

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C08L 101/00, 5/16, 23/00 // (C08L 101/00, 5:16)		A1	(11) International Publication Number: WO 96/00260 (43) International Publication Date: 4 January 1996 (04.01.96)
(21) International Application Number: PCT/US95/05999 (22) International Filing Date: 16 May 1995 (16.05.95) (30) Priority Data: 08/264,771 23 June 1994 (23.06.94) US (71) Applicant: ASPEN RESEARCH CORPORATION [US/US]; 436 West County Road D, New Brighton, MN 55112-3522 (US). (72) Inventors: WOOD, Willard, E.; 3470 Siems Court, Arden Hills, MN 55112 (US). BEAVERSON, Neil, J.; 5809 147th Street North, Hugo, MN 55038 (US). (74) Agent: DAIGNAULT, Ronald, A.; Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A., 1000 Norwest Center, 55 E. Fifth Street, St. Paul, MN 55101 (US).			(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, <u>SG</u> , SI, SK, TJ, TM, TT, UA, UG, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG). Published With international search report.
(54) Title: X BARRIER MATERIAL COMPRISING A THERMOPLASTIC AND A COMPATIBLE CYCLODEXTRIN DERIVATIVE			
(57) Abstract A barrier film composition can comprise a thermoplastic web comprising a thermoplastic polymer and a dispersed cyclodextrin composition having substituents that compatibilize the cyclodextrin in the film. The thermoplastic/cyclodextrin film obtains substantial barrier properties from the interaction between the substituted cyclodextrin in the film material with a permeant. The substituents on the cyclodextrin molecule cause the cyclodextrin to be dispersible and stable in the film material resulting in an extrudable thermoplastic. Such materials can be used as a single layer film material, a multilayer film material which can be coated or uncoated and can be used in structural materials wherein the thermoplastic is of substantial thickness resulting in structural stiffness. The cooperation between the cyclodextrin and the thermoplastic polymer provides barrier properties to a web wherein a permeant can be complexed or entrapped by the cyclodextrin compound and held within the film preventing the permeant from passing through the film into the interior of a film, an enclosure or container. The permeant can comprise a variety of well known materials such as moisture, aliphatic or aromatic hydrocarbons, monomer materials, off flavors, toxic compounds, etc.			