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(71) Applicant: **THE PROCTER & GAMBLE COMPANY**
[US/US]; One Procter & Gamble Plaza, Cincinnati, OH
45202 (US).

(72) Inventor: **WANG, Jiping**; 6546 Glenarbor Drive, West
Chester, OH 45069 (US).

(74) Agents: **REED, T., David** et al.: The Procter & Gam-
ble Company, 5299 Spring Grove Avenue, Cincinnati, OH
45217-1087 (US).

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ning of each regular issue of the PCT Gazette.

(54) Title: SULFUR DYE PROTECTION SYSTEMS AND COMPOSITIONS AND METHODS EMPLOYING SAME

(57) Abstract: The present invention relates to sulfur dye protection systems and compositions and methods employing same, as well as processes for making sulfur dyes, especially bleach stable sulfur dyes, processes for dyeing textiles with sulfur dyes and textiles dyed by such processes. More particularly, the present invention relates to modifying existing dyes and/or making newly formed sulfur dyes. Even more particularly, the present invention relates to materials that can chemically or physically interact with sulfur dyes to protect the sulfur dyes from oxidation by oxidizing agents, such as bleaching agents.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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D06P1/30

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)

IPC 7 C09B C11D D06L D06P D06M

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 practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	EP 1 033 433 A (GOMES JAIME ISIDORO NAYLOR ROC) 6 September 2000 (2000-09-06)	1
Y	abstract; example 4 ---	1-20
Y	EP 0 710 714 A (PROCTER & GAMBLE) 8 May 1996 (1996-05-08) abstract ---	1-20
Y	CH 369 107 A (UNION CARBIDE CORP) 31 January 1963 (1963-01-31) page 7, line 53 - line 61 ---	1,2,7-20
Y	GB 1 475 971 A (WELLA AG) 10 June 1977 (1977-06-10) the whole document --- -/--	1-20



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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- * & * document member of the same patent family

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Dauksch, H

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 06, 30 June 1997 (1997-06-30) & JP 09 040528 A (TEIKA CORP), 10 February 1997 (1997-02-10) abstract ---	1-20
A	DATABASE WPI Section Ch, Week 198934 Derwent Publications Ltd., London, GB; Class D21, AN 1989-246399 XP002183640 & JP 01 180816 A (KAO CORP), 18 July 1989 (1989-07-18) abstract ---	1-20
A	GB 403 239 A (MAYWOOD CHEMICAL WORKS) 21 December 1933 (1933-12-21) the whole document ---	1,2,7-20
A	GB 767 897 A (DU PONT) 6 February 1957 (1957-02-06) the whole document -----	1,2

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/12757

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1033433	A	06-09-2000	PT 102220 A EP 1033433 A2	31-05-2000 06-09-2000
EP 0710714	A	08-05-1996	GB 2294705 A EP 0710714 A2	08-05-1996 08-05-1996
CH 369107	A	31-01-1963	NONE	
GB 1475971	A	10-06-1977	DE 2454692 A1 FR 2291740 A1 JP 51073138 A	20-05-1976 18-06-1976 24-06-1976
JP 09040528	A	10-02-1997	NONE	
JP 1180816	A	18-07-1989	JP 2546700 B2	23-10-1996
GB 403239	A	21-12-1933	NONE	
GB 767897	A	06-02-1957	CH 337981 A DE 1061956 B NL 93626 C NL 195498 A	30-04-1959