



## Economic Analysis of Isoprene production from good year scientific process

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### Abstract

The isoprene rubber is very much like natural rubber but made artificially or synthetically. Essentially similar to natural rubber in properties, this rubber may be somewhat weaker because it is not 100% the cis-isomer. This rubber is used in the same type of products as natural rubber. About 95% of isoprene production is used to produce cis-1,4-polyisoprene, a synthetic version of natural rubber. The growing demand for fuel efficiency and eco-friendly tires is driving the tire industry and in turn the demand for polyisoprene in the tire industry. The Isoprene Market was valued at USD 1.93 billion in 2015 and is projected to reach USD 2.96 billion by 2021. The isoprene demand in Pakistan will increase up to 24.8% from 2018 to 2025 reportedly. The isoprene market is increasing due to its increasing applications in tires, conveyor belts, hoses, molded rubber, and also in medical equipment such as gloves and balloons. Isoprene can manufacture from four different processes at commercial scale, but Isoprene from formaldehyde is the prevailing process in the industries. This process has disadvantage of low yield and by-products. So this process is further modified to improve the yield and the operating conditions. But still by-products are the main problems which decreases the selectivity and yield. To overcome these issues, manufacturing of Isoprene from propylene is studied in plant design project. It is found that this process has 65% yield and have selectivity of 95%. A cost Analysis was made after the design of different plant equipment, and it is found that a plant of 12000 tons per year has payback period of approximately 4 years.

### Speaker Publications:

1. Usman Asghar, Waqas Ahmed Khan, Ayesha Masoom, Waqar Ali Khan , "Experimental Investigations on Shifting Order Behavior of Ethyl Acetate Hydrolysis Using Integral Shifting Order Analysis Approach in Batch Reactor at Constant Stirring", Austin Chemical Engineering, Vol. 7, Issue No. 1, 2020. 1.8 (pp. 1-5)
2. Usman Asghar, Ayesha Masoom, Adan Javed, Ayesha Abbas, "Economic Analysis of Isoprene Production from Good Year Scientific Process", Austin Chemical Engineering, Vol. 7, Issue No. 1, 2020. 1.8 (pp. 0-0)
3. Usman Asghar, Waqar Ali Khan and Imran Shamshad , "Effect of Initial Static Bed Height and Liquid Superficial Velocity on the Minimum Fluidization Velocity (Umf ) and Pressure Drop for the Bed of Semolina Particles in Liquid-Solid Fluidization", Journal of Chemical Engineering & Process Technology, Vol. 7, Issue No. 5, 2016. 1.71 (pp. 312-315)

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### Biography:

Usman Asghar working in Department of Chemical Engineering, Wah Engineering College, Wah Cantt., Pakistan and his is researched in Coal Gasification, Coal Technology, Circulating Fluidized Bed Reactors, Three Phase Fluidized bed Reactors, Inverse Fluidization.