1. Record Nr.   UNINA9910689654103321

   Titolo   Budget autonomy for the District of Columbia : restoring trust in our nation's capital : hearing before the Committee on Government Reform, House of Representatives, One Hundred Eighth Congress, first session, June 13, 2003

   Descrizione fisica   1 online resource (iii, 63 p.)

   Soggetti   Budget - Washington (D.C.)
   Washington (D.C.) - Appropriations and expenditures

   Lingua di pubblicazione   Inglese

   Formato   Materiale a stampa

   Livello bibliografico   Monografia

2. Record Nr.   UNINA9910346931403321

   Autore   Khan Rafi Ullah

   Titolo   Vacuum gas carburizing - fate of hydrocarbons

   Pubbl/distr/stampa   KIT Scientific Publishing, 2008

   ISBN   1000009231

   Descrizione fisica   1 online resource (II, 159 p. p.)

   Soggetti   Biotechnology

   Lingua di pubblicazione   Inglese

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   Livello bibliografico   Monografia

   Sommario/riassunto   This work focuses on gaseous reactive flows in ideal and non-ideal reactors. The objective of this research is the development of models for the numerical simulation of homogeneous reactive flows under vacuum carburizing conditions of steel with propane and acetylene. These models can be used for further investigations of heterogeneous reactions during vacuum carburizing of steel to predict the carbon flux

on the complex shaped steel parts to understand and, eventually, optimize the behavior of the whole reactor.arburizing is the case-hardening process in which carbon is added to the surface of low-carbon steels at temperatures generally between 850 and 1050 °C. In the conventional gas carburizing at atmospheric pressure, the carbon potential is controlled by adjusting the flow rate of the carburizing gas. Carbon potential of the furnace atmosphere can be related to partial pressure of CO_2 or O_2 or vapour pressure of water by equilibrium relationships and a sensor can be used to measure it. This method of carbon-potential control cannot be used for vacuum gas carburizing due to the absence of thermodynamic equilibrium which is one of the main difficulties of the vacuum carburizing process. The formation of soot during carburization isalso undesirable and the process parameters should be selected such that the formation of soot is minimized. The amount of carbon available for carburizing the steel depends on the partial pressure of the carburizing gas, carbon content in the carburizing gas and the pyrolysis reactions of the carburizing gas. The pyrolysis reactions of the carburizing gas are also affected by the contacting pattern or how the gas flows through and contacts with the steel parts being carburized. This work focuses on gaseous reactive flows in ideal and non-ideal reactors. The objective of this research is the development of models for the numerical simulation of homogeneous reactive flows under vacuum carburizing conditions of steel with ropane and acetylene. These models can be used for further investigations of heterogeneous reactions during vacuum carburizing of steel to predict the carbon flux on the complex shaped steel parts to understand and, eventually, optimize the behavior of the whole reactor. Two different approaches have been used to model the pyrolysis of propane and acetylene under vacuum carburizing conditions of steel. One approach is based on formal or global kinetic mechanisms together with the computational fluid dynamics (CFD) tool. The other approach is based on detailed chemistry with simplified or ideal flow models. Two global mechanisms developed at the Engler-Bunte-Institut for pyrolysis of propane and acetylene respectively were used in this work. One detailed mechanism developed at the Institute of Chemical Technology by the research group of Professor Deutschmann was used for modeling the pyrolysis of both the propane and acetylene. Experimental data from investigations on vacuum carburizing conducted at the Engler-Bunte-Institut were used to validate the modeling results.