer. See the acetone and in the condenser. This acetone can now be from the condenser outlet., the water is left behind in the distillation flask."

- 3. Write down the main steps** of the process of distillation: verbs and nouns.

Courtesy of <http://amrita.olabs.co.in/>

4. Find the right **translation** :

A round-bottomed flask		Volatile	
A process		To vaporize	
To involve		A distillation flask	
The boiling		A mixture	
The boiling point		The apparatus	
To cool		The condenser outlet	

Organic Chemistry Lab Demo: Distillations.

Just remember that you don't have to understand everything to understand it all.

Thus, we are going to watch a video hard to understand because the scientist is speaking really fast. And yet, I want you to answer the following questions.

<http://www.youtube.com/watch?v=3JlIPnyrZMw&feature=related>

- (0'20''-0'55'') Why do we have to grease the joint of the distillation flask ?
- (1'37''-2'10'') Why do we have to grease the joint of the condenser, again ?
- (2'36'') Why don't we have to grease the condenser outlet ?
- (3') What's the name of the receiving flask connected to the condenser outlet ?
- (6'10'') What's the correct rate of a distillation ?
- (7'30) In what situation will we use simple distillation ?
- What's the name of the other technique of distillation ?
- Find the right translation:

To grease		To escape	
To freeze		A drop	
A rate		The lab	
To prevent		To rise	
To decrease To increase		To drip	
A beaker		Eventually	
Sufficient		Temperature range	
Boiling chips			

Read aloud.

(0'20''-0'55'')

We gonna grease these joints for two reasons. One is to prevent this glass from freezing [...] When you heat glass, it has tendency to freeze, it's very hard to take apart after distillation. The addition of grease prevents that freezing and you can take the glass [...] apart more easily. Also, because it's vapor, it can more easily escape and if it escapes near the joint you won't collect anything in your distillation flask

(1'37''-2'10'')

The liquid is heated and vaporizes and as it goes through the water Jacketed condenser it will condense. It will still be vapors so we need to grease this joint as well.

(2'36'')

At this point, the vapor has gone through the waterJacketedcondenser and it's condensed so when it reaches the outlet, it is no longer vapor.

(3'00)

I'm gonna use a round bottomed flask as our receiving flask.

