

Experiment 4

To synthesis chlorbutanol from chloroform

Reference:

Bentley and driver's textbook of pharmaceutical chemistry, oxford university press, London page No. 343

Requirements:

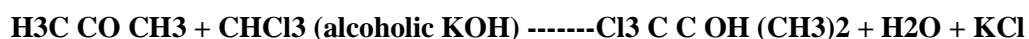
1. Chloroform

2. Acetone

3. Potassium hydroxide

Principle: It is a trichloro derivative of tert. Butyl alcohol also known as *chloritone*

Chlorbutanol is formed by the simple nucleophilic addition of chloroform and acetone, this reaction is base driven by potassium or sodium hydroxide. Alcoholic KOH is used in order to accelerate the reaction towards formation of chlorbutanol



Procedure:

1. In a dry conical flask put 5 mL of acetone with 2 mL of chloroform.
2. Cool the mixture.
3. Alcoholic solution is prepared from dissolving 0.35 g of KOH in the minimum amount of ethanol (rectified spirit about 5mL).
4. Add alcoholic solution in step 3 to the mixture of step 2.
5. Filter the precipitated KCl and wash it twice with small portions of acetone. 6. Evaporate in water bath.
7. Recrystallize from the mixture of water and ethanol

Uses: Hypnotic agent, used as preventive of sea sickness

Properties: It is white crystalline powder found in two forms: anhydrous and hydrated, also it has characteristic camphor-like odour and taste. The melting point is 95-99 °C and boiling point is 167 °C It is freely soluble in alcohol (1:1) slightly soluble in cold water (1:125) and more soluble in boiling water but such high temperature may lead to hydrolysis of chlorbutanol