08/27/97

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pak-Wing Steve Chum, et al.

Express Mail No.: EM400556222US
Filed: August 27, 1997
Attorney Docket No.: C40121BU

Art Unit: Unassigned
Examiner: Unassigned

For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, on

August 27, 1997
DATE OF DEPOSIT

Mary Ann Navarette
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Mary Ann Navarette
SIGNATURE OF PERSON SIGNING CERTIFICATE

8/27/97
DATE OF SIGNATURE

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

PRE-EXAMINATION AMENDMENT

Prior to examination of the above-identified divisional application, Applicants respectfully request entry and consideration of the following:

In the Specification:

At page 1, lines 2-8, please delete "This application... entirety by reference." and insert therefor the following:

-- This application is a divisional application of pending application number 08/544,497, filed October 18, 1995 as a Rule 1.60 continuation application of abandoned application number 08/378,998, filed January 27, 1995 as a Rule 1.62 continuation application of abandoned application number 08/054,379, filed April 28, 1993 as a continuation-in-part application of application number 07/776,130, filed October 15, 1991, now U.S. Patent No. 5,272,236 and application number 07/939,281, filed September 2, 1992, now U.S. Patent No. 5,278,272, the disclosures of each of which is incorporated herein in their entirety by reference. --

Page 3, line 2, please delete the word "temperture" and insert therefore the word -- temperature --;

Page 3, line 14, please the letters "e.g," and insert therefore the letters -- e.g., --;

Page 3, line 15, after the words "The compositions comprise" please insert the letter -- (A) --;

Page 3, line 17, please delete the symbol " : ";

Page 3, line 18, please delete the letter "(A)";

Page 5, line 9, please delete the word "homogeniety" and insert therefore the word -- homogeneity --;

Page 5, line 28, please delete the word "homogeneouslt" and insert therefore the word -- homogeneously --;

Page 8, line 4, please delete the word "substantialy" and insert therefore the word -- substantially --;

On page 9, before the heading "Determination of Slope of Strain Hardening", please insert the following:

-- Determination of Critical Shear Stress and Critical Shear Rate

Gas extrusion rheometry (GER) is described by M. Shida, R.N. Shroff and L.V. Cancio in Polymer Engineering Science, Vol. 17, no. 11, p. 770 (1977), and in "Rheometers for Molten Plastics" by John Dealy, published by Van Nostrand Reinhold Co. (1982) on page 97, both publications of which are incorporated by reference herein in their entirety. All GER experiments are performed at a temperature of 190°C, at nitrogen pressures between 5250 to 500 psig using a 0.0296 inch diameter, 20:1 L/D die. An apparent shear stress vs. apparent shear rate plot is used to identify the melt fracture phenomena. According to Ramamurthy in Journal of Rheology, 30(2), 337-357 1986, above a certain critical flow rate, the observed extrudate irregularities may be broadly classified into two main types: surface melt fracture and gross melt fracture.

Surface melt fracture occurs under apparently steady flow conditions and ranges in detail from loss of specular gloss to the more severe form of "sharkskin." In this disclosure, the onset of surface melt fracture is characterized at the beginning of losing extrudate gloss at which the surface roughness of extrudate can only be detected by 40x

magnification. The critical shear rate at onset of surface melt fracture for the substantially linear olefin polymers is at least 50 percent greater than the critical shear at the onset of surface melt fracture of a linear olefin polymer having about the same I_2 and M_w/M_n.

Gross melt fracture occurs at unsteady flow conditions and ranges in detail from regular (alternating rough and smooth, helical, etc.) to random distortions. For commercial acceptability, (e.g., in blown film products), surface defects should be minimal, if not absent. The critical shear rate at onset of surface melt fracture (OSMF) and onset of gross melt fracture (OGMF) will be used herein based on the changes of surface roughness and configurations of the extrudates extruded by a GER. Preferably, the critical shear stress at the OGMF and the critical shear stress at the OSMF for the substantially linear ethylene polymers [described] used herein is greater than about 4×10^6 dyne/cm^2 and greater than about 2.8×10^6 dyne/cm^2, respectively. --

---

Page 10, lines 11 and 16, please delete the word "intial" and insert therefore the word -- initial --;

Page 11, line 2, please delete the word "heterogenously" and insert therefore the word -- heterogeneously --;

Page 14, line 5, please delete the word "tempertaures" and insert therefore the word -- temperatures --;

Page 14, line 9, please delete the word "concommitantly" and insert therefore the word -- concomitantly --;

Page 17, line 23, please delete the word "decribed" and insert therefore the word -- described --;

Page 17, line 27, please delete the word "dicusses" and insert therefore the word -- discusses --;

Page 18, line 11, please delete the word "terepthalate" and insert therefore the word -- terephthalate --;

Page 22, line 5, please delete the word "coplymer" and insert therefore the word -- copolymer --;

Page 22, line 10, please delete the word "recator" and insert therefore the word -- reactor

Page 23, line 4, please delete the word "baout" and insert therefore the word -- about --;

Page 23, line 5, please delete the word "distrubution" and insert therefore the word -- distribution --;

Page 26, line 11, please delete the word "ipact" and insert therefore the word -- impact --;

Page 26, line 12, please delete the words "DC ppt tear" and insert therefore the words -- CD ppt tear --.

In the Claims

Please cancel Claims 9-16 and 24-30 (originally filed April 28, 1993 under USSN 08/054,379) as drawn to matter being examined under a related application. Please amend the remaining claims as follows:

1. (Amended) A film made from an ethylene polymer composition, wherein the composition comprises

(A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of [:]

[(A)] at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer having:

(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.92 g/cm^3,

(ii) a molecular weight distribution (M_W/M_n) from about 1.8 to about 2.8,

(iii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/10 min.,

(iv) no [linear] high density polymer fraction, [and]

(v) a single melting peak as measured using differential scanning calorimetry; [and]

(vi) a critical shear stress at onset of gross melt fracture of greater than about 4 x 10^6 dyne/cm^2, and

(vii) a slope of strain hardening coefficient greater than or equal to 1.3; and

(B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one heterogeneously branched ethylene polymer having a density from about 0.93 g/cm^3 to about 0.965 g/cm^3.

2. (Amended) The film of claim 1 wherein the homogeneously branched substantially linear ethylene/α-olefin interpolymer has a slope of strain hardening coefficient [greater than or equal to about] in the range of from 1.3 to 2.3.

17. (Amended) In a composition comprising at least one homogeneously branched ethylene/α-olefin interpolymer and at least one heterogeneously branched ethylene/α-olefin interpolymer, the improvement comprising incorporating into the composition from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer having:

(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.92 g/cm^3,

(ii) a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8,

(iii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/10 min.,

(iv) no [linear] high density polymer fraction, [and]

(v) a single melting peak as measured using differential scanning calorimetry,

(vi) a critical shear stress at onset of gross melt fracture of greater than about 4 x 10^6 dyne/cm^2, and

(vii) a slope of strain hardening coefficient greater than or equal to 1.3

and from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one heterogeneously branched ethylene polymer having a density from about 0.93 g/cm^3 to about 0.965 g/cm^3.

18. (Amended) The improvement of claim 17 wherein the homogeneously branched substantially linear ethylene/α-olefin interpolymer has a slope of strain hardening coefficient [greater than or equal to about] in the range of from 1.3 to 2.3.

Please add the following claims:

-- 31. A film made from an ethylene polymer composition, wherein the composition comprises

(A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of

at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer having:

(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.92 g/cm^3,

(ii) a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8,

(iii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/min.,

(iv) no high density fraction,

(v) a single melting peak as measured using differential scanning calorimetry,

(vi) a critical shear stress at onset of gross melt fracture of greater than about 4 x 10^6 dyne/cm^2, and

(vii) a slope of strain hardening coefficient greater than or equal to 1.3; and

(B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one heterogeneously branched ethylene polymer.

