

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

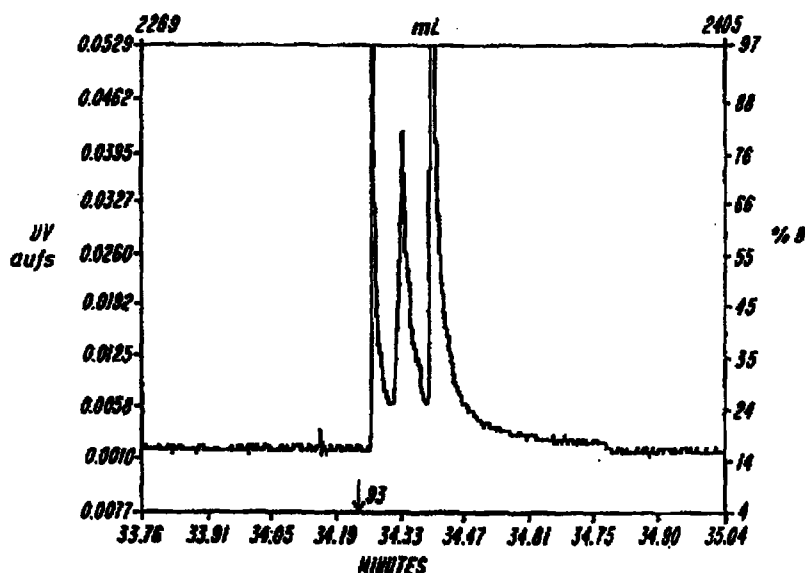
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

|                                                                                                                                                                                                                                          |  |    |                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International Patent Classification <sup>6</sup> :<br><b>G01N 30/50</b>                                                                                                                                                             |  | A2 | (11) International Publication Number:<br><b>WO 97/16724</b>                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                                                                                                                                                          |  |    | (43) International Publication Date:<br>9 May 1997 (09.05.97)                                                                                                                                                                                                                                                                                                                                          |
| (21) International Application Number:<br><b>PCT/US96/17376</b>                                                                                                                                                                          |  |    | (81) Designated States: AM, AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LV, MD, MG, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), European patent (AT, BE, CH, DE, DK, ES, FI, 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). |
| (22) International Filing Date:<br>1 November 1996 (01.11.96)                                                                                                                                                                            |  |    |                                                                                                                                                                                                                                                                                                                                                                                                        |
| (30) Priority Data:<br>08/552,193 2 November 1995 (02.11.95) US<br>08/661,367 11 June 1996 (11.06.96) US                                                                                                                                 |  |    |                                                                                                                                                                                                                                                                                                                                                                                                        |
| (71) Applicant (for all designated States except US): COHESIVE TECHNOLOGIES INC. (US/US) Suite 205 43 Nassog Park, Acton, MA 01720 (US).                                                                                                 |  |    |                                                                                                                                                                                                                                                                                                                                                                                                        |
| (72) Inventors; and<br>(75) Inventors/Applicants (for US only): QUINN, Hubert, M. [US/US]; 40 Nottingham Road, Brighton, MA 02135 (US).<br>TAKAREWSKI, Joseph, J., Jr. [US/US]; Apartment T-4, 10 Westgate Drive, Woburn, MA 01801 (US). |  |    |                                                                                                                                                                                                                                                                                                                                                                                                        |
| (74) Agents: McDANIELS, Patricia, A. et al.; Lappin & Kusmer L.L.P., Two Hundred State Street, Boston, MA 02109 (US).                                                                                                                    |  |    |                                                                                                                                                                                                                                                                                                                                                                                                        |

## Published

Without international search report and to be republished upon receipt of that report.

(54) Title: HIGH PERFORMANCE LIQUID CHROMATOGRAPHY METHOD AND APPARATUS



## (57) Abstract

A method of and apparatus for liquid chromatography at improved analytical and preparative speeds and quantities involves flow of fluids through the column at flow rates sufficient to induce turbulent flow in those fluids. In one embodiment, the apparatus and method includes a substantially uniform chromatography column created by packing together a multiplicity of rigid, solid, porous particles having diameters of not less than about 30  $\mu\text{m}$ , surfaces of the particles being chromatographically active. A fluid mixture containing at least one solute that is reactive with the particle surfaces is injected into the column and subsequently eluted therefrom by an eluant fluid flow, both the injection and elution being effected at a velocity sufficient to induce flow within at least a substantial portion of the interstitial volume between the particles at a reduced velocity greater than about 5,000.