



PATENT COOPERATION TREATY

PCT

REC'D 20 MAY 2005

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002B177		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 03/35504	International filing date (day/month/year) 07.11.2003	Priority date (day/month/year) 13.12.2002	
International Patent Classification (IPC) or both national classification and IPC B32B7/06			
Applicant EXXONMOBIL OIL CORPORATION et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input checked="" type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input checked="" type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 10.06.2004		Date of completion of this report 18.05.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Kanetakis, I Telephone No. +49 89 2399-8083 	

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US 03/35504

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-26 as originally filed

Claims, Numbers

1-17 filed with telefax on 29.04.2005

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
 the language of publication of the international application (under Rule 48.3(b)).
 the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
 filed together with the international application in computer readable form.
 furnished subsequently to this Authority in written form.
 furnished subsequently to this Authority in computer readable form.
 The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
 The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
 the claims, Nos.:
 the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

the entire international application,

claims Nos. 16

because:

the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):

the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

no international search report has been established for the said claims Nos. 16

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/ or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

the written form has not been furnished or does not comply with the Standard.

the computer readable form has not been furnished or does not comply with the Standard.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:

restricted the claims.

paid additional fees.

paid additional fees under protest.

neither restricted nor paid additional fees.

2. This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

complied with.

not complied with for the following reasons:

see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US 03/35504

- all parts.
- the parts relating to claims Nos. 1-15,17 .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	14,15
	No: Claims	1-13,17
Inventive step (IS)	Yes: Claims	
	No: Claims	1-15,17
Industrial applicability (IA)	Yes: Claims	1-15,17
	No: Claims	

2. Citations and explanations

see separate sheet

Item IV

Lack of unity of invention

See "Invitation to pay additional fees" (Form PCT/ISA/206) issued along with the Communication relating to the results of the Partial International Search Report.

Present claim 16, which has been drafted as a dependent claim, is not considered as such, since the core layer composition of claim 16 is not related to the core layer composition of claim 1, because the materials of the core layer and their percentages cannot be derived from those of claim 1. Hence claim 16 has been considered as an independent claim and no search report exists for said claim.

Therefore the subject-matter of present report is claims 1-15, 17.

Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Reference is made to the following documents cited in the International Search Report (ISR), **especially to the passages mentioned therein:**

D1: US-A-5 773 136 (ALDER PAUL THOMAS ET AL) 30 June 1998 (1998-06-30)

D2: US-B1-6 231 975 (PEET ROBERT G ET AL) 15 May 2001 (2001-05-15) cited in the application

1 Novelty (Art. 33(2) PCT)

1.1 The term "non sealable" first outer layer introduced in order to overcome the novelty objection over D1 and D2 does not restrict the scope of the claims to the extent that they are novel over said documents. The terms "sealable" or "non-sealable" are related to the temperature of heat-sealing. If such a temperature is not defined, as in the present case, said terms are not limiting. In paragraphs 58-60 of the description some materials for the sealable and non-sealable outer layer are identical, such as a propylene copolymer (non-sealable outer layer) and propylene-butene copolymer (sealable outer layer). Also the added feature of an intermediate layer does not overcome the novelty objection over said documents. In particular:

- 1.2 Read into the present claims, D1 discloses a multilayer polymeric film comprising an intermediate layer (base layer in D1) of a propylene homopolymer, a core layer (intermediate layer in D1) comprising a blend of a propylene polymer and an ethylene polymer, a heat-sealable polymer layer on the core layer, and at least one further polymeric layer on the opposite side of intermediate layer from the core layer and the heat sealable layer, and wherein the film peels apart by rupture within the thickness of the core layer (claims 1, 2, 3, 16).

Example 5 of D1 relates to a five layer polymeric web having the structure: (propylene ethylene copolymer)/ (propylene homopolymer)/ (propylene homopolymer)/ blend/ (terpolymer of propylene, ethylene and butene), with respective thicknesses: 1.4 μm / 3 μm / 27.2 μm / 7 μm / 1.4 μm .

