



University of Technology
Chemical Engineering Department
Graduation Project Summary



- **Supervisor:** Dr. Kahalid H. Rashid
- **Branch:** Oil and Gas Refinery Engineering
- **Groups No. :** R15
- **Students Name:** Ali Dakhil Ridha
Fatima Haider Hussein
- **Project Title:** Alkar Process for Ethyl Benzene
Production
- **Specific Objective:**



1- Definition and Chemical Formula:

Ethyl benzene is an organic compound with the formula $C_6H_5C_2H_5$. It is a highly flammable, colorless liquid with an odor similar to that of gasoline. This monocyclic aromatic hydrocarbon is important in the petrochemical industry as an intermediate in the production of styrene, the precursor to polystyrene, a common plastic material. In 2012, more than 99% of ethyl benzene produced was consumed in the production of styrene. Ethyl benzene is also used to make other chemicals, in fuel, and as a solvent in inks, rubber adhesives, varnishes, and paints. Ethyl benzene exposure can be determined by testing for the breakdown products in urine.

2- Other Names:

Ethyl benzene is also known Vinalthein (phenalithen) and Othelubensol (athlobnzole).

3- Goal of Project:

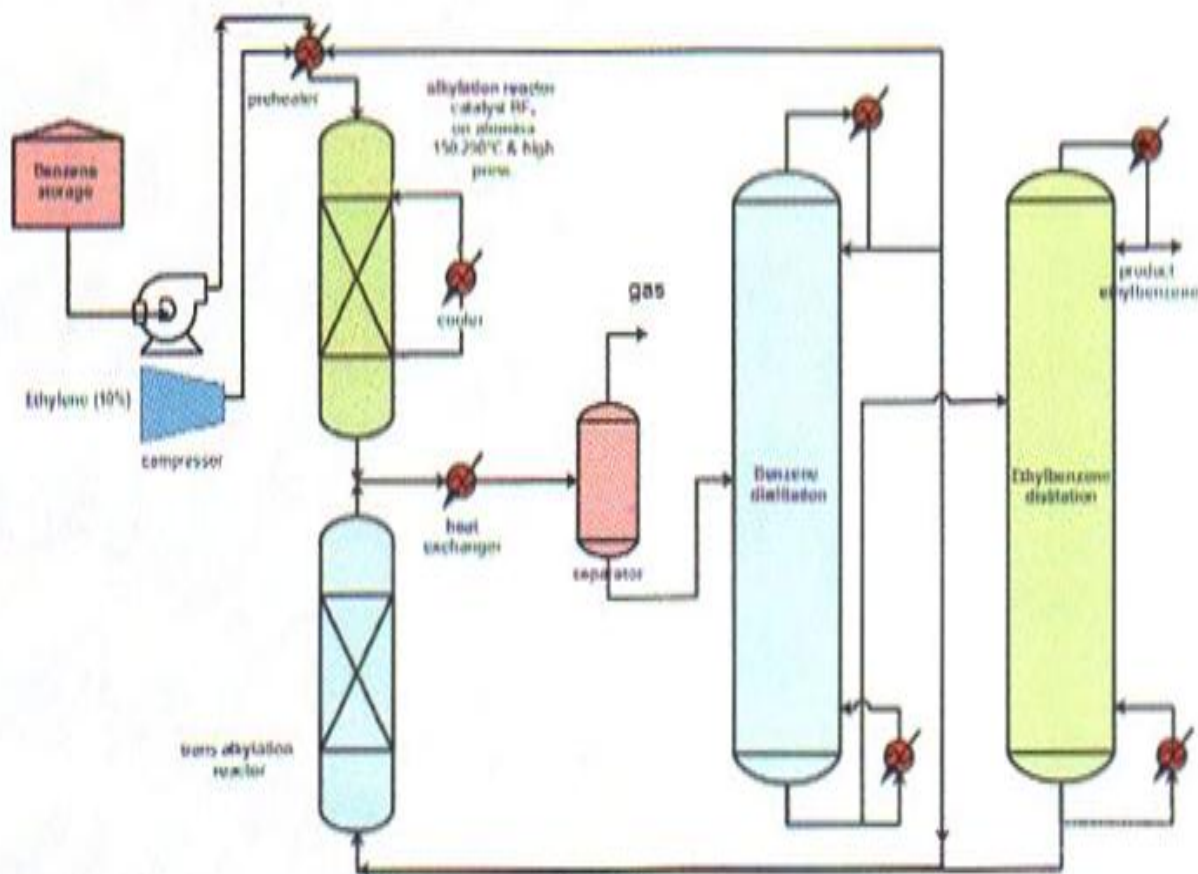
The plant was designed to produce 8850 ton/year of ethyl benzene by Alkar process (purity 10% and 99% conversion percentage).

4- Production Methods:

Production methods include alkylation of ethylene with benzene include:

1. Alkylation method of liquid phase catalytic presence of aluminum chloride or boron fluoride.
2. The method of Alkar Process.
3. The method of Vapor Phase.
4. The method of koppers, Uss, Phillips.
5. The method of Mobil / Badger.

5- Flow Sheet for Selected Production Method:



Ethyl Benzene production plant