

QUESTIONS ON DISTINGUISHING TEST OF FUNCTIONAL GROUP II ALCOHOL PHENOL AND ETHER

How will you distinguish between the following pair of compounds :

1. Ethanol and methanol

Ethanol	Methanol
Iodoform test Ethanol on heating with NaOH and Iodine gives yellow ppt. of iodoform	Methanol does not give this test

2. Ethanol and ether

Ethanol	Ether
Iodoform test Ethanol on heating with NaOH and Iodine gives yellow ppt. of iodoform	ether does not give this test
Sodium metal test Hydrogen gas is evolved when ethanol reacts with sodium metal	ether does not give this test
Ceric ammonium nitrate test Red ppt is formed when alcohols react with ceric ammonium nitrate	ether does not give this test

3. Propan-1-ol and Propan-2-ol

Propan-1-ol	Propan-2-ol
Propan-1-ol does not give this test	Iodoform test Propan-2-ol on heating with NaOH and Iodine gives yellow ppt. of iodoform
Lucas test Primary alcohols on heating with HCl and ZnCl ₂ give turbidity	Secondary alcohols like propan – 2 –ol (having -CHOH -CH ₃) give turbidity at room temperature after 5-10 minutes
Victor Meyer test Primary alcohols produce red colour in this test	Secondary alcohols like propan – 2 –ol produce blue colour in Victor Meyer test

4. Propan-2-ol and 2- Methyl propan-2-ol

Propan-2-ol	2- Methyl propan-2-ol
Iodoform test Propan-2-ol on heating with NaOH and Iodine gives yellow ppt. of iodoform	It does not give this test
Lucas test Secondary alcohols on reaction with HCl and ZnCl ₂ give turbidity at room temperature after 5-10 minutes	Tertiary alcohols like 2- Methyl propan-2-ol give turbidity immediately

Victor Meyer test Secondary alcohols like propan – 2 – ol produce blue colour in Victor Meyer test	Tertiary alcohols like 2 –Methyl prppan – 2 –ol remain colourless in Victor Meyer test
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5. Phenol and Methanol

Methanol	Phenol
Ceric ammonium nitrate test Red ppt is formed when alcohols react with ceric ammonium nitrate	Phenol does not give this test
Alcohols do not give this test.	FeCl₃ test Phenols react with neutral ferric chloride solution to give violet , blue or green colouration . $6\text{C}_6\text{H}_5\text{OH} + \text{FeCl}_3 \rightarrow [\text{Fe}(\text{OC}_6\text{H}_5)_6]^{3-} + 3\text{H}^+ + 3\text{HCl}$
Alcohols do not give this test.	Bromine water test Phenol on shaking with bromine water gives a white ppt. of 2,4,6- tribromophenol.

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