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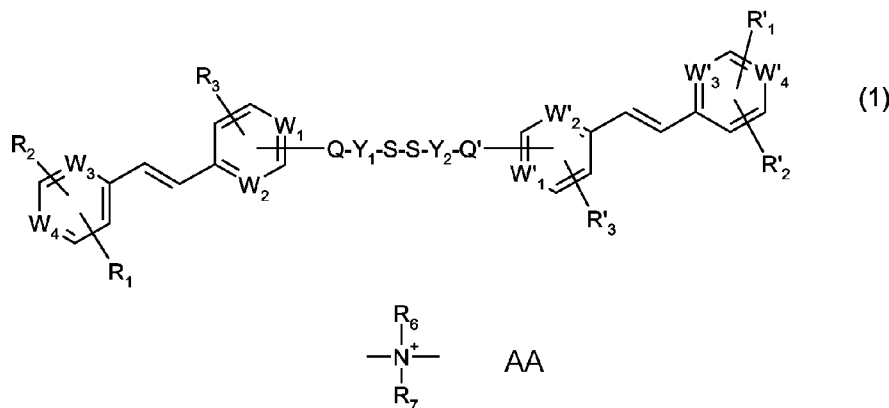
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(54) Title: STYRYL SULFIDE DYES



(57) Abstract: Disclosed are styryl sulfide dyes of formula (1), wherein  $R_1$ ,  $R'_1$ ,  $R_2$ ,  $R'_2$ ,  $R_3$  and  $R'_3$ , independently from each other are hydrogen;  $C_1$ - $C_{20}$ alkyl or  $C_1$ - $C_{20}$ alkoxy, which may be substituted by one or more  $C_1$ - $C_5$ alkoxy, halogen,  $-NH_2$ , mono- $C_1$ - $C_5$ alkylamino, di- $C_1$ - $C_5$ alkylamino,  $-NO_2$  or hydroxy;  $C_3$ - $C_6$ cycloalkyl;  $-C(O)H$ ;  $-C(O)-C_1-C_5$ alkyl; halogen;  $NO_2$ ;  $OH$ ; phenyl, which may be substituted by one or more  $C_1$ - $C_5$ alkyl,  $C_1$ - $C_5$ alkoxy, halogen,  $-NH_2$ , mono- $C_1$ - $C_5$ alkylamino, di- $C_1$ - $C_5$ alkylamino,  $-NO_2$  or hydroxy; or a radical of formula  $-NR_4R_5$ , wherein  $R_4$  and  $R_5$  independently from each other are hydrogen;  $C_1$ - $C_{12}$ alkyl, which may be substituted by one or more  $C_1$ - $C_5$ alkyl,  $C_1$ - $C_5$ alkoxy, hydroxy or  $-(CO)H$ ;  $-(CO)-C_1-C_5$ alkyl; phenyl or phenyl- $C_1-C_4$ alkyl, wherein the phenyl moiety may be substituted by one or more  $C_1$ - $C_5$ alkyl,  $C_1$ - $C_5$ alkoxy, halogen,  $-NH_2$ , mono- $C_1$ - $C_5$ alkylamino, di- $C_1$ - $C_5$ alkylamino,  $-NO_2$ , carboxy or hydroxy;  $W_1$ ,  $W'_1$ ,  $W_2$ ,  $W'_2$ ,  $W_3$ ,  $W'_3$ ,  $W_4$  or  $W'_4$ , independently from each other are  $-CH-$  or  $-N^+$ ; wherein only one of  $W_1/W'_1$ ,  $W_2/W'_2$ ,  $W_3/W'_3$ ,  $W_4/W'_4$  is  $-N^+$ ; and the bivalent radical  $-Q-Z-Y-S-S-Y'-Z'-Q'$  is bonded to  $W_1$  or  $W_2$  and  $W'_1$  or  $W'_2$  respectively;  $Y_1$  and  $Y_2$  independently from each other are  $C_1$ - $C_{10}$ alkylene;  $C_5$ - $C_{10}$ cycloalkylene;  $C_5$ - $C_{12}$ arylene; or  $C_5$ - $C_{12}$ arylene- $(C_1-C_{10})$ alkylene;  $Q$  and  $Q'$  independently from each other are the direct bond; or  $-C(O)-$ ;  $-C(O)O-$ ;  $-OCO-$ ;  $-N(R_6)-$ ; formula (AA);  $-C(O)N(R_6)-$ ;  $-(R_6)NC(O)-$ ;  $-O-$ ;  $-S-$ ;  $-S(O)-$ ; or  $-S(O)_2-$ ; and  $R_6$  and  $R_7$  independently from each other are hydrogen;  $C_1$ - $C_{14}$ alkyl;  $C_2$ - $C_{14}$ alkenyl;  $C_6$ - $C_{12}$ aryl;  $C_6$ - $C_{12}$ aryl- $C_1-C_{10}$ alkyl; or  $C_1$ - $C_{10}$ alkyl( $C_5$ - $C_{12}$ aryl). Further, the present invention relates to novel styryl sulfide compounds, compositions thereof, especially comprising other dyes, and to processes for their preparation.

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**A. CLASSIFICATION OF SUBJECT MATTER**  
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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)  
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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, CHEM ABS Data

<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
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A	WO 03/099242 A (HENKEL KOMMANDITGESELLSCHAFT AUF AKTIEN; KLEEN, ASTRID; MEINIGKE, BERN) 4 December 2003 (2003-12-04) page 22 - page 29 page 24, line 4 -----	1-10,19
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*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	*&* document member of the same patent family
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Date of the actual completion of the international search  <b>30 July 2007</b>	Date of mailing of the international search report  <b>14/08/2007</b>
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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  <b>Ketterer, Michael</b>
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Information on patent family members

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