32. An ethylene polymer composition comprising

(A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of

at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer having:

(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.92 g/cm^3,

(ii) a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8,

(iii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/min.,

(iv) no high density fraction,

(v) a single melting peak as measured using differential scanning calorimetry,

(vi) a critical shear stress at onset of gross melt fracture of greater than about 4 x 10^6 dyne/cm^2, and

(vii) a slope of strain hardening coefficient greater than or equal to 1.3; and

(B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one heterogeneously branched ethylene polymer.

33. A film made from an ethylene polymer composition, wherein the composition comprises

(A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer having:

(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.92 g/cm^3,

(ii) a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8,

(iii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/10 min.,

(iv) no high density fraction,

(v) a single melting peak as measured using differential scanning calorimetry,

(vi) a critical shear rate at onset of surface melt fracture for the substantially linear olefin polymers is at least 50 percent greater than the critical shear at the onset of surface melt fracture of a linear olefin polymer having about the same I_2 and M_w/M_n, and

(vii) a slope of strain hardening coefficient greater than or equal to 1.3; and

(B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one heterogeneously branched ethylene polymer.

34. An ethylene polymer composition comprising

(A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer having:

(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.92 g/cm^3,

(ii) a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8,

(iii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/10 min.,

(iv) no high density fraction,

(v) a single melting peak as measured using differential scanning calorimetry,

(vi) a critical shear rate at onset of surface melt fracture for the substantially linear olefin polymers is at least 50 percent greater than the critical shear at the onset of surface melt fracture of a linear olefin polymer having about the same I_2 and M_w/M_n, and

(vii) a slope of strain hardening coefficient greater than or equal to 1.3; and

(B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one heterogeneously branched ethylene polymer.

35. The film of Claims 31 or 33, or the composition of Claims 32 or 34, wherein the composition comprises more than about 40 percent (by weight of the total composition) of at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer. --

REMARKS

The amendments to the specification update the priority application data and correct various typographical and/or transcription errors.

The amendment to the specification pertaining to critical shear stress and critical shear rate is provided to more distinctly set forth the present invention as directed to substantially linear ethylene polymers. Support for this amendment can be found in parent application number 07/776,130 (now USP 5,272,236) at page 7, lines 27-34 bridging to page 8, lines 1-27 and in parent application number 07/939,281 (now USP 5,278,272) at page 13, lines 4-15. The parent applications were explicitly incorporated in to the present application by reference at page 1, lines 2-8 of the present specification. The amendment to the otherwise verbatim text of the parent applications directs the incorporated description to the use of substantially linear ethylene polymers rather than a description referring to the novelty of such polymers.

There are also amendments to Claims 1 and 17 to correct transcription errors. Amendment to Claim 1 is also provided to clarify the composition used to make the film as comprising components (A) and (B). The amendments to dependent Claims 2 and 18 are supported in Table 1, page 12, in Polymer Q.

Claim 17 was amended to incorporate the weight percent and density requirements for the at least one heterogeneously branched ethylene polymer component of the inventive composition. This amendment provides conformity with Claim 1 and corrects an inadvertent transcription error.

Claims 1 and 17 were also amended as to the "no linear fraction" parameter to correct a transcription error. The substituted term "no high density fraction" refers to substantially linear ethylene polymers and to other homogeneously branched ethylene polymers while the term "linear fraction" or "linear polymer fraction" (at least as used in the present application) refers to heterogeneously branched ethylene polymers. See, specification at page 5, lines 23-27; compare, page 14, lines 6-10.

Support of the slope of strain hardening coefficient amendment to Claims 1 and 17 can be found in original Claims 2 and 18.

New Claim 31 is supported by the description at page 13, lines 3-6 in the specification, original Claim 1, Claim 2 and parent application number 07/776,130 at page 8, lines 23-27. New Claim 32 is supported by the description at page 13, lines 3-6 in the specification, original Claim 17, Claim 18 and parent application number 07/776,130 at page 8, lines 23-27. New Claim 33 is supported by the description at page 13, lines 3-6 in the specification, original Claim 1, Claim 2 and parent application number 07/939,281 at page 13, lines 4-15. New Claim 34 is supported by the description at page 13, lines 3-6 in the specification, original Claim 17, Claim 18 and parent application number 07/939,281 at

page 13, lines 4-15. New Claim 35 is supported by Example 6 at page 22 in the specification.

Applicants do not believe that the amendments to the specification or claims add any new matter. Entry of the amendments is respectfully requested prior to examination of the claimed invention.

Respectfully submitted,

By _____
Osborne K. McKinney
Registration No. 40,084
Phone: (409) 238-7889

Dated: August 27, 1997
The Dow Chemical Company
Patent Department
Building B-1211
Freeport, Texas 77541
OKM/okm

68698 U.S. PTO
08/927393
08/27/97

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#3
02/17/98
JCF

Applicants:	Pak-Wing Steve Chum et al.
Serial No.:	08/544,497
Attorney's Docket No. :	C-40,121AU
Filed:	October 18, 1995
For:	FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, on April 8, 1996
DATE OF DEPOSIT

Margaret Greene
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Margaret Greene
SIGNATURE OF PERSON SIGNING CERTIFICATE

April 8, 1996
DATE OF SIGNATURE

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT ATTACHMENTS

Copies of Form 1449 for USSN 08/010,958; 08/239,496; 07/776,130; 07/939,281; 08/289,985; 08/084,054; 08/344,262; and 07/945,034 are attached together with copies of supplemental submissions for these related applications.

These documents were inadvertently omitted from the Information Disclosure Statement mailed the Patent and Trademark Office on March 11, 1996.

We regret any inconvenience this error may have caused the Examiner.

If there is a charge involved in this submission and error, please charge our account, Account No. 04-1512, accordingly.

Respectfully submitted,

By
Osborne K. McKinney
Registration No. 40,084
Phone: (409) 238-7889

Dated: April 8, 1996

The Dow Chemical Company
Patent Department
Building B-1211
Freeport, Texas 77541
OKM/mfg

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Pak-Wing Steve Chum et al.
Serial No.:	08/544,497
Attorney's Docket No. :	C-40,121AU
Filed:	October 18, 1995
For:	FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

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DATE OF DEPOSIT

Margaret Greene
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Margaret Greene
SIGNATURE OF PERSON SIGNING CERTIFICATE

March 11, 1996
DATE OF SIGNATURE

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.56

Pursuant to Applicant's duty of disclosure under 37 CFR 1.56, listed on the attached PTO-1449 are those patents, publications and other information known to the Applicants which were considered during the drafting of the claims of the above-identified application and/or the Applicants became aware of after the original filing of the above-identified application. One copy of each listed document is attached.

This application is a continuation application of USSN 08/378,998, filed January 27, 1995, now abandoned, which was a continuation application of USSN 08/054,379, now abandoned, and it is also related to the following applications:

USSN	Filing Date
08/327,156	October 21, 1994
08/010,958	January 29, 1993
08/239,495	May 9, 1994
08/239,496	May 9, 1994
07/776,130	October 15, 1991
07/939,281	September 2, 1992
08/289,985	August 12, 1994
08/084,054	March 7, 1995
08/344,262	November 23, 1994
07/945,034	September 15, 1992
08/417,626	April 6, 1995

Copies of Form 1449 for USSN 08/010,958; 08/239,496; 07/776,130; 07/939,281; 08/289,985; 08/084,054; 08/344,262; and 07/945,034 are attached together with copies of supplemental submissions for these related applications. Copies of the references considered relevant by the Applicants, as well as copies of references cited during the examination of the related applications identified above, including USSN 08/054,379 and 08/327,156, are available in their respective files. However, if the Examiner requires an additional copy of any of these related references, the Applicants will provide such upon request.

