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(21) International Application Number: PCT/US98/07358 (22) International Filing Date: 14 April 1998 (14.04.98) (30) Priority Data: 08/839,576 15 April 1997 (15.04.97) US (71) Applicant: UNION CARBIDE CHEMICALS & PLASTICS [US/US]; Technology Corporation, 39 Old Ridgebury Road, Danbury, CT 06817-0001 (US). (72) Inventors: EISENSCHMID, Thomas, Carl; 5407 Tiffany Drive, Cross Lanes, WV 25313 (US). BRIGGS, John, Robert; 1522 Bedford Road, Charleston, WV 25314 (US). PACKETT, Diane, Lee; 1020 Chestnut Street, South Charleston, WV 25309 (US). OLSON, Kurt, Damar; 5442 Longview Drive, Cross Lanes, WV 25313 (US). MAHER, John, Michael; 1113 Highland Road, Charleston, WV 25302 (US). (74) Agent: WIGGINS, Karen, Johnson; Union Carbide Chemicals & Plastics Technology Corporation, 39 Old Ridgebury Road, Danbury, CT 06817-0001 (US).		(81) Designated States: BR, CA, CN, JP, KP, KR, MX, PL, RU, SG, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>
(54) Title: PROCESSES FOR PRODUCING EPSILON CAPROLACTAMS		
(57) Abstract This invention relates in part to processes for producing one or more substituted or unsubstituted epsilon caprolactams, e.g., epsilon caprolactam, which comprises: (a) subjecting one or more substituted or unsubstituted alkadienes to hydroxycarbonylation in the presence of a hydroxycarbonylation catalyst, e.g., a metal-organophosphorus ligand complex catalyst, and neutralization with a base to produce one or more substituted or unsubstituted pentenoic acid salts; (b) subjecting said one or more substituted or unsubstituted pentenoic acid salts to hydroformylation in the presence of a hydroformylation catalyst, e.g., a metal-organophosphorus ligand complex catalyst, to produce one or more substituted or unsubstituted formylvaleric acid salts and/or one or more substituted or unsubstituted epsilon caprolactam precursors; and (c) subjecting said one or more substituted or unsubstituted formylvaleric acid salts and/or said one or more substituted or unsubstituted epsilon caprolactam precursors to reductive amination in the presence of a reductive amination catalyst and cyclization optionally in the presence of a cyclization catalyst to produce said one or more substituted or unsubstituted epsilon caprolactams. This invention also relates in part to reaction mixtures containing one or more substituted or unsubstituted epsilon caprolactams as the principal product(s) of reaction.		