protective material layer, the volume occupied by the latter is freed up. If this occupied volume is considerable, the catalyst bed will be modified, which may generate preferential ways to the feedstock circulating through the bed, which is contrary to the requirements of a perfect distribution of the feedstock throughout the catalyst bed in the reactor, and becomes particularly harmful for the performance ratings of the unit.

Summary

In one aspect of the present disclosure, there is provided a process for limiting self heating of activated particle catalysts, in which the catalyst particles are placed in motion within a hot gas flow passing through them, and a liquid composition containing one or more film forming polymer(s) is pulverized onto the moving particles until on the surface of said particles a protective layer containing said film forming polymer is obtained, that has an average thickness lower than or equal to 20 µm.

In another aspect of the present disclosure, there is provided a use of the process disclosed herein, to reduce the quantities of toxic gases that may be emitted by the activated catalysts.

In a further aspect of the present disclosure, there is provided an activated hydrocarbon hydroconversion catalyst obtainable by the process disclosed herein, made up of activated catalyst particles which are each covered on their surface by a continuous protective layer having an average thickness ranging from 0.1 to 20 µm and comprising from 50 to 100% by weight of one or several film forming polymer(s) chosen among :

- vinyl alcohol homo- and copolymers ;
- partially hydrolyzed vinyl alcohol homo- and copolymers ;
- polyethylene glycols ;
- collagen ;
- polyethylene terephtalates (PET) ;
- polyethylene naphtalates (PEN) ;

- polyamides ;
- polysaccharides;
- polyvinyl chlorides (PVC) ;
- polyvinylidene chlorides (PVDC) ;
- polyacrylonitriles (PAN) ;
- polyacrylates resins ;
- copolymers of which at least one of the monomers is of the acrylate type ;
- and their mixtures ;

with the total amount of film forming polymer representing from 0.1 to 0.4% by weight, with respect to the total weight of the initial catalyst.

Description

This invention aims at proposing a method that permits on the one hand to limit efficiently the self heating phenomena of the activated catalysts, and on the other hand, to eliminate the drawbacks of the methods of the prior state of the art.

The Applicant has found out unexpectedly that this goal was met with a process in which the activated catalyst particles are covered with a very thin protective layer of film forming polymer using a particular process in which the particles are kept moving within a hot gas flow while a liquid composition containing the film forming polymer is pulverized over said particles.

Preferably, the pulverization takes place using an atomization nozzle in which the liquid composition is mixed with a gas under pressure, preferably compressed air, which permits obtaining very fine drops.

The purpose of the process according to the invention is to create a continuous layer of a protective material on the external surface of the catalyst grains. The basic principle that consists in protecting a catalyst by a protective material has already been described in the prior state of the art, but obtaining a catalyst that

meets the requirements described above is very complex. The Applicant has discovered that in order to meet all these requirements efficiently, particular film forming polymer based protective materials should be associated with a high precision coating process.

Consequently, the purpose of this invention is a process to limit the self heating of activated particle catalysts, in which catalyst particles are placed in motion within a hot gas flow that passes through them, and a liquid composition containing one or several film