SUMMARY

[0029] This technical problem is solved, completely or at least partially, by the present disclosure. Yet other advantages will become clear from the description of the disclosure given hereunder.

[0030] The present disclosure relates to the use, in a method for in-situ activation of at least one hydrotreating, in particular hydrocracking, catalyst, of at least one nitrogen compound having at least one, preferably at least two, more preferably at least three, even more preferably at least four of the following characteristics:

a) a nitrogen content by weight in the range from 15 to 35 wt%, preferably in the range from 20 to 35%, more preferably in the range from 20 to 30%, and more advantageously in the range from 20 to 25% relative to the total weight of the nitrogen compound;

b) a number of nitrogen atoms in the range from 2 to 20, preferably in the range from 2 to 15, more preferably in the range from 2 to 10, even more preferably in the range from 2 to 5, per molecule, advantageously two nitrogen atoms per molecule;

c) a boiling point in the range from 140°C to 300°C, preferably in the range from 140°C to 250°C, more preferably in the range from 140°C to 200°C, even more preferably in the range from 140°C to 175°C; and

d) said nitrogen compound being in liquid form at room temperature and atmospheric pressure.

[0030a] In an aspect, there is provided the use, in a method for in-situ activation of a hydrotreating catalyst, of at least one nitrogen compound having at least two, more preferably at least three, even more preferably at least four of the following characteristics:

a) a nitrogen content by weight in the range from 15 to 35 wt%, preferably in the range from 20 to 35%, more preferably in the range from 20 to 30%, and more advantageously in the range from 20 to 25% relative to the total weight of the nitrogen compound;

b) a number of nitrogen atoms in the range from 2 to 20, preferably in the range from 2 to 15, more preferably in the range from 2 to 10, even more preferably in the range from 2 to 5, per molecule, advantageously two nitrogen atoms per molecule;

c) a boiling point in the range from 140°C to 300°C, preferably in the range from 140°C to 250°C, more preferably in the range from 140°C to 200°C, even more preferably in the range from 140°C to 175°C; and

d) said nitrogen compound being in liquid form at room temperature and atmospheric pressure.

[0031] The disclosure also relates to the use of at least one nitrogen compound as

defined above for controlling the activity of at least one hydrotreating catalyst, in particular of at least one hydrocracking catalyst.

[0032] The disclosure also relates to the use of at least one nitrogen compound as defined above for passivating the acid sites of the hydrotreating catalyst, in particular of the hydrocracking catalyst.

[0033] The disclosure finally relates to a method for in-situ activation of at least one hydrotreating catalyst, in particular one hydrocracking catalyst, said method comprising at least:

1) a step of sulphiding said hydrotreating, in particular hydrocracking, catalyst, in the presence of a sulphiding agent; and

2) a step of passivation of said hydrotreating, in particular hydrocracking, catalyst, in the presence of at least one nitrogen compound as defined in the present disclosure.

[0033a] In another aspect, there is provided a method for in-situ activation of at least one hydrotreating catalyst comprising at least:

1) a step of sulphiding said hydrotreating catalyst in the presence of a sulphiding agent; and

2) a step of passivation of said hydrotreating catalyst in the presence of at least one nitrogen compound as defined above.

[0034] The present disclosure makes it possible to overcome the drawbacks of the prior art by proposing a method for activating hydrotreating catalyst(s), in particular hydrocracking catalyst(s), that is easy to use, said method being effective in terms of activation of hydrotreating catalyst(s), in particular of hydrocracking catalyst(s), and

offering a good compromise in terms of controlling the risks of operator exposure, and constraints relating to handling, storage and/or odor. Advantageously, the nitrogen compound according to the disclosure employed in the method, carried out in situ, is not CMR (carcinogenic, mutagenic, reprotoxic) according to the European CLP regulations.

[0035] The use and the method of the present disclosure are quite particularly suitable for the production of biofuels derived from lignocellulosic biomass and for the hydrocracking of petroleum cuts.

DEFINITIONS

[0036] Unless stated otherwise, the percentages mentioned are percentages by weight.

[0037] "Nitrogen content by weight" means the percentage of nitrogen atoms per molecule expressed by weight relative to the total weight of the nitrogen compound.

[0038] "Room temperature" means a temperature of 20°C.

[0039] "Atmospheric pressure" means a pressure of 1.013 bar or 101325 pascal (Pa).

[0040] "Alkyl polysulphides" means all the alkyl sulphides comprising at least 2 sulphide functions per molecule.

[0041] "Dialkyl polysulphides" means all the dialkyl sulphides comprising at least 2 sulphide functions per molecule.

[0042] "Polyamine" means any amine compound comprising at least 2 amine functions, substituted or unsubstituted, per molecule.

[0043] "AAA" means the alkylalkanolamines.

[0044] "Hydrotreating activity" means the action of a catalyst for hydrotreating of compounds.

[0045] "Hydrocracking activity" means the action of a catalyst for hydrocracking of hydrocarbons.

[0046] "T_m" means melting point.

DETAILED DESCRIPTION OF THE INVENTION

[0047] According to a first aspect, the present invention relates to the use, in a method for in-situ activation of at least one hydrotreating, in particular hydrocracking, catalyst, of at least one nitrogen compound having at least one, preferably at least two, more preferably at least three, even more preferably at least four of the characteristics as defined above.

[0048] By using a nitrogen compound according to the invention it is possible to obtain at least one, and advantageously several, of the following advantages: