Title (en)

Integrated coal liquefaction-gasification plant.

Title (de)

Integrierte Kohleverflüssigungs-Kohlevergasungsanlage.

Title (fr)

Installation intégrée de liquéfaction-gazéification de charbon.

Publication

EP 0005900 A1 19791212 (EN)

Application

EP 79300669 A 19790420

Priority

US 90529778 A 19780512

Abstract (en)

Conversion of raw coal to distillate liquid and gaseous hydrocarbon products by solvent liquefaction in the presence of molecular hydrogen employing recycle of mineral residue is commonly performed at a higher thermal efficiency than conversion of coal to pipeline gas in a gasification process employing partial oxidation and methanation reactions. The prior art has disclosed a combination coal liquefaction-gasification plant employing recycle of mineral residue to the liquefaction zone wherein all the normally solid dissolved coal not converted to liquid or gaseous products in the liquefaction zone is passed to a gasification zone for conversion to hydrogen. In the prior art plant the amount of normally solid dissolved coal passed to the gasification zone is just sufficient to enable the gasification zone to produce the entire process hydrogen requirement. An unexpected improvement in thermal efficiency has now been achieved by increasing the amount of normally solid dissolved coal from the liquefaction zone (26) and passed to the gasification zone (76) to an amount sufficient to enable the gasification zone (76) to generate not only all of the hydrogen required by the liquefaction zone (26) but also to produce synthesis gas, and adapting the plant to utilize all or a significant amount of this synthesis gas as fuel in the plant. It would have been expected that shifting some of the processing load from the ordinarily more efficient liquefaction zone (26) to the ordinarily less efficient gasification zone (76) would decrease process efficiency, but the present invention unexpectedly achieves an overall efficiency increase by said shift by modifying the plant to permit in-plant combustion of the synthesis gas so produced.

IPC 1-7

C10G 1/00; C10J 3/00; C01B 2/00

IPC 8 full level

C10J 3/72 (2006.01); **C10G 1/00** (2006.01); **C10G 1/06** (2006.01)

CPC (source: EP)

C10G 1/006 (2013.01); **C10G 1/065** (2013.01)

Citation (search report)

- US 3477941 A 19691111 - NELSON EDWIN F
- DE 2822487 A1 19781207 - ELECTRIC POWER RES INST
- FR 2297239 A1 19760806 - CONSOLIDATION COAL CO [US]
- FR 1424090 A 19660107 - HYDROCARBON RESEARCH INC
- DE 2327353 A1 19750102 - OTTO & CO GMBH DR C
- US 4050908 A 19770927 - MCNAMEE GERALD P, et al
- US 3617465 A 19711102 - WOLK RONALD H, et al

Cited by

DE3037052A1; EP1341878A4

Designated contracting state (EPC)

DE FR GB NL

DOCDB simple family (publication)

EP 0005900 A1 19791212; AU 4629779 A 19791115; IN 150812 B 19821218; JP S55500247 A 19800424; PL 124860 B1 19830228; PL 215511 A1 19800225; WO 7901063 A1 19791213; ZA 791885 B 19800430

DOCDB simple family (application)

EP 79300669 A 19790420; AU 4629779 A 19790420; IN 351CA1979 A 19790409; JP 50081079 A 19790413; PL 21551179 A 19790511; US 7900233 W 19790413; ZA 791885 A 19790420