The Applicants respectfully request that the documents listed on the attached Form 1449 and related references be considered by the Examiner, that the various references be made of record in the present application, and that an initialed copy of the attached Form 1449 be returned to the undersigned in accordance with MPEP 609.

If there is a charge involved in this submission, please charge our account, Account No. 04-1512, accordingly.

Respectfully submitted,

By _____
Osborne K. McKinney
Registration No. 40,084
Phone: (409) 238-7889

Dated: March 8, 1996

The Dow Chemical Company
Patent Department
Building B-1211
Freeport, Texas 77541
OKM/okm



Receipt

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pak-Wing S. Chum, et al.

Serial No.: 08/927393 Group Art Unit: 1505

Filed: August 27, 1997 Examiner: Unknown

For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIN IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, On February 9, 1998

DATE OF DEPOSIT

MaryAnn Navarrette

PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

MaryAnn Navarrette

SIGNATURE OF PERSON SIGNING CERTIFICATE

2/9/98

DATE OF SIGNATURE

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Attention: APPLICATION PROCESSING DIVISION'S CUSTOMER CORRECTION BRANCH

REQUEST FOR CORRECTION OF FILING RECEIPT

Sir:

Applicants hereby request a correction in the filing receipt for the above-identified application. This application is not related to Foreign Application, U.S. Army, No. 07776130, filed on October 15, 1991. Please send us a corrected filing receipt. Enclosed is a copy of the filing receipt with the correction.

Respectfully submitted,

Noreen D Warrick

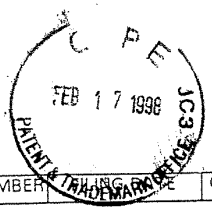
Noreen D. Warrick
Registration No. 34,573
Phone: (409) 238-4510

Date: February 9, 1998
Freeport, Texas 77541

NDW/man

40121BU

FILING RECEIPT

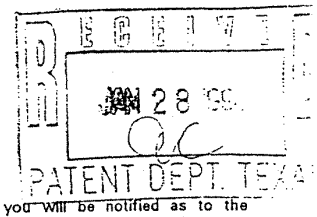




UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
08/927,393	08/27/97	1505	$1,336.00	40121BU	2	23	6

THE DOW CHEMICAL COMPANY
B-1211 PATENT DEPT
FREEPORT TX 77541



Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

Applicant(s)

PAK-WING STEVE CHUM, LAKE JACKSON, TX; GEORGE W. KNIGHT, LAKE JACKSON, TX; RONALD P. MARKOVICH, FRIENDSWOOD, TX; SHIH-YAW LAI, SUGAR LAND, TX.

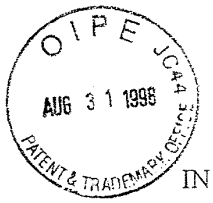
~~FOREIGN APPLICATIONS~~ ~~U.S. ARMY~~ ~~07776130~~ ~~10/15/91~~

FOREIGN FILING LICENSE GRANTED 01/23/98
TITLE
FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

PRELIMINARY CLASS: 526

(see reverse)

12/1 GP 1713



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Pak-Wing Steve Chum, et al.		
Serial No.:	08/927,393	Art Unit:	1713
Filed:	August 27, 1997	Examiner:	Not Assigned
Attorney Docket No:	40121BU		
For:	FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS		

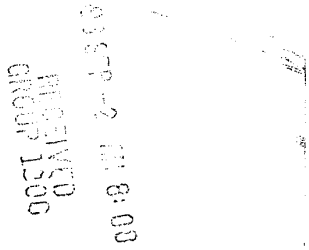
I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, on

August 27, 1998
DATE OF DEPOSIT

MaryAnn Navarrette
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

MaryAnn Navarrette
SIGNATURE OF PERSON SIGNING CERTIFICATE

8/27/98
DATE OF SIGNATURE



Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

Communication of Information From Related Lawsuit (MPEP 2001.06(c))

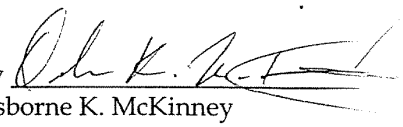
In accordance with MPEP 2001.06(c), Applicants hereby notify the Examiner that on June 24, 1998, Exxon Corporation filed suit in the Western District of Texas (Midland-Odessa Division) for a "declaratory judgment of noninfringement, invalidity and unenforcability with respect to U.S. patent 5,665,800". (Exxon Corporation v. The Dow Chemical Company, C.A. No. MO98CA107). A copy of the Complaint is enclosed.

Applicants also hereby notify the Examiner that on July 24, 1998, The Dow Chemical Company filed suit in the District of Delaware against Exxon Corporation "for infringement of U.S. patent 5,783,638". (The Dow Chemical Company v. Exxon Corporation, C.A. 98-433). A copy of the Complaint is enclosed.

Applicants also hereby notify the Examiner that on July 24, 1998, The Dow Chemical Company filed suit in the District of Delaware against Univation Technologies, LLC "for infringement of U.S. patent 5,665,800". (The Dow Chemical Company v. Univation Technologies LLC, C.A. 98-434). A copy of the Complaint is enclosed.

Applicants do not believe that a fee is required for this submission. If, however, there is a fee in respect of this submission, please charge our debit account, Account No. 04-1512, accordingly.

Respectfully submitted,

By 
Osborne K. McKinney
Registration No. 40,084
Phone: (409) 238-7889

Dated: August 27, 1998
The Dow Chemical Company
Patent Department, Bldg. B-1211
Freeport, Texas 77541
OKM/okm

OIPE JC56 NOV 25 1998 PATENT & TRA

GAU 1713

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pak-Wing Steve Chum, et al. **Art Unit:** 1713
Application No.: 08/927,393
Filed: August 27, 1997 **Examiner:** Not Assigned
Att. Docket No.: 40121BU
For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, on

November 12, 1998
DATE OF DEPOSIT

Mary Ann Navarrette
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Mary Ann Navarrette
SIGNATURE OF PERSON SIGNING CERTIFICATE

11/12/98
DATE OF SIGNATURE

RECEIVED GROUP 1300 1998 NOV 27 PM 12:17

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR § 1.97(b)(3)

Pursuant to 37 C.F.R. § 1.97, listed on the attached PTO-1449 Forms (pages 1-8) are those patents, publications and other information known to the Applicants related to the above-identified application number. One copy of each listed document is also attached.

In Table 1 of the transmittal titled "Third Markovich Declaration under 37 CFR § 1.132", submitted February 12, 1997 in Response A of related application number 08/475,737, the slope of strain hardening coefficient (SHC) for samples of Exact™ 3027 and 3022 were reported as 1.2 and 1.0, respectively. SHC determination of another Exact resin (i.e. Exact 3025 and supplied by the manufacturer, Exxon Chemical Americas, under the lot number of 90797A) provided an average SHC value of 2.01. Applicants believe all three of the Exact resins are homogeneously branched linear ethylene interpolymers in that these polymers are believed to be characterized as having a narrow short chain branching distribution and comprise ethylene interpolymerized with at least one α-olefin.

For the convenience of the Examiner, the attached PTO 1449 Forms are identical to those submitted in related application number 08/835,050 (Attorney Docket No. 40121BL), filed April 11, 1997, now allowed.

