

## عنوان مقاله:

GTL Process Simulation and Sensitivity Analysis: Zero CO<sub>2</sub> Emission and Productivity Improvement

## محل انتشار:

مجله طراحی فرآیندهای شیمیایی، دوره 1، شماره 1 (سال: 1401)

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## نویسندگان:

Alireza Behroozsarand - *Urmia University of Technology*

Kamran Ghasemzadeh - *Chemical Engineering, Urmia University of Technology*

## خلاصه مقاله:

Refineries and petrochemical industries can transform some of their flare gas into noteworthy gasoil, gasoline, and LPG products by applying technology of Gas-to-Liquid (GTL). One of the main parts of GTL plant is the production of synthetic gas process. As the main objective of this study, two technology steam methane reforming (SMR) and tri-methane reforming (TMR) techniques have been used to simulate and analyze the proposed sensitivity of the new integrated GTL process. Therefore, four parameters have been studied in sensitivity analysis against changing the proportion of gas recovery to gas synthesis and amine subunits. Therefore, four parameters have been studied in sensitivity analysis (SA) against changing the proportion of gas recovery to gas synthesis and amine subunits. SA results represented that raising recycle gas ratio has negative impact on SMR model productivity and has positive effect on TMR model productivity, especially between 0.0 to 0.7 ratios. Also, the decreasing trend of the syngas production rate in the SMR was much more severe and with a greater slope than the increase in the syngas production rate in the TMR. Therefore, on this basis, the final productivity in the integrated process also shows a significant increase about by using the TMR process (3835 kg/hr.) versus the SMR process (3793 kg/hr).

## کلمات کلیدی:

Gas-to-Liquids (GTL), Steam Methane Reforming (SMR), Tri-Methane Reforming (TMR), Sensitivity analysis

## لینک ثابت مقاله در پایگاه سیویلیکا:

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