عنوان مقاله:

Identification of the Sources of Energy Loss through Exergy Analysis: Case Study of Marun Mega-Olefin Plant

محل انتشار:

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خلاصه مقاله:

One of the industries with high potential for energy saving is the petrochemical industry. Ethylene and propylene production plants (olefin plants) – as a part of the petrochemical industry – are very energy intensive. So, any try to improve their energy consumption efficiency could lead to a high amount of energy saving. Iran's petrochemical industry uses old technologies and components and due to sanctions, it couldn't be improved. The main idea of this paper is to improve the energy consumption of one of the biggest petrochemical plants in Iran. So, Marun olefin plant in Iran has been simulated as a case study and its different parts have been analyzed from exergy point of view, which shows the most energy intensive components so that we can focus on for improving the plant's energy consumption. The plant has been divided into three sections and simulated using Aspen HYSYS process simulation software. Then, it has been analyzed using exergy analysis. Results show that the hydrogenation and separation section consisting of many different components has the highest exergy destruction rate and the highest potential for energy saving. Compression section and refrigeration system having compressors are the other parts highly destroying exergy respectively. The causes of exergy destruction for each component has been analyzed and recommendations have been proposed as well

کلمات کلیدی:

Olefin, Ethylene Plant, Exergy Analysis, Exergy Destruction, Exergetic Efficiency