Title: PHOTOCROSSLINKING OF DIETHYL FUMARATE/POLY(PROPYLENE FUMARATE) BIOMATERIALS

Abstract: A polymer network formed by crosslinking poly(propylene fumarate) with a fumarate derivative. The fumarate derivative is one in which the PPF is soluble, is preferably an alkyl fumarate, and is more preferably selected from the group consisting of diethyl fumarate, dimethyl fumarate, methyl ethyl fumarate, diisopropyl fumarate, and dibutyl fumarate. The network can be formed by photo-crosslinking and can be porous. In some embodiments, the poly(propylene fumarate) and the fumarate derivative are each present in an amount effective to produce a polymeric network useful for in vivo applications. The network can be formed from an injectable, in situ crosslinkable composite formulation, or can be prefabricated from a crosslinkable composite formulation such as stereolithography, rapid prototyping, injection molding, and extrusion molding.
# INTERNATIONAL SEARCH REPORT

**INTERNATIONAL SEARCH REPORT**

**International application No.**

**PCT/US02/20425**

## A. CLASSIFICATION OF SUBJECT MATTER

<table>
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<tr>
<th>IPC(7)</th>
<th>US CL</th>
<th>According to International Patent Classification (IPC) or to both national classification and IPC</th>
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<td>C08G 63/91; C08J 9/26</td>
<td>525/444, 445, 447; 522/107; 521/50.5</td>
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## B. FIELDS SEARCHED

**Minimum documentation searched (classification system followed by classification symbols)**

| U.S. | 525/444, 445; 522/107; 521/50.5 |

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**Please See Continuation Sheet**

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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<td>X</td>
<td>US 4,722,948 A (SANDERSON) 02 FEBRUARY 1988 (02.08.1988), col. 2, line 49 to col. 3, line 2, col. 3, lines 13-17, col. 5, lines 42-57, col. 11, lines 57-64.</td>
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**Further documents are listed in the continuation of Box C.**

**See patent family annex.**

- * Special categories of cited documents:
  - "A" document defining the general state of the art which is not considered to be of particular relevance
  - "E" earlier application or patent published on or after the international filing date
  - "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  - "O" document referring to an oral disclosure, use, exhibition or other means
  - "P" document published prior to the international filing date but later than the priority data claimed

- **Date of the actual completion of the international search**
  - 13 May 2003 (13.05.2003)

- **Date of mailing of the international search report**
  - 03 MAY 2003

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Telephone No. 301-2251

Form PCT/ISA/210 (second sheet) (July 1998)
Continuation of B. FIELDS SEARCHED Item 3:
USPAT, USPGPB, EPO, JPO, DERWENT
polypropylene fumarate, poly(propylene fumarate), diethyl fumarate, dialkyl fumarate, dimethyl fumarate