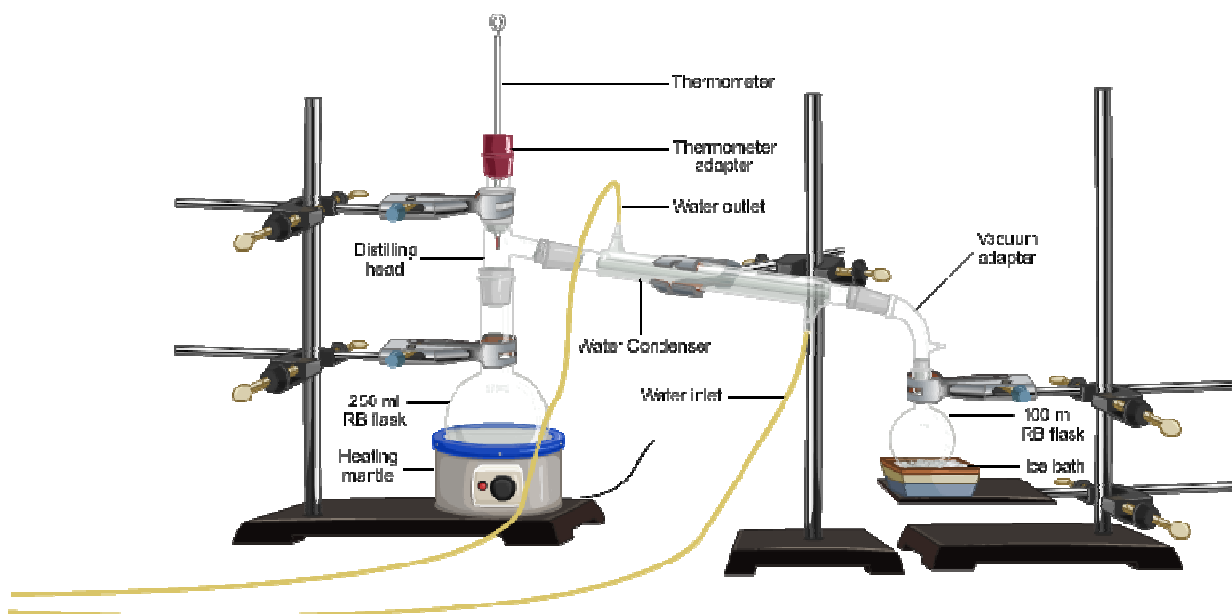
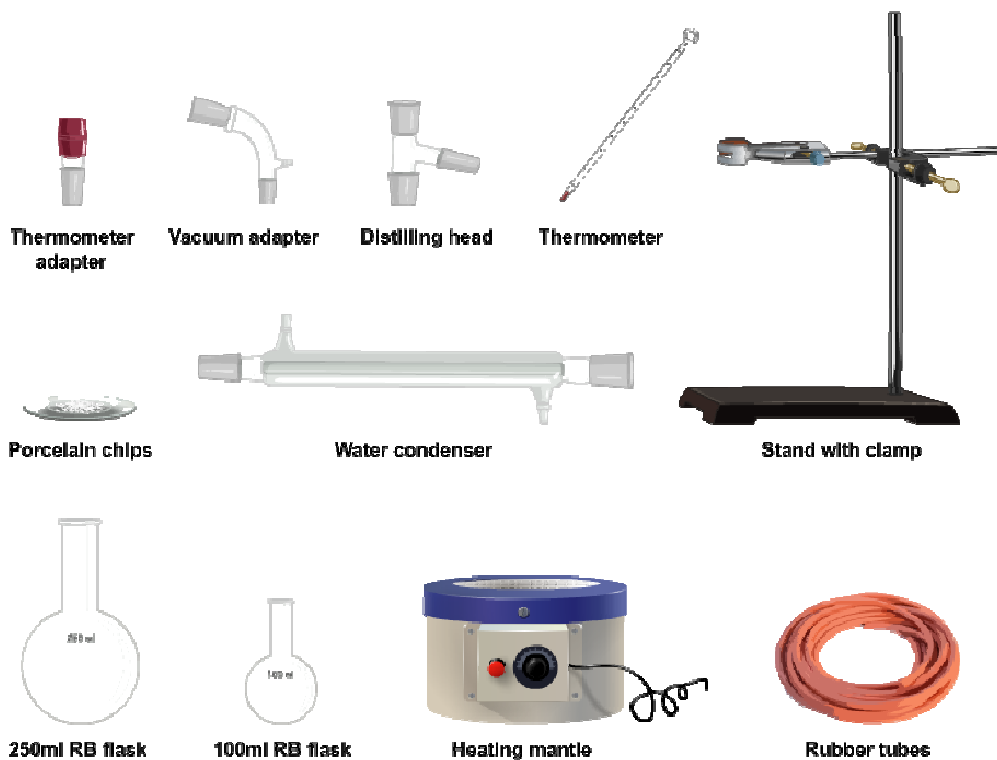
(6'10'')

When you do a distillation of any sort, you [...] control how quickly you're collecting the liquid, the solvent you're boiling off. And generally the rule is that if you have one drop coming out every two to three seconds, that's a good rate.

(7'41)

Simple distillation is for the separation of liquids where the boiling points are at least 60 to 70 degrees different from one another, ok?So, simple distillation is for purifying solvents which you gonna use in reactions. But generally we gonna use fractional distillation in the lab to separate or purify out material.

Materials required.



Courtesy of <http://amrita.olabs.co.in/>

Final task.

- Imagine you're a scientist distilling a mixture of acetone (56°C) and water (100 mL). A journalist is going to interview you so make sure everything is going to be clear for him. Prepare a detailed explanation of all the process. Be prepared to answer all of his questions.