While this submission under 37 C.F.R. § 1.97(c) is provided to bring to the attention of the USPTO documents and information that Applicants are aware of that may be material to the examination of the above-identified application, Applicants do not believe that any of the documents or information submitted herein anticipate or render obvious the invention claimed in the above-

identified application. However, Applicants do believe that the following documents included on the attached PTO 1449 Forms may be particularly relevant to the examination of the above-identified application:

USP 3,645,992 (Elston)
USP 4,429,079 (Shibata)
USP 4,804,714 (Olivo)
WO 90/03414 (Stehling et al.)
USP 4,981,760 (Naito et al.)
WO 94/06857 (Hodgson et al.)
WO 95/13321 (Farley et al.)
EP 0 416 815 (Stevens et al.)
EP 0 572 034 (Toshimi et al.)
WO 94/17112 (Kolthammer et al.)
Research Disclosure 36210 "EXACT Polymers For Film Packing"
Jour. of Mat'l Sci., "Molecular Topology in Ethylene Copolymers Studied by Means of Mechanical Testing"
Jour. of Poly. Sci. "Fatigue Crack Propagation in High-Density PE"
T.C. Yu, "Polyolefin Modification with Exact Plastomers"
Makromol. Chem., "Slow Crack Growth in PE - A Review"
SPO '93, "Exact Polymers Unique Properties for Value-Added Applications" by F.J. Steininger
USP 4,937,299 (Ewen et al.)
USP 5,032,651 (McDaniel et al.)
USP 5,272,016 (Ralph)
USP 5,464,905 (Tsutsui et al.)
USP 5,519,091 (Tsutsui et al.)
USP 5,663,236 (Takahashi et al.)
JP 62-121709 (Tsutsui et al.)
WO 93/03093 (Meka et al.)
EP 0 598 626 (Takahashi et al.)
EP 0 735 090 (Yamamoto et al.)
USP 5,274,700 (Tsutsui et al.)
METCO '93, "The Distinguished Features of Metallocene-Based Polyolefins"
Poly. Comm, "Morphological Location of Ethyl Branches in ^{13}C-Enriched Ethylene/1-Butene Random Copolymers"
M. Tanaka, "High Value Added Film Using an Olefin Based Elastomer"
"Exxpol Technology for Targeted Polymer Performance"
Journal of Polymer Sci., "An Analytical Technique for Measuring Relative Tie-Molecule Concentration in PE"

The Applicants respectfully request that the all documents listed on the attached PTO 1449 Forms, including those listed immediately above, and the above information regarding Applicants' SHC data be considered by the Examiner in the examination of the above-identified application. Applicants also respectfully request that the various references and information be made of record in the above-identified application, and that an initialed copy of the attached PTO 1449 Forms be returned to the undersigned in accordance with MPEP § 609.

Applicants believe this submission is pursuant to 37 C.F.R. § 1.97(b)(3). If this conclusion is incorrect, please charge our account, Account No. 04-1512, accordingly.

Respectfully submitted,

By _____
Osborne K. McKinney
Registration No. 40,084
Phone: (409) 238-7889

Dated: 11-12-98
The Dow Chemical Company
Patent Department
Building B-1211
Freeport, Texas 77541
OKM/okm

OIPE NOV. 2 5 1998 PATENT & TRADEMARK OFFICE

FORM PTO 1449 (modified)

LIST OF REFERENCES CITED BY APPLICANT

Atty. Docket No.	Serial No.
40121BU	08/927,393
Applicant: Pak-Wing Steve Chum et al.	
Filing Date: 08/27/97	Group 1713

U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
RH	AA	3,998,914	12/21/76	Lillis et al.			
	AB	4,405,774	09/20/83	Miwa et al.			
	AC	4,429,079	01/31/84	Shibata et al.			
	AD	4,438,238	03/20/84	Fukushima et al.			
	AE	4,981,760	01/01/91	Naito et al.			
	AF	5,189,106	02/23/93	Morimoto et al.			
	AG	5,206,075	04/27/93	Hodgson, Jr.			
	AH	5,218,071	06/08/93	Tsutsui et al.			
	AI	5,272,236	12/21/93	Lai et al.			
	AJ	5,278,272	01/11/94	Lai et al.			
RH	AK	5,374,700	12/20/94	Tsutsui et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation
RH	BA	CA 2,008,315	07/24/90	CA (Tsutsui et al.)			
	BB	EP 0 447 035	09/18/91	EPO (Tsutsui et al.)			
	BC	WO 90/03414	04/05/90	PCT (Stehling et al.)			
	BD	WO 93/08221	04/29/93	PCT (Lai et al.)			
RH	BE	WO 94/06857	03/31/94	PCT (Hodgson et al.)			

OTHER REFERENCES (*Including Author, Title, Date, Pertinent Pages, Etc.*)

RH	CA		Modern Methods of Polymer Characterization, pp. 103-112, (1991) "Measurement of Long-Chain Branch Frequency in Synthetic Polymers", by Alfred Rudin
	CB		The Journal of Chemical Physics, vol. 17, no. 12, December (1949), pp. 1301-1314, "The Dimensions of Chain Molecules Containing Branches and Rings", by Bruno H. Zimm and Walter H. Stockmayer
	CC		Antec 93 - Be In That Number, New Orleans, May 9-13, (1993), vol. II, "Dow Constrained Geometry Catalyst Technology (CGCT): New Rules For Ethylene α-Olefin Interpolymers Controlled Rheology Polyolefins", pp. 1188-1192, by S. Lai and G.W. Knight
	CD		Journal of Rheology, (1986), pp. 340-341, 344-345, 348-349, 352-353, 356-357, "Wall Slip in Viscous Fluids and Influence of Materials of Construction", by A.V. Ramamurthy
	CE		Rheometers for Molten Plastics, (1982), pp. 97-99, by John Dealy
RH	CF		Polymer Engineering and Science, vol. 17, no. 11, November (1977), pp. 769-774 "Correlation of Low Density Polyethylene Rheological Measurements with Optimum Processing Properties", by M. Shida, R.N. Shroff, and L.V. Cancio

EXAMINER [signature] DATE CONSIDERED 4/3/00

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation in conformance and not considered. Include copy of this form with next communication to applicant.

NOV 25 1998 PATENT & TRADEMARK OFFICE

FORM PTO 1449 (modified) LIST OF REFERENCES CITED BY APPLICANT	Atty. Docket No. 40121BU	Serial No. 08/927,393
	Applicant: Pak-Wing Steve Chum et al.	
	Filing Date: 08/27/97	Group 1713

U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
RH	AA	5,395,471	03/07/95	Obijeski et al.			
|	AB	5,395,810	03/07/95	Shamshoum et al.			
|	AC	5,408,004	04/18/95	Lai et al.			
RH	AD	5,444,145	08/22/95	Brant et al.			
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation	
RH	BA	WO 94/12568	06/09/94	PCT (Chambon et al.)				
|	BB	WO 95/13321	05/18/95	PCT (Farley et al.)				
|	BC	WO 93/13143	07/08/93	PCT (Parikh et al.)				
RH	BD	WO 93/03093	02/18/93	PCT (Meka et al.)				
	BE							

