7) a stream (**F**) comprising the dried methyl mercaptan is recovered, at the bottom of the column (**1**).

In another aspect, there is provided a process for producing methyl mercaptan, comprising the following steps:

a) reacting methanol with hydrogen sulfide to form a stream (M), preferably in gaseous form, comprising methyl mercaptan, water, and possibly unreacted H_2S and sulfur byproducts; s

b) optionally, said stream (M) is condensed;

c) at least one step of purification of said stream (M) is performed to obtain a stream enriched in methyl mercaptan;

d) the stream obtained in step c) is dried via the drying process as defined above.

In another aspect, there is provided the use of azeotropic distillation for drying methyl mercaptan.

One object of the present disclosure is to provide a process for drying methyl mercaptan, which makes it possible to obtain a methyl mercaptan with a low water content, preferably with a water content of less than or equal to 1500 ppm.

Another object of the present disclosure is to provide a process which can totally or partly overcome the drawbacks of the drying processes used hitherto and notably using molecular sieves.

An object of the present disclosure is also to provide a process whose drying methods are controlled and/or which do not vary over time.

An object of the present disclosure is to provide a process for preparing methyl mercaptan which makes it possible to obtain a methyl mercaptan with a low water content, preferably with a water content of less than or equal to 1500 ppm.

An object of the present disclosure is to provide an integrated process for preparing methyl mercaptan, which is more environmentally friendly and more economical.

CLAIMS

1. A process for drying methyl mercaptan, comprising the following steps:

1) a stream (**A**) comprising methyl mercaptan and water is introduced into a distillation column (**1**);

2) said stream (**A**) is distilled in said column (**1**);

3) the distillate (**B**) is recovered in gaseous form, preferably at the top of the column;

4) the distillate (**B**) is condensed, preferably in a condenser (**2**), so as to obtain a condensate (**C**) in liquid form;

5) said condensate (**C**) is separated, preferably using a decanter (**3**), so as to obtain two separate liquid phases:

- an aqueous phase (**D**); and
- an organic phase (**E**) comprising methyl mercaptan;

6) all or part of the organic phase (**E**) is optionally introduced into the distillation column (**1**) as reflux; and

7) a stream (**F**) comprising the dried methyl mercaptan is recovered, at the bottom of the column (**1**).

2. The drying process according to claim 1, in which the distillation of step 2) is performed at a pressure of between 0.05 and 75 bar absolute, preferably between 1 and 30 bar absolute, more preferentially between 5 and 15 bar absolute.

3. The drying process according to claim 1 or 2, in which the distillation of step 2) is performed at a temperature of between 20°C and 200°C, preferably between 60°C and 100°C, more preferentially between 65°C and 95°C.

4. The drying process according to any one of the preceding claims, in which the distillation of step 2) is an azeotropic distillation.

5. The drying process according to any one of the preceding claims, in which stream (A) comprises at least 90%, preferably at least 95%, more preferentially at least 98%, for example at least 98.5%, or even at least 99% by weight of methyl mercaptan, relative to the total by weight of methyl mercaptan and water.

6. The drying process according to any one of the preceding claims, in which the amount of water in stream (F) is between 0 and 1500 ppm, preferably between 0 and 1000 ppm, more preferentially between 40 and 800 ppm, relative to the total by weight of methyl mercaptan and water.

7. The drying process according to any one of the preceding claims, in which, when step 6) is performed, the reflux ratio is between 0 and 0.99, preferably between 0 and 0.60.

8. The drying process according to any one of the preceding claims, in which stream (A) is connected to a unit for producing methyl mercaptan from methanol and hydrogen sulfide.

9. The drying process according to any one of the preceding claims, in which stream (A) is connected to a unit for producing methyl mercaptan from carbon oxide, hydrogen (H_2), hydrogen sulfide (H_2S) and/or sulfur (S).

10. A process for producing methyl mercaptan, comprising the following steps:
a) reacting methanol with hydrogen sulfide to form a stream (M), preferably in gaseous form, comprising methyl mercaptan, water, and possibly unreacted H_2S and sulfur byproducts;
b) optionally, said stream (M) is condensed;
c) at least one step of purification of said stream (M) is performed to obtain a stream enriched in methyl mercaptan;
d) the stream obtained in step c) is dried via the drying process as claimed in any one of claims 1 to 7.

11. The use of azeotropic distillation for drying methyl mercaptan.