



US007112443B2

(12) **United States Patent**
Hajduk et al.

(10) **Patent No.:** **US 7,112,443 B2**
(45) **Date of Patent:** **Sep. 26, 2006**

- (54) **HIGH THROUGHPUT PERMEABILITY TESTING OF MATERIALS LIBRARIES**
- (75) Inventors: **Damian A. Hajduk**, San Jose, CA (US); **Oleg Kolosov**, San Jose, CA (US)
- (73) Assignee: **Symyx Technologies, Inc.**, Santa Clara, CA (US)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 554 days.
- (21) Appl. No.: **10/274,184**
- (22) Filed: **Oct. 18, 2002**

- 3,908,441 A 9/1975 Virloget
- 3,933,032 A 1/1976 Tschoeagl
- 4,229,979 A 10/1980 Greenwood
- 4,447,125 A 5/1984 Lazay et al.
- 4,517,830 A 5/1985 Gunn et al.
- 4,567,774 A 2/1986 Manahan et al.
- 4,570,478 A 2/1986 Soong
- 4,599,219 A 7/1986 Cooper et al.
- 4,602,501 A 7/1986 Hirata
- 4,605,589 A 8/1986 Orphanides
- 4,680,958 A 7/1987 Ruelle et al.
- 4,685,328 A 8/1987 Huebner et al.
- 4,699,000 A 10/1987 Lashmore et al.
- 4,715,007 A 12/1987 Fujita et al.
- 4,740,078 A 4/1988 Daendliker et al.

(65) **Prior Publication Data**
US 2004/0077091 A1 Apr. 22, 2004

(Continued)
FOREIGN PATENT DOCUMENTS

- (51) **Int. Cl.**
G01N 31/00 (2006.01)
G01N 15/08 (2006.01)
G01N 33/44 (2006.01)
- (52) **U.S. Cl.** **436/5**; 73/38; 422/99; 422/104;
436/3; 436/39; 436/127; 436/136; 436/138;
436/181
- (58) **Field of Classification Search** 436/3,
436/5, 39, 127, 136, 138, 183, 181; 73/38;
422/99, 104
See application file for complete search history.

EP 0 317 356 5/1989

(Continued)
OTHER PUBLICATIONS

Landrock, A. H. et al, Tappi 1952, 35, 241-246.*

(Continued)
Primary Examiner—Arlen Soderquist
(74) *Attorney, Agent, or Firm*—Dobrusin & Thennisch PC

(56) **References Cited**
U.S. PATENT DOCUMENTS

- 1,870,412 A 8/1932 Kennedy
- 3,071,961 A 1/1963 Heigl et al.
- 3,301,043 A * 1/1967 Lyssy 73/38
- 3,675,475 A 7/1972 Weinstein
- 3,713,328 A 1/1973 Aritomi
- 3,798,960 A 3/1974 Glass
- 3,805,598 A 4/1974 Corcoran
- 3,818,751 A 6/1974 Karper et al.
- 3,849,874 A 11/1974 Jeffers
- 3,895,513 A 7/1975 Richardson

(57) **ABSTRACT**

A library of material samples is screened for properties such as permeability. A library of material samples is provided. A stimulus such as an exposure to a permeate fluid is provided to each member of the library. A response of each of the material samples due to the stimulus is measured and the response, the stimulus or both are recorded and related to provide data. Thereafter, the data is analyzed to reach conclusions regarding the properties of the material samples.

26 Claims, 7 Drawing Sheets