OTHER REFERENCES *(Including Author, Title, Date, Pertinent Pages, Etc.)*

RH	CA		"A Review of High Resolution Liquid ^{13}Carbon Nuclear Magnetic Resonance Characterizations of Ethylene-Based Polymers", JMS-Rev. Macromol. Chem. Phys., C29(2&3), pp. 201-317, (1989) by James C. Randall
|	CB		ACS Symposium Series, no. 142, pp. 94-118, (1980) "Characterization of Long-Chain Branching in Polyethylenes Using High-Field Carbon-13 NMR", by J.C. Randall
|	CC		SPE Regional Technical Conference, Quaker Square Hilton, Akron, Ohio, October 1-2, (1985), pp. 107-119, "The Role of Comonomer Type and Distribution in LLDPE Product Performance", by L.D. Cady
|	CD		Journal of Polymer Science: Polymer Physics Edition, vol. 20, pp. 441-455 (1982), "Determination of Branching Distributions in Polyethylene and Ethylene Copolymers", by L. Wild, T.R. Ryle, D.C. Knobeloch, and I.R. Peat
|	CE		Antec 93, pp. 58-62, "Flexomer Polyolefins, A Unique Class of Ethylene Copolymers for Low Temperature Film Applications", by D.C. Eagar, G.E. Ealer, S.A. Bartocci and D.M. Kung
RH	CF		Worldwide Metallocene MetCon '94, May 25-27, (1994), "Improved Processing and Performance Balance of Polyethylene Resins Using Metallocene Catalyst Technology", by Mark A. Wendorf

EXAMINER [signature] DATE CONSIDERED 4/3/00

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PATENT & TRADEMARK OFFICE NOV 25 1998 JC59

FORM PTO 1449 (modified)

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40121BU	08/927,393
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Filing Date: 08/27/97	Group 1713

U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation	
	BA							
	BB							
	BC							
	BD							
	BE							

OTHER REFERENCES (*Including Author, Title, Date, Pertinent Pages, Etc.*)

R H	CA		Specialty Plastics Conference 1990-The Raw Materials Scenario for PE and PP Film Applications and Markets, December 3-4, "High Value Added Film Using an Olefin Based Elastomer", by M. Tanaka
	CB		Packaging Technology and Engineering, April 1994, pp. 34-37, "Single-Site Catalysts Produce Tailor-Made, Consistent Resins", by David F. Simon
R H	CC		Polyolefin Modification with EXACT™ Plastomers", SPE, Feb. 21-24, 1993, pp. 539-564, by T.C. Yu and G.J. Wagner
	CD		
	CE		
	CF		

EXAMINER Robert Harl DATE CONSIDERED 4/3/00

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OIPE JC56 NOV 25 1998 PATENT & TRADEMARK OFFICE

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U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
RH	AA	2,983,704	05/09/61	Roedel			
	AB	3,179,720	04/20/65	Hillmer			
	AC	3,231,636	01/25/66	Synder et al.			
	AD	3,340,328	09/05/67	Brindell et al.			
	AE	3,491,073	01/20/70	Marinak			
	AF	3,645,992	02/29/72	Elston			
	AG	3,914,342	10/21/75	Mitchell			
	AH	4,205,021	05/27/80	Morita et al.			
	AI	4,230,831	10/28/80	Sakurai et al.			
	AJ	4,263,422	04/21/81	Lowery, Jr. et al.			
RH	AK	4,320,088	03/16/82	Nicco			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation	
RH	BA	GB 1,233,599	05/26/71	GB (Monsanto)				
	BB	JP 53-75278	07/04/78	JP (Sho)				
	BC	JP 131516	06/26/84	JP (English Abstract)				
	BD	JP 62-121709	06/03/87	JP (Tsutsui)				
RH	BE	WO 87/03610	06/18/87	PCT (Cozewith et al.)				

OTHER REFERENCES (*Including Author, Title, Date, Pertinent Pages, Etc.*)

RH	CA		Research Disclosure 37652, August 1995
	CB		Research Disclosure 36210, June 1994
	CC		Research Disclosure 37644, August 1995
	CD		Plastics World, "LLDPE Blends Perk Up Performance of PE Films, pp. 40-43, December 1982
	CE		MetCon '93, May 26-28, 1993, Houston, Tx, "The Dfistinguished Features of Metallocene-Based Polyolefins", pp. 235-243, 240, by Akira Todo
RH	CF		EXACT™ Polymers - For Targeted Performance in Film Packaging", product brochure published by Exxon Chemical Company October 1992

EXAMINER [signature] DATE CONSIDERED 4/3/02

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U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
RH	AA	4,330,639	05/18/82	Matsuura et al.			
	AB	4,346,834	08/31/82	Mazumdar			
	AC	4,374,227	02/15/83	Michie, Jr.			
	AD	4,461,873	07/24/84	Bailey et al.			
	AE	4,469,752	09/04/84	Yoshimura et al.			
	AF	4,510,303	04/09/85	Oda et al.			
	AG	4,530,914	07/23/85	Ewen et al.			
	AH	4,542,199	10/17/85	Kaminsky et al.			
	AI	4,659,685	04/21/87	Coleman, III et al.			
	AJ	4,668,752	05/26/87	Tominari et al.			
RH	AK	4,701,432	10/20/87	Welborn, Jr.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation	
RH	BA	EP 0 374 695	06/27/90	EPO (Davis)				
	BB	JP 63-328197	10/10/90	JP (Fujii et al.)				
	BC	EP 0 416 815	03/13/91	EPO (Stevens et al.)				
	BD	EP0 436 328	07/10/91	EP (Asanuma et al)				
RH	BE	EP 0 503 791	09/16/92	Ali et al.				

OTHER REFERENCES (*Including Author, Title, Date, Pertinent Pages, Etc.*)

RH	CA	Journal of Polymer Science: Part B: Polymer Physics, "An Analytical Technique for Measuring Relative Tie-Molecule Concentration in Polyethylene", Vol. 29, pp. 1047-1055 (1991) by A. Lustiger and N. Ishikawa
	CB	Journal of Materials Science, "Molecular Topology in Ethylene Copolymers Studied by Means of Mechanical Testing", vol. 23, pp. 415-421 (1988) by R. Seguela and F. Rietsch
	CC	Polymer, "Tensile Drawing Behaviour in a Linear Low-Density Polyethylene: Changes in Physical and Mechanical Properties", Vol. 27, pp. 532-536 (1986) by R. Seguela and F. Rietsch
	CD	Makromol. Chem., Macromol. Symp. , "Slow Crack Growth in Polyethylene - A Review", vol. 41, pp. 55-67 (1991) by Norman Brown, Xici Lu, Yan-Ling Huang, and Ruzheng Qian
	CE	Journal of Polymer Science: Part B: Polymer Physics, "Fatigue Crack Propagation in High-Density Polyethylene", vol. 29, pp. 371-388 (1991) by J.T. Yen and J. Runt
RH	CF	Macromolecules, "Sequence and Branching Distribution of Ethylene/1-Butene Copolymers Prepared with a Soluble Vanadium-Based Ziegler-Natta Catalyst", vol. 25, pp. 2820-2827 (1992) by N. Kuroda, Y. Nishikitani, K. Matsuura and N. Ikegami

EXAMINER [signature] DATE CONSIDERED 4/5/01

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
RH	AA	4,752,597	06/21/88	Turner			
	AB	4,770,912	09/13/88	Furrer et al.			
	AC	4,786,688	11/22/88	Thiersault et al.			
	AD	4,789,714	12/06/88	Cozewith et al.			
	AE	4,801,652	01/31/89	Mizutani et al.			
	AF	4,804,714	02/14/89	Olivo			
	AG	4,828,906	05/09/89	Nishimura et al.			
	AH	4,837,262	06/06/89	Jeon et al.			
	AI	4,935,474	06/19/90	Ewen et al.			
	AJ	4,937,299	06/26/90	Ewen et al.			
RH	AK	4,939,217	07/03/90	Stricklen			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation	
RH	BA	WO 93/00400	01/07/93	PCT (Biddle et al.)				
	BB	WO 93/03093	02/18/93	PCT (Meka et al.)				
	BC	EP 0 572 034	12/01/93	EPO (Toshimi et al.)				
	BD	JP 53-31229	12/14/93	JP (English Abstract)				
RH	BE	WO 94/00500	01/06/94	PCT (Pannell et al.)				

