

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 December 2001 (20.12.2001)

PCT

(10) International Publication Number
WO 01/96448 A2

- (51) International Patent Classification⁷: **C08J 3/00**
- (21) International Application Number: PCT/US01/19222
- (22) International Filing Date: 13 June 2001 (13.06.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
09/592,873 13 June 2000 (13.06.2000) US
- (71) Applicant (for all designated States except US): **ZMS, LLC** [US/US], 5674 Shellmound Street, Emeryville, CA 94608 (US)
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **HOUSTON, Michael, R.** [US/US], 1429 Martin Luther King Jr. Way, #E, Berkeley, CA 94709 (US) **HINO, Toshiaki** [JP/US], Apartment 109, 1786 Spruce Street, Berkeley, CA 94709 (US) **SOANE, David, S.** [US/US], 109 King Avenue, Piedmont, CA 94610 (US)
- (74) Agent: **LARSON, Jacqueline, S.**, Law Office of Jacqueline S. Larson, P.O. Box 2462, Santa Clara, CA 95055-2426 (US)
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GI, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IL, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG)
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette



162162



G00001

WO 01/96448 A2

(54) Title: MORPHOLOGY TRAPPING AND MATERIALS SUITABLE FOR USE THEREWITH

(57) Abstract: This invention is directed to a process for the rapid in-situ curing of polymerizable materials to provide macro-molecular networks and articles of manufacture that are "morphology-trapped", that is, they exhibit a fixed phase morphology and/or molecular orientation that is locked in by the curing step. The process includes the steps of mixing together a dead polymer or a prepolymer, a reactive plasticizer or a diluent, and an initiator to give a polymerizable composition, further processing the mixture in order to achieve a desired phase morphology and/or molecular orientation of the polymeric constituents, shaping the polymerizable composition into a desired geometry, and exposing the polymerizable composition to a source of polymerizing energy, without mixing, to give a final product with the desired phase morphology and/or molecular orientation locked in place. The phase morphology and molecular orientation present just prior to cure of the polymerizable composition is subsequently trapped or locked in place by the curing step so that further changes in morphology are hindered or prevented.