In general, the thickness of the blend layer must be at least 1.5 μm and can be 10 μm (col. 4, l. 40-50).

Both outer surfaces of the film may be treated, e.g., by corona discharge or flame (col. 4, l. 65-col. 5, l. 3), and the film may include a metallized layer (col. 4, l. 32-38).

As for the process, Example 1 discloses coextruding, cooling on a chill roll, and biaxially stretching the film.

Hence, present claims 1-11, 13 and 17 lack novelty over D1.

- 1.3 D2 discloses oriented and sealable films falling within the scope of present claims 1-4, 6-10, 12 and 17. As regards present claim 4, D2 discloses that an ethylene-hexene copolymer plastomer may be used alone as a peel material for the blend layer (col. 2, l. 66-col. 3, l. 4). As regards present claim 12, D2 discloses that a coating may be applied to the seal layer (col. 4, l. 39-43; l. 54-57), the coating including acrylic, PVdC or ethylene-acrylic acid copolymer. Example IV discloses five layer structures having a core propylene homopolymer layer, a separable layer on either side of the core layer made from a blend of propylene homopolymer and metallocene catalyzed polyethylene and a sealable layer on the surface of the separable layer.

Again, as regards the feature sealable layer it is construed as a layer that may be

sealed. It does not necessarily mean that it will be sealed, hence no limiting technical feature. Depending on the temperature of sealing, a non-sealable layer may become sealable and vice-versa. The term "sealable" in D1 and D2 is also interpreted in this way.

- 2 Inventive step (Art.33(3) PCT)
 - 2.1 The technical problem to be solved by the current application is to provide a sealable film structure that permits separation of the sealable outer layer from at least one other layer of the film without extending the separation or tear to other layers of the film, see paragraphs 11 and 12 of the description. It is reasonable to consider anyone of D1 and D2 as closest prior art, since they relate to same technical problem, see D2: col. 2, l. 18-22; col. 1, l. 42-45; see D1; col. 1, l. 60-col. 2, l. 32.
 - 2.2 The current application does not provide an unexpected solution to the aforementioned technical problem over the teaching of prior art D1 or D2.
 - 2.3 Dependent claims 14 and 15 do not contain any features which, in combination with the features of claim 1, meet the requirements of the PCT in respect of inventive step.
- 3 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in document D1 is not mentioned in the description, nor is this document identified therein.
- 4 Subject-matter related to not-searched claim 16, such as Example 7A, has not been deleted from the description, nor is the description adapted to present claims 1-15 and 17. Examples relating to a three-layer film have not been deleted from the description.

2002B177PCT

27

WHAT IS CLAIMED IS:

1. An oriented sealable and peelable film, comprising:
 - (a) a non-sealable first outer layer comprising a thermoplastic polymer;
 - (b) a core layer comprising a peelable blend comprising (i) from 20-80 wt% of a polyethylene and (ii) from 80-20 wt% of a polyolefin incompatible with polyethylene (i) of core layer (b);
 - (c) an intermediate layer comprising a propylene homopolymer, wherein intermediate layer (c) is positioned such that core layer (b) is between first outer layer (a) and intermediate layer (c); and
 - (d) a sealable second outer layer comprising a thermoplastic polymer, wherein sealable second outer layer (d) is positioned such that intermediate layer (c) is between core layer (b) and sealable second outer layer (d).
2. The film of claim 1, wherein the polyethylene (i) of core layer (b) is selected from the group consisting of linear ethylene homopolymer, linear ethylene- α -olefin copolymer, single-site metallocene-catalyzed ethylene homopolymer, single-site metallocene-catalyzed ethylene- α -olefin copolymer, ethylene- α -olefin block copolymer, ethylene-propylene impact copolymer, and blends thereof.
3. The film of claim 2, wherein the α -olefin of the linear ethylene- α -olefin copolymer and the α -olefin of the single-site metallocene-catalyzed ethylene- α -olefin copolymer are independently selected from the group consisting of C₄-C₁₂ α -olefins.
4. The film according to any of the preceding claims, wherein the polyethylene (i) of core layer (b) is ethylene-hexene copolymer.

