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 gas flow having a temperature ranging from 30 to 150°C 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 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

CLAIMS

1. Process for limiting self heating of activated particle catalysts, in which the catalyst particles are placed in motion within a gas flow having a temperature ranging from 30 to 150°C 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.

2. Process according to claim 1, characterized in that the liquid composition is a solution or a dispersion of the film forming polymer(s) in a solvent, and contains preferably from 0.1 to 50% by weight of film forming polymer, more preferably from 0.5 to 25% by weight, and even more preferably from 1 to 10% by weight of film forming polymer, with respect to the total weight of the composition.

3. Process according to one of claims 1 or 2, characterized in that it is implemented in a perforated drum in which the catalyst particles are put in motion, with a hot gas flow passing continuously through said perforated drum.

4. Process according to one of claims 1 or 2, characterized in that it is implemented by placing catalyst particles in a fluidized bed by means of the hot gas flow.

5. Process according to anyone of the preceding claims, characterized in that gas flow passing through the catalyst particles has a temperature ranging from 50 to 100°C.

6. Process according to anyone of the preceding claims, characterized in that the gas flow rate ranges from 5 to 100 m^3 per hour and per kilogram of catalyst.

7. Process according to anyone of the preceding claims, characterized in that the protective layer comprises from 50 to 100% by weight of one or more film forming polymer(s), and preferably the

- and their mixtures ;

with the total amount of film forming polymer representing from 0.1 to 4% by weight, with respect to the total weight of the initial catalyst.

14. Catalyst according to the preceding claim, characterized in that the protective layer is made up entirely of one or several film forming polymer(s).

15. Catalyst according to one of claims 13 and 14, characterized in that the film forming polymer(s) are chosen among polyvinyl alcohols and copolymers made up of vinyl alcohol and olefin(s) monomers such as copolymers made up of ethylene and vinyl alcohol monomers (EVOH copolymers).

16. Catalyst according to anyone of claims 13 to 15, characterized in that the average thickness of the protective layer ranges from 0.1 to 10 μm, preferably from 0.2 to 10 μm, and even better from 0.5 to 8 μm.

17. Catalyst according to anyone of claims 13 to 16, characterized in that the total quantity of film forming polymer represents from 0.5 to 4% by weight, and even more preferred from 1 to 3% by weight, with respect to the total weight of the initial catalyst.

18. Catalyst according to anyone of claims 13 to 17, characterized in that it comprises a refractary oxide support on which is deposited a metal sulfide chosen among the metals of group VIII and the metals of group VIB of the Periodic Classification of Elements.