OTHER REFERENCES (*Including Author, Title, Date, Pertinent Pages, Etc.*)

RH	CA		Polymer Communications, "Morphological Location of Ethyl Branches in 13C-Enriched Ethylene/1-Butene Random Copolymers", vol. 29, pp. 258-260 September (1988) by D. C. McFaddin, K.E. Russell and E. C. Kelusky
	CB		Journal of Polymer Science: Polymer Chemistry Edition, "The Preparation and Characterization of Homogeneous Copolymers of Ethylene and 1-Alkenes", vol. 22, pp. 1383-1392 (1984) by B.K. Hunter, K.E. Russell, M.V. Scammell and S.L. Thompson
	CC		Polymer Engineering and Science, "Characterizing Polyethylene-Based Blends with Temperature Rising Elution Fractionation (TREF) Techniques", vol. 27, no. 20, pp. 1562-1571, Mid-November (1987) by Eric C. Kelusky, Clay T. Elston and Ron E. Murray
	CD		"Exxpol Technology For Targeted Polymer Performance," (brochure from/by Exxon Chemical Company with an unknown date)
RH	CE		SPO '93, "Exact Polymers Unique Properties for Value-Added Applications" by F.J. Steininger
	CF		

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Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
RH	AA	4,987,212	01/22/91	Morterol et al.			
	AB	5,001,206	03/19/91	Bashir et al.			
	AC	5,026,798	06/25/91	Canich			
	AD	5,028,663	07/02/91	Chung			
	AE	5,032,651	07/16/91	McDaniel et al.			
	AF	5,041,501	08/20/91	Shirodkar			
	AG	5,047,468	09/10/91	Lee et al.			
	AH	5,055,438	10/08/91	Canich			
	AI	5,077,255	12/31/91	Welborn			
	AJ	5,082,902	01/21/92	Gurevitch et al.			
RH	AK	5,084,540	01/28/92	Albizzati et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation	
RH	BA	JP 60-16880	01/25/94	JP (English Abstract)				
	BB	WO 94/03538	02/17/94	PCT (Peacock)				
	BC	EP 0 598 626	05/25/94	EPO (Takahashi et al.)				
	BD	WO 94/17112	08/04/94	PCT (Kolthammer et al.)				
RH	BE	EP 0 662 989	07/19/95	EPO (Garza et al.)				

OTHER REFERENCES (*Including Author, Title, Date, Pertinent Pages, Etc.*)

	CA		
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	CE		
	CF		

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U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Sub-class	Filing Date If Appropriate
RH	AA	5,091,228	02/25/92	Fujii et al.			
	AB	5,177,147	01/05/93	Spenadel et al.			
	AC	5,210,142	05/11/93	Kale et al.			
	AD	5,266,392	11/30/93	Land et al.			
	AE	5,272,016	12/21/93	Ralph			
	AF	5,530,065	06/25/96	Farley et al.			
	AG	5,350,807	09/27/94	Pettijohn et al.			
	AH	5,376,439	12/27/94	Hodgson et al.			
	AI	5,464,905	11/07/95	Tsutsui et al.			
	AJ	5,519,091	05/21/96	Tsutsui et al.			
	AK	5,656,696	08/12/97	Yamamoto et al.			
RH	AL	5,663,236	09/02/97	Takahashi et al.			

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Sub-class	Translation	
RH	BA	EP 0 735 090	02/10/96	**EPO (Yamamoto et al.)**				
	BB							
	BC							
	BD							
	BE							

OTHER REFERENCES (*Including Author, Title, Date, Pertinent Pages, Etc.*)

	CA		
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EXAMINER Robert Harris DATE CONSIDERED 4-2-00

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FEB-02-99 10:48 From:DOW CHEMICAL 409-238 T-302 P.02 Job-835

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pak-Wing Steve Chum, et al.

Application No.: 08/927,393
Filed: August 27, 1997
Attorney Docket No.: 40121BU

Art Unit: 1713
Examiner: Wu, D.

7/B

For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

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Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

SECOND PRE-EXAMINATION AMENDMENT

Prior to examination of the above-identified continuation application, Applicants respectfully request entry and consideration of the amendments that follow. Also submitted herewith, for consideration by the Examiner, is a copy of the Third Markovich Declaration which was originally submitted concurrent with a Second Pre-Examination Amendment in parent application number 08/544,497, filed October 18, 1995, now issued U.S. Patent No. 5,677,383.

In the Specification

At page 1, lines 2-8, please amend the section headed "Cross-Reference to Relation Applications" by deleting "This application . . . by reference." and inserting therefor

-- This application is a Rule 1.60 continuation application of application number 08/544,497, now U.S. Patent No. 5,677,383, filed October 18, 1995 as a Rule 1.60 continuation application of abandoned application number 08/378,998, filed January 27, 1995 as a Rule 1.62 continuation application of abandoned application number 08/054,379, filed April 28, 1993 as a continuation-in-part application of application number 07/776,130, filed October 15, 1991, now U.S. Patent No. 5,272,236 and as a continuation-in-part application of application number 07/939,281, filed September 2, 1992, now U.S. Patent No. 5,278,272. This application is also related to application number 08/834,050, filed April 11, 1997, now issued U.S. Patent No. 5,847,053. The disclosures of each of the above are incorporated herein, in their entireties, by reference. --

B1

In the Claims

Please delete Claims 1-8, 17-23 and 31-35 in favor of new Claims 36-51.

Please amend the claims by adding the following new claims:

B2

~~36.~~ An ethylene polymer composition comprising

(A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one ethylene interpolymer having:

(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.935 g/cm^3,
(ii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/10 min.,
(iii) a slope of strain hardening coefficient greater than or equal to 1.3, and
(iv) a Composition Distribution Branch Index (CDBI) greater than 50 percent; and

(B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one ethylene polymer characterized as having a density from about 0.93 g/cm^3 to about 0.965 g/cm^3 and comprising a linear polymer fraction, as determined using a temperature rising elution fractionation (TREF) technique.

~~37.~~ 2 The composition of claim ~~36~~ 1 wherein the ethylene interpolymer (A) has a slope of strain hardening coefficient greater than or equal to 1.5.

~~38.~~ 3 The composition of claim ~~36~~ 1 wherein the ethylene interpolymer (A) is further characterized as having a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8, as determined using gel permeation chromatography.

~~39.~~ 4 The composition of claim ~~36~~ 1 wherein the ethylene interpolymer (A) is further characterized as having no high density polymer fraction, as determined using a temperature rising elution fractionation technique.

~~40.~~ 5 The composition of claim ~~36~~ 1 wherein the ethylene interpolymer (A) is further characterized as having a single melting point, as determined using differential scanning calorimetry.

~~41.~~ 6 The composition of claim ~~36~~ 1 wherein the ethylene interpolymer (A) is further characterized as having a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8, as determined using gel permeation chromatography, and no high density polymer fraction, as determined using a temperature rising elution fractionation technique.

~~42.~~ 7 The composition of claim ~~36~~ 1 wherein the ethylene interpolymer (A) is further characterized as having a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8, as determined using gel permeation chromatography, and a single melting point as determined using differential scanning calorimetry.

~~43.~~ 8 The composition of claim ~~36~~ 1 or claim ~~38~~ 3 wherein the ethylene interpolymer (A) is further characterized as having a no high density polymer fraction, as determined using a temperature rising elution fractionation technique, and a single melting point, as determined using differential scanning calorimetry.

