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(71) Applicant (for all designated States except US): TETRA LAVAL HOLDINGS & FINANCE, S.A. [CH/CH]; Avenue Général-Guisan 70, CH-1009 Pully (CH).		(72) Inventors; and (75) Inventors/Applicants (for US only): HEYDARPOUR, Ramin [US/US]; 320 N. Maple Drive, P7, Beverly Hills, CA 90210 (US). ASP, Ann-Magret [SE/SE]; Faggott Grand 19B, S-224 68 Lund (SE). TOKATLI, Kamil [TR/US]; Apartment 1809, 2901 S. Michigan Avenue, Chicago, IL 60616 (US).	
(74) Agent: CATANIA, Michael, A.; Tetra Pak, U.S. Intellectual Property Dept., 909 Asbury Drive, Buffalo Grove, IL 60089 (US).		(88) Date of publication of the international search report: 3 September 1998 (03.09.98)	

(54) Title: MULTI-LAYER FLEXIBLE CONTAINER FOR FLOWABLE MATERIALS

(57) Abstract

A flexible container for a flowable material fabricated from a multi-layer film which may include an interior layer, an exterior layer and a core layer. The core layer is composed of a blend of approximately 20 to 100 parts of a linear C₄–C₁₀ alpha-olefin polyethylene material having a density greater than 0.930 and 0.970 g/cm³ and a melt index of 0.2 to 2.0 dg/min, approximately 0 to 80 parts of a linear ethylene and a C₄–C₁₀ alpha-olefin copolymer having a density between 0.900 to 0.930 g/cm³ and a melt index of 0.20 to 2.0 dg/min, and approximately from 0 to 10 parts of an additive. The interior layer may be composed of a material selected from the group consisting of a linear copolymer of ethylene and a C₄–C₁₀ alpha-olefin, ethylene vinyl acetate, a metallocene catalyzed linear low density polyethylene, and any mixture thereof. The exterior layer is composed of a material selected from the group consisting of surlyn, metallocene catalyzed linear low density polyethylene, a linear copolymer of ethylene and a C₄–C₁₀ alpha-olefin, a low density polyethylene, a medium density polyethylene, a high density polyethylene, ethylene vinyl acetate and any mixture thereof. The flexible container is self-supporting when filled with the flowable material. The flexible container has a relatively planar bottom section. The flexible container may have a resealable opening for dispensing the flowable material whereby the flexible container is compressible as the amount of flowable material inside the flexible container is reduced.

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/20834

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 B32B27/32 B65D65/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 6 B32B

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 501 887 A (TANAKA HIROSHI ET AL) 26 March 1996 see column 4, line 25 - column 6, line 35 see column 7, line 15 - line 35 see column 9, line 31 - line 35 see column 9, line 63 - line 67 see column 10, line 43 - line 49	1-3
A	---	5-7, 10-12
A	EP 0 729 831 A (KOHJIN CO) 4 September 1996 see claims see page 4, column 41, line 5 - page 2 ---	1-12 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in 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 document but 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 date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

20 March 1998

20.07.98

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Ibarrola Torres, O

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/20834

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	EP 0 801 096 A (GRACE W R & CO) 15 October 1997 see claims 1-10 see page 3, line 27 - line 46 ---	1-3,8,9
P,A	US 5 576 038 A (MOORE NEAL E ET AL) 19 November 1996 see the whole document ---	1-12
A	US 4 565 720 A (YAE0 KENTA ET AL) 21 January 1986 see claims ---	1-12
A	US 4 574 104 A (AISHIMA TAKANORI ET AL) 4 March 1986 see claims ---	1-12
A	US 4 380 567 A (SHIGEMOTO HIROMI) 19 April 1983 see claims ---	1-12
A	DATABASE WPI Section Ch, Week 9244 Derwent Publications Ltd., London, GB; Class A17, AN 92-363045 XP002059656 & JP 04 266 759 A (SHOWA DENKO KK) , 22 September 1992 see abstract -----	1-12

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 97/ 20834

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. Claims 1,6,7; 2-5,8-12 insofar as a core layer made of blend is used
2. Claims 2-5, 8-12 insofar as a gas barrier layer is used
3. Claims 2-5, 8-12 insofar as a light protection layer is used

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1,6,7; 2-5, 8-12

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/20834

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