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**Method for the beneficiation, liquefaction and recovery of coal and other solid carbonaceous materials and beneficiated coal products.**

An integrated, continuous (or batch) process for the beneficiation and/or liquefaction of coal, especially low rank coals, is provided, the process generally involving admixing coal with an organic liquid medium under high shear agitation, further beneficiating the coal by admixing the same in an aqueous medium optionally containing a monomer and a polymerization catalyst therefor and subjecting the resultant coal product to further high shear agitation in the presence of certain organic liquid media to provide a liquefield coal extract product and a further solid coal product. Beneficiated solid and liquefield coal products are also provided.



| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                        |                                                |                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Citation of document with indication, where appropriate, of relevant passages                                                          | Relevant to claim                              | CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)                          |
| P,Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | US-A-4 306 883 (C. ECKMAN)<br><br>* Claims 1,5,8,12,21; figures 1-3; column 5, line 50 - column 6, line 51; column 8, lines 11-25<br>* | 1,2,4<br>5,10                                  | C 10 L 9/00<br>C 10 L 9/02<br>C 10 L 9/10<br>C 10 G 9/06<br>C 10 G 1/32 |
| P,Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ---<br>US-A-4 284 413 (C.E. CAPES et al.)<br>* Claims 1-5; column 3, lines 35-49 *                                                     | 1                                              |                                                                         |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ---<br>GB-A-2 024 250 (BROKEN HILL PROPRIETARY COMPANY LTD)<br>* Claims 1,6; page 1, lines 28-40; page 2, lines 1-7 *                  | 1,5,7<br>8                                     |                                                                         |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ---<br>US-A-4 165 969 (ASHLAND OIL INC.)<br>* Claim 1 *                                                                                | 4                                              | TECHNICAL FIELDS<br>SEARCHED (Int. Cl. 3)                               |
| D,A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ---<br>US-A-4 033 852 (C. HOROWITZ et al.)<br>* Claims 1,4,6 *<br><br>-----                                                            | 1,3,4                                          | C 10 L<br>C 10 G                                                        |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                        |                                                |                                                                         |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                        | Date of completion of the search<br>26-08-1983 | Examiner<br>PIELKA I.A.                                                 |
| <p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/><br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                                        |                                                |                                                                         |