

Title (en)  
METHOD FOR PURIFYING NATURAL GAS BY ADSORPTION AND DISPLACEMENT OF MERCAPTANS

Title (de)  
VERFAHREN ZUR REINIGUNG VON ERDGAS DURCH ADSORPTION UND VERDRÄNGUNG VON MERCAPTANEN

Title (fr)  
PROCEDE DE PURIFICATION D'UN GAZ NATUREL PAR ADSORPTION ET DÉPLACEMENT DES MERCAPTANS

Publication  
**EP 2212407 A2 20100804 (FR)**

Application  
**EP 08872225 A 20081121**

Priority  
• FR 2008001635 W 20081121  
• FR 0708174 A 20071121

Abstract (en)  
[origin: FR2923838A1] The process for the purification of natural gas by reducing carbon dioxide, hydrogen sulfide and water present in the gas, comprises adsorbing light mercaptans and contacting with an adsorbent material at a pressure of 2-10 MPa and at -40[deg] C to 100[deg] C, mixing a gaseous effluent with a hydrocarbon displacement agent constituted of a liquid phase having five carbon atoms to enrich the gaseous effluent, passing a charge of mercaptans and the obtained mixture through the adsorbent material, and carrying out a thermal desorption using a purge gas to desorb the displacement agent. The process for the purification of natural gas by reducing carbon dioxide, hydrogen sulfide and water present in the gas, comprises adsorbing light mercaptans and contacting with an adsorbent material at a pressure of 2-10 MPa and at -40[deg] C to 100[deg] C, mixing a gaseous effluent with a hydrocarbon displacement agent constituted of a liquid phase having five carbon atoms to enrich the gaseous effluent, passing a charge of mercaptans and the obtained mixture through the adsorbent material, carrying out a thermal desorption using a purge gas to desorb the displacement agent at a pressure of 0.5-10 MPa and a temperature of 50-400[deg] C, and cooling the adsorbent material at a pressure of 0.5-10 MPa using another gaseous effluent or directly using a purifier gas. The quantity of displacement agent introduced in the adsorbent material is = 50 mass% of maximum capacity for the adsorption of the displacement agent on the adsorbent material. The gaseous effluent is constituted of a purified natural gas or any other gas, and is mixed with the hydrocarbon displacement agent at a pressure of 0.5-10 MPa and a temperature of 0-150[deg] C. The mercaptan gas is washed with the adsorbent solution, and then it is recycled. The hydrocarbon is a saturated hydrocarbon, aromatic hydrocarbon, paraffin and naphthene.

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