

Supporting Information

Saeed K. Amini*

*Chemistry and Chemical Engineering Research Center of Iran, Tehran, Iran

Corresponding Author

*amini_s@ccerci.ac.ir.

ORCID

Saeed K. Amini: [0000-0002-6935-7329](https://orcid.org/0000-0002-6935-7329)

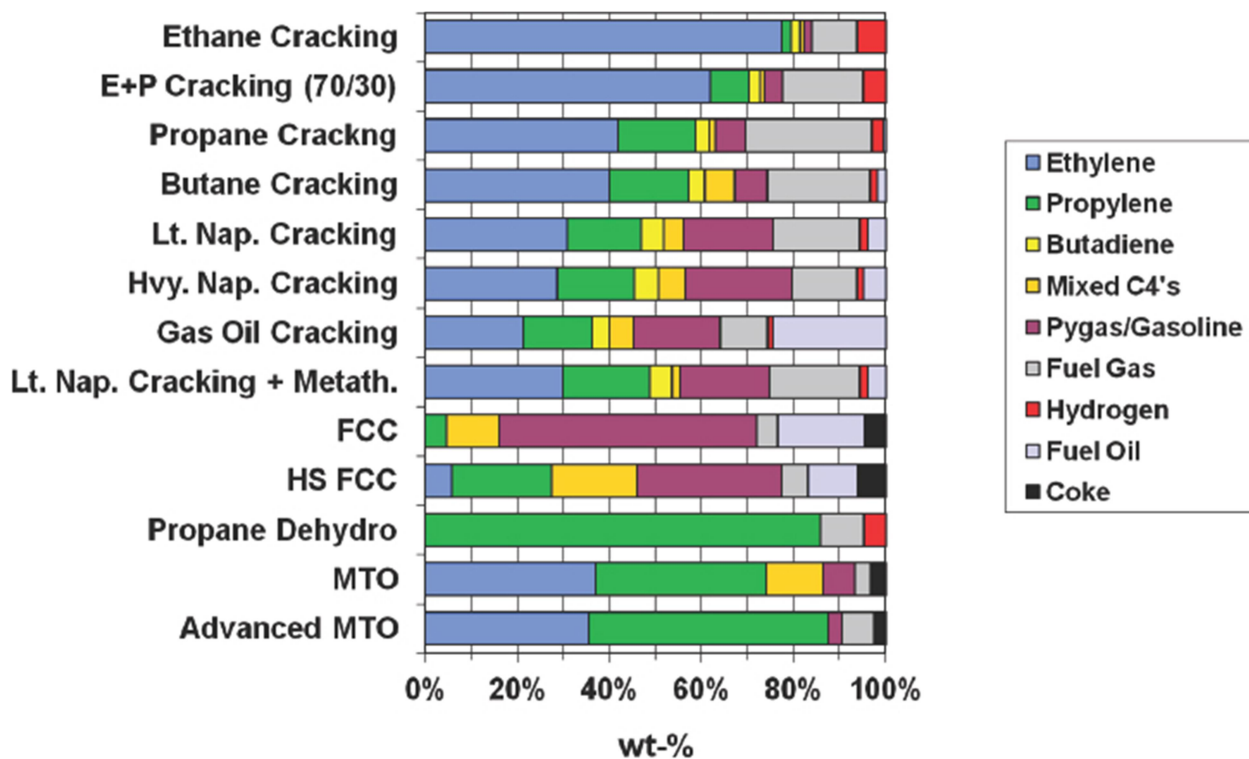


Figure S1- Weight percent production rate Of Propylene from different methods in 2016 [1].