~~44.~~ 9 A film made from an ethylene polymer composition, wherein the composition comprises

(A) from about 10 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one ethylene interpolymer having:
(i) a density from about 0.89 grams/cubic centimeter (g/cm^3) to about 0.935 g/cm^3,
(ii) a melt index (I_2) from about 0.001 grams/10 minutes (g/10 min.) to about 10 g/10 min.,
(iii) a slope of strain hardening coefficient greater than or equal to 1.3, and
(iv) a Composition Distribution Branch Index (CDBI) greater than 50 percent; and

(B) from about 5 percent (by weight of the total composition) to about 90 percent (by weight of the total composition) of at least one ethylene polymer characterized as having a density

from about 0.93 g/cm^3 to about 0.965 g/cm^3 and comprising a linear polymer fraction, as determined using a temperature rising elution fractionation (TREF) technique.

~~45.~~ 10 The film of claim ~~44~~ 9 wherein the ethylene interpolymer (A) has a slope of strain hardening coefficient greater than or equal to 1.5.

~~46.~~ 11 The film of claim ~~44~~ 9 wherein the ethylene interpolymer (A) is further characterized as having a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8, as determined using gel permeation chromatography.

~~47.~~ 12 The film of claim ~~44~~ 9 wherein the ethylene interpolymer (A) is further characterized as having no high density polymer fraction, as determined using a temperature rising elution fractionation technique.

~~48.~~ 13 The film of claim ~~44~~ 9 wherein the ethylene interpolymer (A) is further characterized as having a single melting point, as determined using differential scanning calorimetry.

~~49.~~ 14 The film of claim ~~44~~ 9 wherein the ethylene interpolymer (A) is further characterized as having a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8, as determined using gel permeation chromatography, and no high density polymer fraction, as determined using a temperature rising elution fractionation technique.

~~50.~~ 15 The film of claim ~~44~~ 9 wherein the ethylene interpolymer (A) is further characterized as having a molecular weight distribution (M_w/M_n) from about 1.8 to about 2.8, as determined using gel permeation chromatography, and a single melting point as determined using differential scanning calorimetry.

~~51.~~ 16 The film of claim ~~44~~ 9 or claim ~~46~~ 11 wherein the ethylene interpolymer (A) is further characterized as having a no high density polymer fraction, as determined using a temperature rising elution fractionation technique, and a single melting point, as determined using differential scanning calorimetry. –

REMARKS

The amendment to the specification under the section heading "Cross-Reference to Related Applications" makes clearer and updates priority data.

New Claims 36-51 are reformulations that Applicants believe set forth only the essential features of their invention.

Support for the density limitation of the at least one ethylene interpolymer (A) in new Claims 36 and 44 can be found in the original specification at page 7, lines 9-14.

Support for the melt index limitation of the at least one ethylene interpolymer (A) in new Claims 36 and 44 can be found in the original specification at page 7, line 29 to page 8, line 2.

Support for the slope of strain hardening coefficient (SHC) limitation of the at least one ethylene interpolymer (A) in new Claims 36, 37, 44 and 45 can be found in the original specification at page 10, lines 25-28.

Support for the Composition Distribution Branch Index (CDBI) limitation of the at least one ethylene interpolymer (A) in new Claims 36 and 44 can be found in the original specification at page 5, lines 20-23.

Support for the density limitation of the at least one ethylene polymer (B) in new Claims 36 and 44 can be found in the original specification at page 14, lines 15-19.

Support for the TREF linear polymer fraction limitation of the at least one ethylene polymer (B) in new Claims 36 and 44 can be found in the original specification at page 13, line 9 to page 14, line 7.

Support for the M_w/M_n limitation of the at least one ethylene interpolymer (A) in new Claims 38, 41, 42, 46, 49 and 50 can be found in the original specification at page 9, lines 20-23.

Support for the no high density limitation of the at least one ethylene interpolymer (A) in new Claims 39, 41, 43, 47, 49 and 51 can be found in the original specification at page 5, lines 23-27.

Support for the single DSC melting point limitation of the at least one ethylene interpolymer (A) in new Claims 40, 42, 43, 48, 50 and 51 can be found in the original specification at page 7, lines 3-8.

Applicants believe that none of the amendments to the specification or claims add any new matter. Prior to examination of the claimed invention, Applicants respectfully request entry of the above amendments.

Respectfully submitted,

By _____

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Dated: February 2, 1999
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pak-Wing Steve Chum, et al.
Serial No.: 08/544,497
Filed: October 18, 1995
Attorney Docket No.: C-40,121-AU

Art Unit: 1505
Previous Examiner: D. Wu

For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

I HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, on February 2 1996
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Jan Alverson
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Jan Alverson
SIGNATURE OF PERSON SIGNING CERTIFICATE

2-2-96
DATE OF SIGNATURE

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

THIRD MARKOVICH DECLARATION UNDER 37 CFR § 1.132

Ronald P. Markovich declares and states:

THAT, he obtained a Bachelor of Science degree in Chemistry from Wayne State University (Detroit, Michigan) in 1983;

THAT, he joined The Dow Chemical Company (Midland, Michigan) in 1983 as a Chemist in the Research Assignments Program (RAP), and was promoted to Senior Research Chemist in 1989 and to his present position as Project Leader in 1993;

THAT, his first two RAP assignments pertained to analytical test method development, his RAP third assignment was in the Polyolefins Research and Development department and his fourth (and last) RAP assignment in the Polyolefins Technical Service and Development department;

THAT, after his last RAP assignment, he joined the Polyolefins Research and Development department full time and for the last ten and half years, he has focused his research and development efforts in the area of polyolefin product properties and analytical test method procedures and development;

THAT, his current responsibilities pertain to polyolefin product development as related to the interrelationships between fundamental polymer structure, process requirements and product performance properties;

THAT, he is an inventor as to the above-identified patent application and is therefore familiar with the patent application, the Examiner's rejections of the claims and the WO '414 reference on which the Examiner relies;

THAT, as a follow up to the incomplete impact performance results reported in the Second Markovich Declaration, he had the Dynatup impact properties for Inventive Examples and Comparative Examples re-measured and also had the slope of strain hardening coefficient measured for the component polymers used to prepare the various Inventive and Comparative Examples;

THAT, a full report of important component properties, including slope of strain hardening coefficients, is provided in the attached Table 1 and a report of the performance results for Inventive Examples and Comparative Example are provided in Table 2, and that Tables 3, 4 and 5 provide the specific performance results (Dynatup impact strength, Intrinsic tear and Tensile break strength, respectively) for the various Examples at an equivalent Molecular Weight of 71,6000;

THAT, in addition to having very different component polymers, performance results and data conclusively show that Inventive (Blend) Examples as defined by specific component properties, including a slope of strain hardening coefficient greater than or equal to about 1.3 and up to about 2.3, exhibit superior to dramatically superior impact resistance and intrinsic tear resistance relative to WO '414 compositions when directly compared at equivalent weight percentages through the range of 38%/62%, 50%/50% and 72%/28% Component A/Component B;

THAT, the impact properties of the Inventive Examples are particularly unexpected and surprising in that they show substantially higher impact resistance even at slightly higher densities relative to blend compositions representative of WO '414, whereas one skilled in the art would ordinarily expect compositions having higher densities to show inferior impact properties relative to comparative compositions having lower densities; and

THAT, with respect to tensile break strength, although superior or dramatically superior results are easily obtained with Inventive compositions, this property appears to be more sensitive to component polymer concentrations than impact resistance and/or tear resistance, and as such, compositions containing more than 40 weight percent of a substantially linear ethylene interpolymer are considered to be preferred compositions.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date 2/2/96

