

Experiment

Synthesis of Benzotriazole

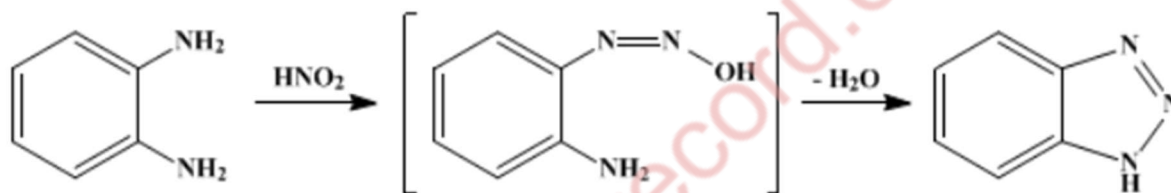
Aim;- To synthesize benzotriazole and calculate its percentage yield.

Reference;- B.S. Furniss, A.J. Hannaford, P.W.G. Smith, A.R. Tatchell, Vogel's Textbook of Practical Organic Chemistry, 5th Edition, Pg. 1163.

Requirement;-

- **Chemicals-** O-phenylenediamine, glacial acetic acid, sodium nitrite
- **Glassware-** beaker, conical flask, Measuring cylinder, Glass rod.
- **Equipment:-** Water bath, condenser,

Principal;- Benzotriazole is formed when o-phenylenediamine reacts with nitrous acid (formed due to the reaction between sodium nitrite and acetic acid). Benzotriazole is an example of intermediate compound useful in bulk drug industry.



O-phenylenediamine

Benzotriazole

Procedure

1. Dissolve 1.3g of o-phenylenediamine in a mixture of 1.5ml of glacial acetic acid and 5ml water in a beaker.
2. Stir until the solid dissolves, warm gently if necessary.
3. Cool the solution to 15°C. Stir well and add a solution of 2g of sodium nitrite in 2ml water.
4. Reaction mixture become warm within 2-3 minutes and reaches a temperature of about 85°C and then begins to cool. Colour changes from deep red to pale brown.
5. Continue stirring for 15 minutes till the temperature fall about 35-40°C.
6. Thoroughly chill in ice bath for 30 minutes. Filter the product and wash with cold water.

Calculation:-

Theoretical yield :-.....g

Practical yield:-.....g

Formula:- % yield= Practical yield/Theoretical yield ×100

Result:- Benzotriazole has synthesized successfully and percent yield was found to be%