

# Phenol Formaldehyde

## 1. Object

To prepare phenol formaldehyde resin (Bakelite)

## 2. Introduction

Phenol formaldehyde is a commercially important thermosetting resin. It has a good tensile strength, good electrical insulation, good chemical resistance, great hardness, great light stability and good abrasion resistance.

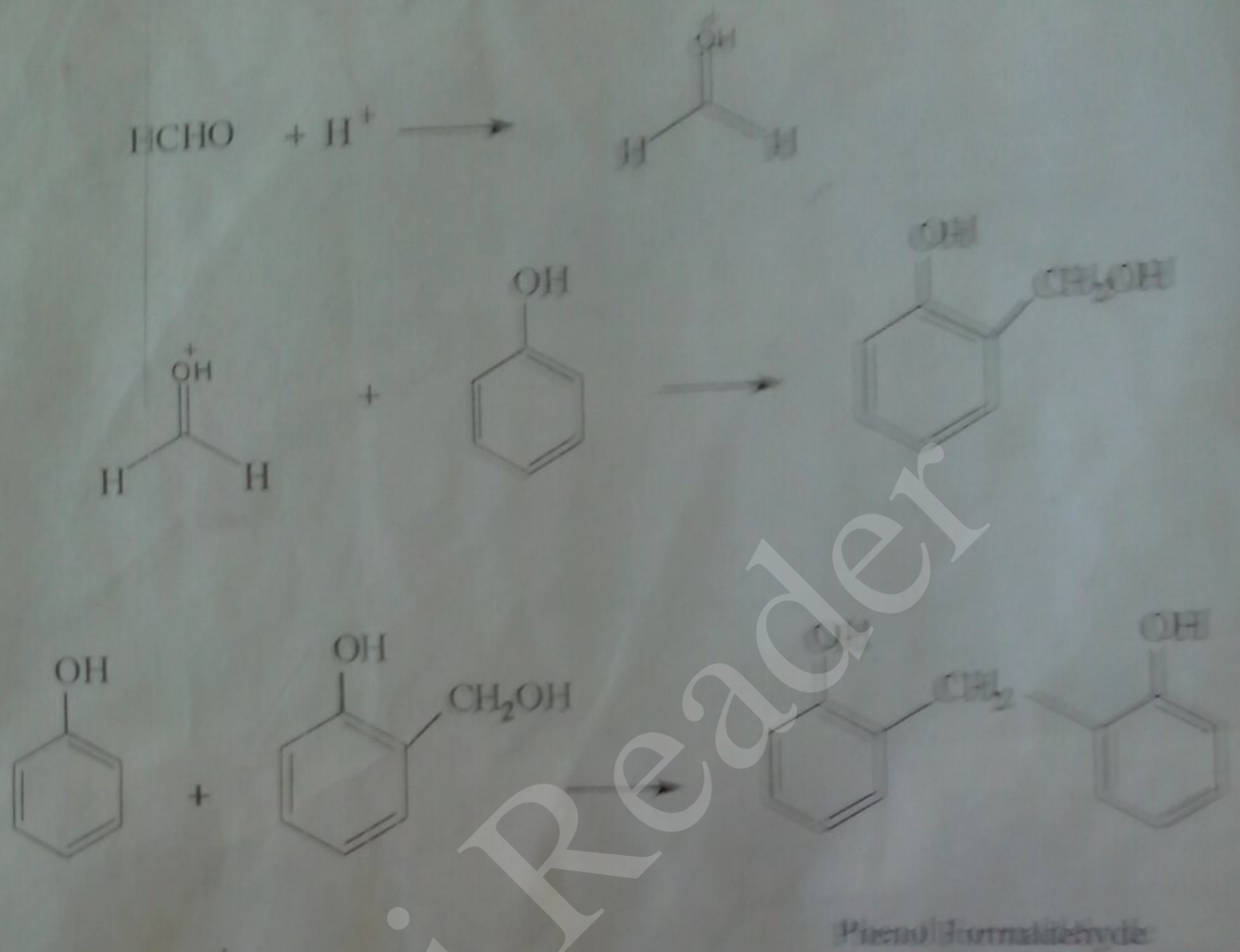
## 3. Requirement

- Same glassware to be used as in UF
- Glacial acetic acid 5ml
- Formaldehyde solution 2.5ml (40%)
- Phenol 2g
- Hydrochloric acid 10ml

## 4. Procedure

1. Take 2.5ml of 40% aqueous formaldehyde in a 250ml beaker.
2. Add 2g of solid Phenol to the above beaker and stir the solution.
3. Add 5ml of glacial acetic acid to it and stir the mixture continuously.
4. Add 10ml of conc. HCl to the resulting solution. Keep rotating the solution with a glass rod.
5. After few minutes the solution becomes cloudy and finally a red solid Phenol formaldehyde copolymer is formed.

## 5. Polymerization Reaction



## 6. Observations

Amount of formaldehyde = .....ml  
Amount of Phenol = .....ml  
Amount of acetic acid = .....ml  
Yield of product = .....ml  
% Yield of product = ..... %  
Color of the compound = .....

## 7. Precautions

1. Handle Phenol carefully it can burn your hands.
2. Carry-out the reaction in an airy place or preferably in fuming cupboard.