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(54) Title: PROCESS TO PREPARE A HYDROGEN RICH GAS MIXTURE

(57) Abstract: The invention is directed to a process to prepare a hydrogen rich gas mixture from a solid sulphur-and halogen-containing carbonaceous feedstock. The process involves the following steps. Step (a): gasification of the solid carbonaceous feedstock with an oxygen- containing gas to obtain a gas mixture comprising halogen compounds, sulphur compounds, hydrogen and at least 50vol.% carbon monoxide, on a dry basis. Step (b): contacting the gas mixture with a quench gas or quench liquid to reduce the temperature of the gas mixture to below 900°C. Step (c) contacting the gas mixture with water having a temperature of between 150 and 250°C to obtain a gas mixture comprising between 50 and 1000ppm halogen and having a steam to carbon monoxide molar ratio of between 0.2:1 and 0.9:1. Step (d): subjecting the gas mixture obtained in step (c) to a water gas shift reaction wherein part or all of the carbon monoxide is converted with the steam to hydrogen and carbon dioxide in the presence of a catalyst as present in one fixed bed reactor or in a series of more than one fixed bed reactors and wherein the temperature of the gas mixture as it enters the reactor or reactors is between 190 and 230°C. Step (e): carbon dioxide and sulphur compounds are separated from the shifted gas mixture obtained in step (d) by contacting the shifted gas mixture with a solvent comprising dialkyl ethers of polyethylene glycol.

INTERNATIONAL SEARCH REPORT

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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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