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(54) Title: PRESSURE-TUNED SOLID CATALYZED HETEROGENEOUS CHEMICAL REACTIONS

(57) Abstract: Improved methods for conduction solid acid-catalyzed, near- or supercritical heterogeneous chemical reactions (e.g., alkylation reactions) are provided which give enhanced product yields and permit longer processing runs. The preferred reactions of the invention are carried out in the presence of a solid macroporous catalyst having a surface area of from about 50-400 m²/g and a pore size of from about 70-150Å. Product selectivity is enhanced by pressure-tuning of the reaction to promote production and separation of desired reaction products. In continuous processing, the chemical reaction may be interrupted before significant catalyst deactivation, followed by increasing reactor pressure and/or reducing reactor temperature to remove the accumulating coke; when the catalyst is regenerated, the original reaction conditions and reactant introduction may be resumed.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/27340

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07C 2/58, 2/68, 5/22, 4/18, 1/04

US CL : 585/446, 709, 730, 734, 747, 668, 671, 477, 470; 518/700

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 585/446, 709, 730, 734, 747, 668, 671, 477, 470; 518/700

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST search terms: alkylation, perfluorinated, polymer, supercritical, catalyst, surface area, regenerate,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 5,907,075 A (SUBRAMANIAM et al) 25 May 1999 (25.05.1999), column 1, line 56 through column 2, line 53.	1, 2, 4-12, 32, 33, and 35-40 ----- 3, 13-31, 34, and 41-47
Y	US 4,060,565 A (MCCLURE et al) 29 November 1977 (29.11.1977), column 2, line 36 through column 6, line 5.	3, 19, and 34
Y	US 5,986,158 A (VAN BROEKHOVEN et al) 16 November 1999 (16.11.1999), column 2, lines 55-65 and column 6, lines 23-65.	13-31 and 41-47
A	US 6,200,924 B1 (LLOYD et al) 13 March 2001 (13.03.2001).	1-47
A	US 5,725,756 A (SUBRAMANIAM et al) 10 March 1998 (10.03.1998).	1-47
A	US 6,103,948 A (GINOSAR et al) 15 August 2000 (15.08.2000).	1-47

☐ Further documents are listed in the continuation of Box C.

☐ 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	"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
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"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	"&" document member of the same patent family

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