

University of Technology Chemical Engineering Department Graduation Project Summary



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- Branch: Oil and Gas Refinery Engineering

- **Groups No.**: R9

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- Project Title: Production of Aniline from Nitrobenzene

- Specific Objective:

1- Definition and Chemical Formula:

Aniline is an organic compound that comes from coal and oil. aniline is a primary amine - a compound in which one of the hydrogen atoms in an ammonia molecule has been replaced by a hydrocarbon group. $(C_6H_5NH_2)$

2- Other Names:

Pheylamine.

3- Goal of Project:

Production of Aniline with high purity that is used in chemical industries like (dyes, solvent and rubber) with capacity (1572 Kg/hr).

4- Production Methods:

A-Manufacturing of aniline from nitrobenzene:

$$\bigcirc -NO_2 + 3 H_2 \xrightarrow{[cat.]} \bigcirc -NH_2 + 2 H_2O$$

$$\left(\Delta H = -\frac{117 \text{ kcal /mol}}{443 \text{ kJ}} / \text{mol}\right)$$

B-Manufacturing of aniline from phenol:



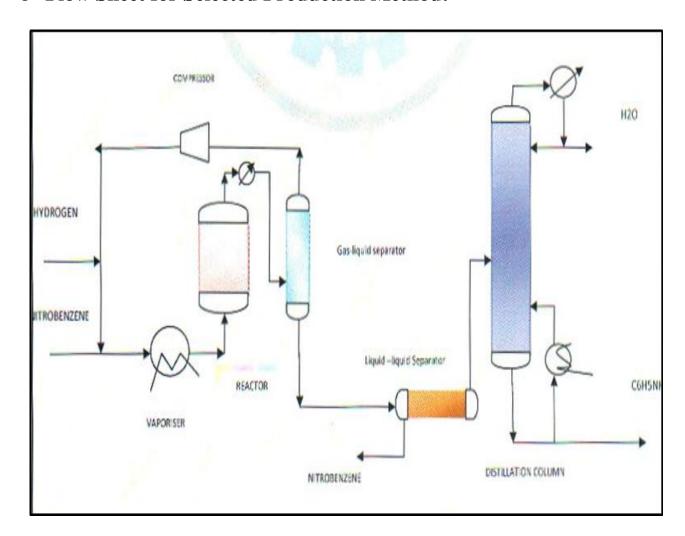
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C-Manufacturing of aniline from chlorobenzene:

$$\bigcirc$$
 -Cl + 2 NH₃ · aq. $\stackrel{[CuCl]}{\longrightarrow}$ \bigcirc -NH₂ + NH₄Cl

5- Flow Sheet for Selected Production Method:



Production of Aniline from Nitrobenzene