2002B177PCT

28

5. The film according to any of the preceding claims, wherein the polyethylene (i) of core layer (b) is ethylene-octene copolymer.

6. The film according to any of the preceding claims, wherein the polyolefin (ii) incompatible with the polyethylene (i) of core layer (b) is propylene homopolymer.

7. The film according to any of the preceding claims, wherein the thermoplastic polymer of sealable second outer layer (d) is selected from the group consisting of ethylene-propylene random copolymer, ethylene-propylene-butene-1 terpolymer, propylene-butene copolymer, low density polyethylene (LDPE), linear ethylene- α -olefin copolymer, single-site metallocene-catalyzed ethylene- α -olefin copolymer, ethylene-methacrylic acid copolymer, ethylene-vinyl acetate copolymer, ionomer, and blends thereof.

8. The film according to any of the preceding claims, wherein the thermoplastic polymer of non-sealable first outer layer (a) is a propylene homopolymer or a propylene copolymer.

9. The film according to any of the preceding claims, wherein core layer (b) comprises a peelable blend comprising (i) from 20-40 wt% of a polyethylene selected from the group consisting of high density polyethylene (HDPE), ethylene-butene copolymer, ethylene-pentene copolymer, ethylene-hexene copolymer, ethylene-heptene copolymer, ethylene-octene copolymer, single-site metallocene-catalyzed ethylene homopolymer, single-site metallocene-catalyzed ethylene-hexene copolymer, single-site metallocene-catalyzed ethylene-octene copolymer, single-site metallocene-catalyzed elastomer, ethylene- α -olefin block copolymer, ethylene-propylene impact copolymer, and blends thereof and (ii) from 80-60 wt% of propylene homopolymer.

2002B177PCT

29

10. The film according to any of the preceding claims, wherein core layer (b) is from 7.5 to 70 μm thick and intermediate layer (c) is from 1 to 3 μm thick.
11. The film according to any of the preceding claims, wherein one or both of an outer surface of non-sealable first outer layer (a) and an outer surface of second outer layer (d) is surface-treated by a treatment selected from the group consisting of corona discharge treatment, flame treatment, and plasma treatment.
12. The film according to any of the preceding claims, wherein an outer surface of non-sealable first outer layer (a) has applied thereon a coating selected from the group consisting of ethylene-acrylic acid copolymer (EAA), ethylene-methacrylic acid copolymer (EMA), alkyl acrylate copolymer, acrylonitrile, polyvinylidene chloride (PVdC), polyvinyl alcohol (PVOH), and urethane copolymer.
13. The film according to any of the preceding claims, wherein a metal layer is coated on an outer surface of non-sealable first outer layer (a) by vacuum metallization.
14. The film according to any of the preceding claims, wherein the film has a ratio of plateau crimp seal strength to peak crimp seal strength of greater than 60% and less than 100%.
15. The film according to any of the preceding claims, wherein core layer (b) further comprises from 1 wt% to 5 wt% of an ethylene- α -olefin elastomer.
16. The film according to any of the preceding claims, wherein the peelable blend of core layer (b) comprises:

2002B177PCT

30

(i) from 10-35 wt% of ethylene- α -olefin elastomer, and (ii) from 90-65 wt% of propylene homopolymer.

17. The film of claim 1, prepared by a method comprising the steps of:

(a) coextruding melts corresponding to the thermoplastic polymer of non-sealable first outer layer (a), the peelable blend of core layer (b), the propylene homopolymer of intermediate layer (c), and the thermoplastic polymer of sealable second outer layer (d);

(b) quenching the melts to form a coextruded sheet; and

(c) biaxially orienting the coextruded sheet to form a sealable and peelable film.