CLAIMS

1. A process for separating as the side draw stream a primary mercaptan with a 4 – 16 carbon length and optionally thiophenes from a feed stream, said feed stream being a mixture containing the corresponding secondary and/or tertiary mercaptans by using a distillation column, the process comprising:

providing one or more distillation columns with said feed stream, the distillation column having a rectification section, a stripping section, and a feed side section separated from a side draw section by a dividing wall that extends from the rectification section to the stripping section;

condensing a vapor from the distillation column with a condenser and heating a liquid from the distillation column with a reboiler;

removing a distillate stream from a top region of the distillation column;

removing a side drawn stream of a primary mercaptan of carbon chain length of from 4 to 16 from a side region of the distillation column; and

removing a bottoms stream from a bottom region of the distillation column.

2. The process of claim 1, wherein one or two distillation columns are utilized.

3. The process of claim 1, wherein compounds sent to the bottoms stream only pass through one reboiler.

4. The process of claim 1, wherein the feed side section acts as a pre-fractionator.

5. The process of claim 1, wherein more than 90% of the mercaptans pass one or fewer times through one or more reboilers.

6. The process of claim 1, wherein the reboiler is operated at a temperature of 240 degrees Celsius or less.

7. The process of claim 1, wherein the condenser utilizes a coolant, and the coolant is selected from the group consisting of cooling air and cooling water.

8. The process of claim 1, wherein a liquid coming from the rectification section is controllably distributed to the feed side section and the side draw section of the distillation column.

9. The process of claim 8, wherein less than 10% by volume of the liquid coming from the rectification section enters the feed side section.

10. The process of claim 1, wherein a height of the dividing wall is between 35% and 80% of the height of the distillation column.