

A-Level Chemistry

Name: _____ Score: _____

1. The functional group of an alcohol is:
 - ☐ the -OH (hydroxyl) group
 - ☐ the $\text{C}=\text{C}$ double bond
 - ☐ the C-X bond
 - ☐ the -COOH group
2. A primary alcohol can be oxidised to:
 - ☐ an aldehyde, then a carboxylic acid
 - ☐ a ketone
 - ☐ an alkene
 - ☐ nothing
3. Which reaction makes an alcohol?
 - ☐ a halogenoalkane warmed with aqueous NaOH
 - ☐ dehydration of an alcohol
 - ☐ combustion of an alkane
 - ☐ free-radical substitution
4. With acidified dichromate, a tertiary alcohol:
 - ☐ stays orange (it is not oxidised)
 - ☐ turns green
 - ☐ turns purple
 - ☐ turns colourless
5. An alcohol reacting with sodium metal produces:
 - ☐ hydrogen gas (and a sodium alkoxide)
 - ☐ oxygen
 - ☐ an alkene
 - ☐ a carboxylic acid
6. Alcohols contain the _____ functional group.

7. To stop the oxidation of a primary alcohol at the aldehyde you distil the product off as it forms; refluxing instead gives the carboxylic acid.
- ☐ True ☐ False
8. To stop oxidation of a primary alcohol at the aldehyde, you use:
- ☐ distillation (removing the aldehyde as it forms)
- ☐ reflux
- ☐ no heating
- ☐ a tertiary alcohol
9. Dehydrating an alcohol (hot Al_2O_3 or conc. acid) gives:
- ☐ an alkene
- ☐ a halogenoalkane
- ☐ a ketone
- ☐ an ester
10. Compared with water, alcohols are:
- ☐ less acidic (the alkyl group destabilises the RO^- ion)
- ☐ more acidic
- ☐ equally acidic
- ☐ strongly basic

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1. the -OH (hydroxyl) group

Alcohols are defined by the hydroxyl (-OH) group.

2. an aldehyde, then a carboxylic acid

Primary $\rightarrow$ aldehyde (by distillation) $\rightarrow$ carboxylic acid (by reflux); secondary $\rightarrow$ ketone; tertiary $\rightarrow$ not oxidised.

3. a halogenoalkane warmed with aqueous NaOH

NaOH(aq) substitutes the halogen for -OH ; adding steam to an alkene or reducing a carbonyl also work.

4. stays orange (it is not oxidised)

Tertiary alcohols are not oxidised, so the dichromate stays orange; primary/secondary turn it green.

5. hydrogen gas (and a sodium alkoxide)

Like water, alcohols react with sodium to give hydrogen — but more slowly.

6. hydroxyl

Written -OH .

7. True

Distilling removes the volatile aldehyde before it can be oxidised again; reflux keeps it in the mixture for full oxidation.

8. distillation (removing the aldehyde as it forms)

Distillation removes the aldehyde before it oxidises further; reflux instead gives the carboxylic acid.

9. an alkene

Dehydration removes water from the alcohol to form an alkene (the reverse of steam addition).

10. less acidic (the alkyl group destabilises the RO^- ion)

The electron-pushing alkyl group makes RO^- less stable, so alcohols hold their H^+ more tightly than water.