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(21) International Application Number: PCT/US91/04390 (22) International Filing Date: 21 June 1991 (21.06.91) (30) Priority data: 542,236 22 June 1990 (22.06.90) US (71) Applicant: EXXON CHEMICAL PATENTS INC. [US/ US]; 1900 East Linden Avenue, Linden, NJ 07036 (US). (72) Inventors: CANICH, JoAnn, Marie ; 900 Henderson Ave- nue, #808, Houston, TX 77058 (US). HLATKY, Grego- ry, George ; 1114 Indian Autumn, Houston, TX 77062 (US). TURNER, Howard, William ; 4318 Misty Heather Court, Houston, TX 77059 (US).		(74) Agents: KURTZMAN, Myron, B. et al.; Exxon Chemical Company, 5200 Bayway Drive, Baytown, TX 77522-5200 (US). (81) Designated States: AT (European patent), BE (European patent), BR, CA, CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (Eu- ropean patent), IT (European patent), JP, KR, LU (Eu- ropean patent), NL (European patent), SE (European patent), SU. Published <i>With international search report.</i> (88) Date of publication of the international search report: 19 March 1992 (19.03.92)
(54) Title: ALUMINUM-FREE MONOCYCLOPENTADIENYL METALLOCENE CATALYSTS FOR OLEFIN POLYM- ERIZATION (57) Abstract The invention is a catalyst system including a Group IV-B transition metal component and an activator component which may be employed to polymerize olefins to produce a high molecular weight polymer. The Group IV-B transition metal component contains a single cyclopentadienyl ligand and a single heteroatom ligand, which ligands may be bridged one to another; the activator component comprises a cation, which may be a Bronsted acid capable of donating a proton (hereafter denoted as L'-H wherein L' is a neutral Lewis base and H is hydrogen), and a compatible noncoordinating anion.		

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⁺ Any designation of "SU" has effect in the Russian Federation. It is not yet known whether any such designation has effect in other States of the former Soviet Union.

INTERNATIONAL SEARCH REPORT

International Applic. No

PCT/US 91/04390

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 C08F4/76; C08F10/00; C07F17/00		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	C08F ; C07F	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
E,X	EP,A,0 418 044 (THE DOW CHEMICAL COMPANY) 20 March 1991 see the whole document ---	1-26
A	EP,A,0 277 004 (EXXON CHEMICAL) 3 August 1988 see abstract ---	1
A	WO,A,8 703 887 (MITSUI) 2 July 1987 see claims 1-12 ---	1
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IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
11 NOVEMBER 1991	13. 01. 92	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	DE ROECK RGO 	

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

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SA 49046

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 11/02/92
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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