

World Congress on

Petroleum and Refinery

July 21-22, 2016 Brisbane, Australia

Recent development and future aspects in fuel production from municipal plastic waste

Archana Saily Painuly

Shri Ramswaroop Memorial University, India

Global increase in plastic wastes owing to rapid industrial and economic growth placed it as a major proportion of solid waste. The world's production of plastic materials has been increasing over the past 2 decades at a rate of nearly 5% per annum. As per study conducted by World Bank, plastic waste accounted for 8–12% of total municipal solid waste (MSW). In absence of integrated solid waste management, most of the plastic waste is neither collected properly nor disposed off by appropriate procedure to prevent its negative impacts on environment and human health. Plastic disposal and search for alternative energy sources are the two major issues, currently faced by all developing as well as developed countries. The production of fuel from plastic is not only providing the answer for the waste management but also in some extent resolve the issues of energy requirement. The present study will discuss the existing conversion procedures and the optimization of different conversion parameters in view to develop effective techniques for the production of high calorific value fuel from plastic wastes. Though the energy demand from fossil fuels is cost effective compared to the fuel production from plastic, however, waste management, depletion of natural resources and environment degradation issues certainly dominate the economic aspects. The continuing research and development towards the cost effective conversions will absolutely secure the future for all in energy sectors.

archana.cy@srmu.ac.in

A general mathematical model for predicting temperature profiles in drilling, fracturing, and producing wells in liquid-rich shale reservoirs

Boyun Guo¹ and Gao Li²¹University of Louisiana at Lafayette, USA²Southwest Petroleum University, China

Production of oil and gas from liquid-rich shale reservoirs has revolutionized the energy industry in the United States. However, the performance of wells is very unpredictable in many areas due to lacking of proper design of parameters in drilling, fracturing, and production operations because of inadequate modeling of well fluid temperature profiles. The currently available mathematical models are found not suitable to use for the purpose because of the unrealistic assumptions made during model derivations. A new analytical solution for predicting fluid temperature profiles inside work strings and in the annulus was derived in this study, considering the formation fluid production, Joule-Thomson cooling effect, and solid flow. The temperature profiles given by the new analytical solution are significantly higher than that given by a previous analytical model for gas-drilling operations. Results of sensitivity analyses show that formation fluid production rate can significantly increase the temperature profiles in both the work string and the annulus. The Joule-Thomson cooling effect lowers the temperature in the annulus only at the bottom hole. The solid particle entrained at the bottom hole can slightly increase the temperature profile in the annulus. The new solution can replace numerical simulators that are not readily available to most field engineers in general.

guo.boyun@gmail.com