

The study of the influence of load's chemical composition in the coking process on the efficiency and the quality of coke



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Abstract

This research was performed in order to allow the study of the chemical composition influence of the coking process load on the efficiency and the quality of coke. For this reason, the coking of the following loads was realized: Atmospheric residue (RAT), vacuum Residue (RSV) and catalytic Residue of cracking (RCC). (The residues are obtained from an Algerian crude oil). As the oil residues are rich for their strongly polar composition, such as the asphaltene resins, and complex structures units (SCU), which has a role in the formation of coke, and as the dispersion of these latter improves the quality of coke, a study on the stability of aggregation was carried out by the addition of one stabilizer (oil Extract) in the coking process load. The Compounding (Extracted from /RCC oil) has been driven to the best efficiency of coke. The study consists of the influence...., this is characterized by the analyses Infra-red (IR) and x-ray diffraction (XRD).

Introduction: The coking of the oil residues consists of the decomposition of this latter by the delayed coking process, or by fluidized bed coking. The units of coking, are generally biased by heavy residues, such as: vacuum residue, catalytic residue of cracking, residue of viscoreduction and asphalt or extracted from lubricating oils. Coking develops these oil residues, it produces Gas: they consist of a fuel gases used as fuel in the unit of coking, or sent after washing towards fuel gases of the refinery. Naphtas: light naphtha, after a hydro-processing is sent to the pool gasoline, heavy naphtha constitutes a catalytic load of reforming. Distillates: the light distillate, after a hydro-processing is sent to the pool gas oil of the refinery, and heavy distillate is used like charges with FCC, in mixture with the products of distillation. Coke: several types of coke can be produced: Coke sponges (Sponge coke), needle coke (Needle coke), Coke with balls (Shot coke) and combustible Coke. The use of coke is directed according to the quality of this latter. The four aspects which affect the quality and the price of coke are: Sulphur content, content of metals, hardness and the physical structure. The coke of best quality is used for the manufacture of the anodes, the production out of aluminum or of the electrodes for the production out of steel, is the needle coke, which must be calcinated before its use. The parameters influencing the quality and the efficiency of coke are: the nature of the load and operating conditions of the coking process. The main objective of this research consists of the realization of a coking (thermal decomposition) of the oil residues for: To produce a coke of a precise quality. To optimize the load which gives the best efficiency, by coking of various compounding (oil Extract /Residue) Valorization of its residues by recovery of a distillate and gasoline of characteristics defines.

Biography

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