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(54) Title: A METHANOL, OLEFIN, AND HYDROCARBON SYNTHESIS PROCESS

(57) Abstract: An improved method for the production of methanol and hydrocarbons from a methane-containing gas, such as natural gas. The improved method integrates a hydrocarbon synthesis unit with a methanol synthesis unit without the need to recycle unreacted syngas exiting the methanol synthesis reactor. The invention combines a syngas stream and additional carbon dioxide from the hydrocarbon synthesis unit to form an optimal syngas composition for methanol and hydrocarbon synthesis. The invention also integrates other process parameters and process components of a methanol and hydrocarbon synthesis process plant to effectively convert most of the carbon in the natural gas to commercial-value products. The invention is also directed to a method of making olefin from the methanol produced by the process of the invention.