[0014] Today, therefore, there is a need for a process for synthesis of methyl mercaptan that does not exhibit the drawbacks encountered in the known processes, thus being more environmentally friendly and less eco-toxic, but also safer, while preserving the high yields and selectivities, or even with yields and selectivities which are improved relative to those of the known processes, while being a process which is operated as economically as possible.

[0015] It has now been found that it is possible to remove the aforementioned drawbacks, entirely or at least partly, by virtue of the process for preparing methyl mercaptan in accordance with the present disclosure, which is detailed in the description hereinafter. The process of the present disclosure makes it possible more particularly to resolve a large number of the drawbacks in the processes based on reactions (1) and (2) as described above.

[0016] Accordingly, the present disclosure provides a process for preparing methyl mercaptan, batchwise or continuously, preferably continuously, said process comprising at least the following steps:

a) reaction of at least one hydrocarbon charge in the presence of hydrogen sulphide (H_2S) and optionally of sulphur (S) to form carbon disulphide (CS_2) and hydrogen (H_2),

b) hydrogenation reaction of said carbon disulphide (CS_2) in the presence of said hydrogen (H_2), both obtained in step a), to form methyl mercaptan (CH_3SH), hydrogen sulphide (H_2S) and optionally hydrogen (H_2),

c) optionally, but preferably, recycling said hydrogen sulphide (H_2S) formed in step b) to step a), and

d) recovery of the methyl mercaptan.

[0016a] In an aspect, there is provided a process for preparing methyl mercaptan, batchwise or continuously, preferably continuously, said process comprising at least the following steps:

a) reaction of at least one hydrocarbon charge in the presence of hydrogen sulphide (H_2S) and optionally of sulphur (S) to form carbon disulphide (CS_2) and hydrogen (H_2),

b) hydrogenation reaction of said carbon disulphide (CS_2) in the presence of said hydrogen (H_2), both obtained in step a), to form methyl mercaptan (CH_3SH), hydrogen sulphide (H_2S) and optionally hydrogen (H_2),

c) recycling said hydrogen sulphide (H_2S) formed in step b) to step a), and

d) recovery of the methyl mercaptan.

[0016b] In another aspect, there is provided a process for preparing dimethyldisulphide comprising the process for preparing methyl mercaptan as defined above, wherein the methyl mercaptan is reacted with sulphur to form dimethyl disulphide.

[0017] This process has the very great advantage of consuming the hydrogen sulphide (H_2S) which is produced during the reaction, and in some cases even doing so stoichiometrically as indicated later on below, hence meaning that all the hydrogen sulphide consumed in the process of the invention is produced by said process. Therefore, the process as defined above avoids any addition, and even in some cases any removal, of hydrogen sulphide (H_2S) in excess, or else avoids the additional synthesis of hydrogen sulphide (H_2S), as is sometimes required with the known processes of the prior art.

[0018] Moreover, the process as defined above is a process which is simple to perform, is of low eco-toxicity and is economical. The process as defined above also makes it possible to obtain a high yield and a high selectivity in terms of methyl mercaptan. In the

CLAIMS

1. Process for preparing methyl mercaptan, batchwise or continuously, preferably continuously, said process comprising at least the following steps:

a) reaction of at least one hydrocarbon charge in the presence of hydrogen sulphide (H_2S) and optionally of sulphur (S) to form carbon disulphide (CS_2) and hydrogen (H_2),

b) hydrogenation reaction of said carbon disulphide (CS_2) in the presence of said hydrogen (H_2), both obtained in step a), to form methyl mercaptan (CH_3SH), hydrogen sulphide (H_2S) and optionally hydrogen (H_2),

c) recycling said hydrogen sulphide (H_2S) formed in step b) to step a), and

d) recovery of the methyl mercaptan.

2. Process according to Claim 1, wherein the hydrocarbon charge is a hydrocarbon charge in gaseous, liquid or solid form, preferably in gaseous or liquid form, more preferably in gaseous form, and comprises at least one hydrocarbon having a hydrocarbon chain in saturated or unsaturated linear, branched or cyclic form.

3. Process according to Claim 1 or Claim 2, wherein the hydrocarbon charge comprises at least one alkane, preferably at least methane (CH_4), ethane, propane or butane.

4. Process according to any one of the preceding claims, wherein the hydrocarbon charge is methane.

5. Process according to any one of the preceding claims, wherein the hydrogen optionally formed in step b) may be reacted with sulphur to form hydrogen sulphide.

6. Process according to any one of the preceding claims, wherein the molar H_2S/hydrocarbon charge ratio is between 0 and 100, preferably between 0.5 and 10 and more preferably between 1 and 3, endpoints included.

7. Process according to any one of the preceding claims, wherein the reaction temperature in step a) is between 500°C and 1300°C, preferably between 700°C and 1100°C, more preferably between 800°C and 1000°C.

8. Process according to any one of the preceding claims, wherein the reaction temperature in step b) is between 100°C and 400°C and preferably between 200°C and 300°C.

9. A process for preparing dimethyldisulphide comprising the process for preparing methyl mercaptan according to any one of the preceding claims, wherein the methyl mercaptan is reacted with sulphur to form dimethyl disulphide.