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(21) International Application Number: PCT/EP98/08125 (22) International Filing Date: 14 December 1998 (14.12.98) (30) Priority Data: 993,619 18 December 1997 (18.12.97) US (71) Applicant: INFINEUM USA L.P. [US/US]; 1900 East Linden Avenue, Linden, NJ 07036 (US). (71) Applicant (for GB only): EXXON CHEMICAL LIMITED [GB/GB]; 4600 Parkway, P.O. Box 122, Farcham, Hants PO15 7AR (GB). (72) Inventors: PUCKACE, James, Stanley; 16 Van Hise Drive, Perrineville, NJ 08535 (US). WATTS, Raymond, Frederick; 7 Oxford Lane, Long Valley, NJ 07853 (US). NIBERT, Roger, Keith; 105 Main Street, Hampton, NJ 08827 (US). BLOCH, Ricardo, Alfredo; 1532 Ashbrook Drive, Scotch Plains, NJ 07076 (US). RYER, Jack (deceased). (74) Agent: LUTON, R.; Formalities, Law Department, Infineum UK Ltd., P.O. Box 1, Lilton Hill, Abingdon, Oxfordshire OX13 6BB (GB).		(81) Designated States: CA, CN, JP, SG, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.
(54) Title: ANTIWEAR AGENTS FOR LUBRICATING COMPOSITIONS (57) Abstract Sulfur-containing boroester compounds useful as antiwear additives for oleaginous compositions including acyclic borate thioesters having general formula (I) wherein R¹ represents a hydrocarbyl radical having between 4 to 12 carbon atoms, R² and R³ independently represent -(OR⁴)_nSR¹ and -(OR⁴)_nSR¹OH; R⁴ represents a hydrocarbyl radical having between 1 to 6 carbon atoms; n is an integer of from between 1 to 4; and 1 and m are independently 0, 1 or 2; or thioalkyl-substituted cyclic metaborate ester having general formula (II) wherein n, R¹ and R⁴, are defined as in formula (I); or a mixture of the acyclic compounds of formula (I) and the cyclic compounds of formula (II). $\begin{array}{c} \text{(OB)}_m\text{R}^2 \\ \\ \text{R}^1\text{S}(\text{R}^4\text{O})_n\text{-B} \\ \\ \text{(OB)}_l\text{R}^3 \end{array} \quad (I)$ $\begin{array}{c} \text{(OR}^4\text{)}_n\text{SR}^1 \\ \vdots \\ \text{O} \text{---} \text{B} \text{---} \text{O} \\ \quad \quad \\ \text{R}^1\text{S}(\text{R}^4\text{O})_n\text{-B} \text{---} \text{O} \text{---} \text{B} \text{---} \text{O} \\ \quad \quad \\ \text{O} \text{---} \text{B} \text{---} \text{O} \\ \vdots \\ \text{(OR}^4\text{)}_n\text{SR}^1 \end{array} \quad (II)$		