



Methanol (CH_3OH) is the simplest member of a group of organic chemicals called alcohols. Today, methanol is most commonly produced on an industrial scale by using the natural gas as the principal feedstock. Methanol is used to synthesize a wide range of chemical intermediates which, in turn, are used to produce thousands of chemicals that touch our daily lives, such as building materials, foams, resins, plastics, paints, polyester and a variety of health and pharmaceutical products. Methanol also is a clean-burning, biodegradable fuel, and used to produce the biofuel (**Figures 74-75**).

Due to the massive development of the countries economy around the world, the limited fossil resources will be exhausted irreversibly and inexorably in the near future. In 2015, the total world hydrocarbon production was about 7.8 Btoe/y (billions tons oil equivalent/year), from which 4.6 was oil and 3.20 gas, respectively. The ratio of world's reserve to production in 2015 was: ca. 50.7 years for oil, and ca. 52.8 years for gas. Considering the massive rise of world's population and the legitimate needs for better life, it is obvious that the development based only on fossil resources is not bearable at medium and longer terms.

This book is part of the global effort to find a solution to the problem of diminishing sources of industrial raw materials, by using alternative natural resources and novel non-conventional technologies.

From one side the book briefly review the feasibility of the novel concept to capitalize the cheap and low quality / renewable natural resources, such as: biomass, wood waste, inferior quality coal, CO_2 industrial emissions, or low energy resources (that is CH_4 from the natural gas), all these producing large ammounts of CO_2 greenhouse gas. The basic concept of the book is to convert all these cheap resources to **methanol**. Further, the study proves the feasibility of the concept of using the obtained methanol as a **key-node** in producing a large variety of chemicals of high added-value (front cover), of hydrocarbons, or superior fuels, as exemplified by a brief review of the novel non-conventional technological lines. The **biorefinery** concept is also briefly reviewed in connection to the renewable **biomass** valorization. A special chapter is dealing with the modern chemical engineering tools and concepts used to develop such novel **sustainable** technologies. The book also describes a successful experience developed in Romania over 1980-1997 in this area of methanol chemistry, that is the production at an industrial level (by using a demonstrative **industrial pilot** built-up and operated at the Petrochemical Works Brazi **PWB** , Ploieşti, **Romania**) of hydrocarbons, that is: **MTO** (methanol to olefins) / **MTA** (methanol to aromatic hydroc.) / **MTG** (methanol to gasoline), etc. [Maria, 2018; **https://juniperpublishers.com/ebook-info.php**].