

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 January 2001 (18.01.2001)

PCT

(10) International Publication Number
WO 01/04242 A1

(51) International Patent Classification⁷: C10M 149/14,
C08F 8/32

Road, Perry, OH 44081 (US). LANGE, Richard, M.
[US/US]; 155 East 207th Street, Euclid, OH 44123 (US).

(21) International Application Number: PCT/US00/18503

(74) Agent: FISCHER, Joseph, P.; The Lubrizol Corporation,
Patent Dept.-022B, 29400 Lakeland Blvd., Wickliffe, OH
44092-2298 (US).

(22) International Filing Date: 6 July 2000 (06.07.2000)

(25) Filing Language: English

(81) Designated States (national): AU, BR, CA, JP, KR, MX,
SG, US.

(26) Publication Language: English

(84) Designated States (regional): European patent (BE, DE,
ES, FR, GB, IT, NL, SE).

(30) Priority Data:
60/143,027 9 July 1999 (09.07.1999) US

Published:

(71) Applicant (for all designated States except US): THE LU-
BRIZOL CORPORATION [US/US]; Patent Dept.-022B,
29400 Lakeland Blvd., Wickliffe, OH 44092-2298 (US).

- With international search report.
- Before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments.

(72) Inventors; and

(75) Inventors/Applicants (for US only): YARGO, Daniel,
M. [US/US]; 38892 Gardenside Drive, Wickliffe, OH
44094 (US). TIPTON, Craig, D. [US/US]; 3595 Call

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: NITROGEN-CONTAINING ESTERIFIED CARBOXY-CONTAINING INTERPOLYMERS HAVING ENHANCED
OXIDATIVE STABILITY AND LUBRICANTS CONTAINING THEM

(57) Abstract: A nitrogen-containing ester derived from a carboxy-containing interpolymer having a reduced specific viscosity (RSV) of from about 0.05 to about 2, said interpolymer being derived from at least two monomers, (i) one of said monomers being at least one of an aliphatic olefin containing from 2 to about 30 carbon atoms and a vinyl aromatic monomer and (ii) the other of said monomers being at least one alpha, beta-unsaturated acylating agent, said ester being characterized by the presence within its polymeric structure of each of the following groups which are derived from the carboxy groups of said interpolymer: (A) from about 20 to about 70 mole % based on moles of carboxyl groups in said interpolymer, of ester groups containing from about 13 to about 19 carbon atoms; (B) from about 80 to about 30 mole %, based on moles of carboxyl groups in said interpolymer, of ester groups containing from about 8 to about 12 carbon atoms, optionally; (C) up to about 20 mole %, based on moles of carboxyl groups in said interpolymer, of ester groups containing from 2 to 7 carbon atoms; wherein from about 93 to about 97% of the carboxy groups derived from the carboxy-containing interpolymer are ester groups, the balance of the carboxy groups comprising residual carboxylic acid or anhydride groups which are then (D) reacted with at least one amino compound having an average of from 1 to about 1.1 primary or secondary amino groups, to convert from about 5 up to less than 50 % of the carboxylic acid or anhydride groups to carbonyl-amino groups, with the unreacted carboxylic acid or anhydride groups remaining as (E) residual carboxylic acid or anhydride groups. Additive concentrates and lubricating oil compositions are also disclosed.

WO 01/04242 A1