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(21) International Application Number: PCT/US96/17507 (22) International Filing Date: 30 October 1996 (30.10.96) (30) Priority Data: 08/551,076 31 October 1995 (31.10.95) US (71) Applicant (for all designated States except US): EXXON RESEARCH AND ENGINEERING COMPANY [US/US]; 180 Park Avenue, P.O. Box 390, Florham Park, NJ 07932-0390 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): PATIL, Abhimanyu, O. [US/US]; 914 Ripley Avenue, Westfield, NJ 07090 (US). FANG, Howard, L. [US/US]; 518 Glen Ridge South, Bridgewater, NJ 08807 (US). FRANCISCO, Manuel, A. [US/US]; 9 Pohatcong Terrace, Washington, NJ 07882 (US). GUTIERREZ, Antonio [US/US]; 22 Tar Heels Road, Mercerville, NJ 08619 (US). PUCKACE, James, S. [US/US]; 16 Van Hise Drive, Perrineville, NJ 08535 (US). (74) Agents: SCUORZO, Linda, M. et al.; Exxon Research and Engineering Company, P.O. Box 390, Florham Park, NJ 07932-0390 (US).		(81) Designated States: AU, CA, JP, SG US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>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.</i>
(54) Title: ANTINOXIDANT SLUDGE CONTROL ADDITIVES (57) Abstract The invention relates to a process for mitigating NO_x-induced sludge formation in engine oils by dissolving in an engine oil of lubricating viscosity an effective amount of a molecule having at least one head portion enriched in NO_x reactive carbon-carbon unsaturation and at least one oil soluble hydrocarbyl, preferably aliphatic, tail portion having an absence of carbon-carbon unsaturation of suitable chain length in an optimum ratio of head to tail sufficient to reduce NO_x-induced sludge formation in the engine oil. The invention also relates to formulated lube oil compositions containing the antioxidant additive. The molecules include polyethylene propylene copolymer- and polyisobutylene-grafted hydroquinone polyalkylthiophenes, fullerene-grafted lube oil basestock, ethylene propylene polymer-grafted phenol and ethylene butylene polymer-grafted phenol.		