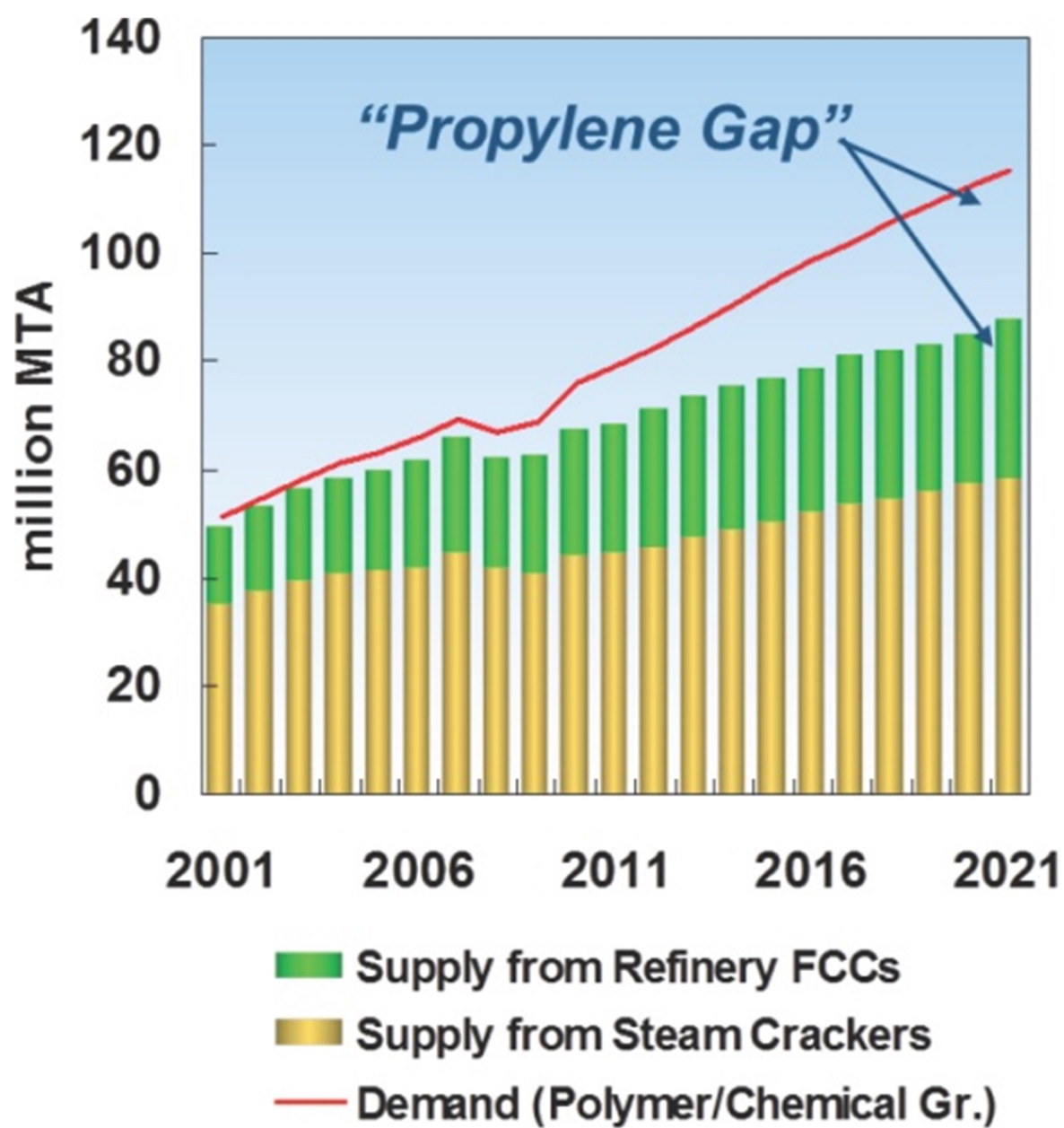
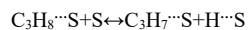
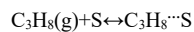
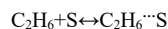
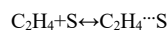
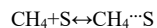
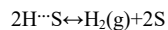
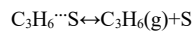
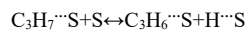


Figure S2- Predicted demand of propylene up to 2021 [1].

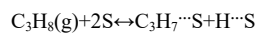
Mechanism 1:



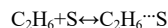
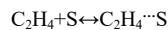
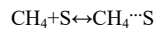
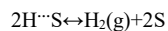
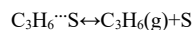
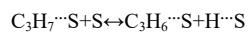
Rate Determining Step



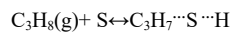
Mechanism 2:



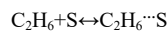
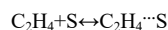
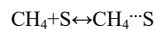
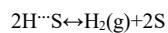
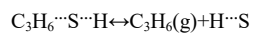
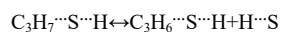
Rate Determining Step



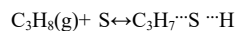
Mechanism 3:



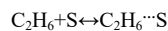
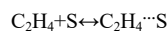
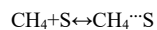
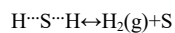
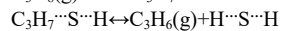
Rate Determining Step



Mechanism 4:



Rate Determining Step



Scheme S1- Four most accepted Langmuire-Hinshelwood mechanisms of propane dehydrogenation [2].

References:

1. Bell AT, Alger MM, Flytzani-Stephanopoulos M, Gunnoe TB, Lercher JA, Stevens J, Alper J, Tran C (2016) The Changing Landscape of Hydrocarbon Feedstocks for Chemical Production: Implications for Catalysis. In: National Academies of Sciences, Engineering, and Medicine, Washington, DC, USA.
2. Fogler H (1999) Elements of chemical reaction engineering, 3rd. In.: Prentice Hall International, Inc, New Jersey.