Ronald P. Markovich

Ronald P. Markovich

Table I

Sample Designation	A	B	C	D	AB1	AB2	AB3	Exact 3027	Exact 3022
	Component Example A	Component Example B	Component Example C	Component Example D	Comparative Component AB1	Comparative Component AB2	Comparative Component AB3	Comparative Resin	Comparative Resin
Polymer Type	Substantially Linear Ethylene/ Octene Copolymer	Substantially Linear Ethylene/ Butene Copolymer	Substantially Linear Ethylene/ Octene Copolymer	Substantially Linear Ethylene/ Octene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer
Density (g/cc)	0.906	0.9052	0.90575	0.9032	0.9031	0.9033	0.9034	0.9015	0.9065
I2	4.01	4.23	3.99	2.7	3.83	3.93	4.19	3.26	8.48
I10 / I2	8.22	7.88	8.82	7.88	8.90	8.89	8.64	8.55	8.49
I10	32.96	33.32	23.21	21.05	22.6	22.38	23.64	18.42	46.57
Mw by GPC	68200	67100	77400	72300	79100	80700	77500	85800	65100
Mw/Mn by GPC	2.23	2.12	1.89	2.15	2.15	2.17	2.06	2.00	2.00
Slope of Strain Hardening Coefficient	1.5	1.0	1.7	1.3	1.2	1.0	1.1	1.2	1.0
>Shear Stress @ OSGMF (dyn/cm^2)	> 3.88 x 10^6	> 4.31 x 10^6	> 4.31 x 10^6	gross melt fracture not observed up to 4.41 x 10^6	> 3.45 x 10^6	> 3.45 x 10^6	> 3.45 x 10^6	> 3.45 x 10^6	> 3.23 x 10^6
<Shear Stress @ OSGMF (dyn/cm^2)	< 4.09 x 10^6	< 4.48 x 10^6	< 4.48 x 10^6	gross melt fracture not observed	< 3.66 x 10^6	< 3.66 x 10^6	< 3.66 x 10^6	< 3.66 x 10^6	< 3.45 x 10^6

Note 1: Comparative Resin AB1 is a blend containing of 75.87% Exact 3027 and 24.13% Exact 3022.
Note 2: Comparative Resin AB2 is a blend containing of 74.44% Exact 3027 and 25.56% Exact 3022.
Note 3: Comparative Resin AB3 is a blend containing of 73.75% Exact 3027 and 26.25% Exact 3022.

Table 2

Sample Designation	AD1 Inventive Blend Example	BD1 Comparative Example	CD1 Inventive Blend Example	X1 Comparative Example	AD2 Inventive Blend Example	BD2 Comparative Example	CD2 Inventive Blend Example	X2 Comparative Example	AD3 Inventive Blend Example	BD3 Comparative Example	CD3 Inventive Blend Example	X3 Comparative Example	ED3 Inventive Blend Example	X4 Comparative Example
Blend Component														
A	38.46%				71.35%				50.00%					
B		38.14%				71.75%				50.00%				
C			38.46%				72.35%				50.00%		50.00%	
PL 1850														
EXACT 3027				28.95%				53.90%				36.88%		50.00%
EXACT 3022				9.21%				18.50%				13.13%		
HDPE DA352N	61.54%	61.86%	61.54%	61.84%	21.65%	28.25%	27.65%	27.60%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%
I2	4.11	4.25	4.16	4.13	4.08	4.10	4.04	4.09	4.04	5.02	4.07	4.17	3.43	3.74
I10 / I2	7.31	6.96	6.29	6.19	1.67	7.64	5.98	5.84	7.42	8.22	6.20	5.58	7.33	6.09
I10	30.05	29.59	26.29	25.57	31.29	31.34	24.15	23.87	29.96	41.24	25.23	23.27	25.13	22.76
Mw by GPC	74900	74800	77200	83400	71700	70800	77200	80600	71600	75000	78700	80600	76100	79700
Mw/Mn by GPC	2.56	2.53	2.58	2.52	2.47	2.33	2.20	2.27	2.46	ND	2.44	2.54	2.46	2.42
Strain @ Yield	15.0	15.0	14.9	15.0	14.9	15.0	14.8	15.0	15.0	15.0	15.1	14.9	15.0	15.0
Break Strength	1835	2070	1921	1801	1187	2253	1268	2729	2188	1646	1655	1652	1050	1539
Break Energy	385	57	509	108	1130	781	991	990	981	144	1329	249	1168	214
Initiate Tear	160	102	221	110	279	107	377	142	224	112	264	116	269	34
Dynatup (30 Mil Plaque) Total Energy	2.64	2.08	2.84	2.59	1.66	2.39	5.67	2.78	3.44	2.63	4.23	2.63	3.81	2.91

ND = not determined

Dynatup Total Energy Impact Strength (Corrected)*

Table 3

Weight Percent of Polymer Representative of '013	38%	50%	72%
Inventive Examples			
A	2.71 (AD1)	3.44 (AD3)	3.65 (AD2)
C	2.63 (CD1)	3.85 (CD3)	5.26 (CD2)
E	NA	3.58 (ED3)	NA
Comparative Examples			
B	1.99 (BD1)	2.51 (BD3)	2.32 (BD2)
1	2.22 (X1)	2.34 (X3)	2.47 (X2)
2	NA	2.61 (X4)	NA
Calculations	Percent Relative Performance of Inventive Examples (Relative to Comp Ex 1) 18-22% higher (Relative to Comp Ex B) 32-36% higher	Percent Relative Performance of Inventive Examples (Relative to Comp Ex. B) 37-53% higher (Relative to Comp Ex 1) 47-65% higher (Relative to Comp Ex 2) 32-48% higher	Percent Relative Performance of Inventive Examples (Relative to Comp Ex 1) 48-113% higher (Relative to Comp Ex B) 57-127% higher
Performance Conclusions - *Inventive Examples are:*	superior	superior	dramatically superior

NA = not available.
( ) provides the Example designation as set forth in Table 2.
* Impact strength values were corrected to 71,600 equivalent Molecular Weight for each Example.

Intrinsic Tear (Corrected)*
Table 4

Weight Percent of Polymer Representative of '013	38%	50%	72%
Inventive Examples			
A	153 (AD1)	224 (AD3)	279 (AD2)
C	205 (CD1)	240 (CD3)	350 (CD2)
E	NA	253 (ED3)	NA
Comparative Examples			
B	98 (BD1)	107 (BD3)	104 (BD2)
1	94 (X1)	103 (X3)	126 (X2)
2	NA	31 (X4)	NA
Calculations	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) 56-109% higher (Relative to Comp Ex 1) 63-118% higher	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) 109-136 % higher (Relative to Comp Ex 1) 117-147 % higher (Relative to Comp Ex 2) 623-716% higher	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) 168-237% higher (Relative to Comp Ex 1) 121-178% higher
Performance Conclusions - *Inventive Examples are:*	dramatically superior	dramatically superior	dramatically superior

NA = not available.
( ) provides the Example designation as set forth in Table 2.
* Intrinsic tear values were corrected to 71,600 equivalent Molecular Weight for each Example.

C-40,121AU

Tensile Break Strength (Corrected)*

Table 5

Weight Percent of Polymer Representative of '013	38%	50%	72%
Inventive Examples			
A	1754 (AD1)	2188 (AD3)	3183 (AD2)
C	1781 (CD1)	3325 (CD3)	3031 (CD2)
E	NA	2870 (ED3)	NA
Comparative Examples			
B	1981 (BD1)	1571 (BD3)	2186 (BD2)
1	1546 (X1)	1468 (X3)	2427 (X2)
2	NA	1383 (X4)	NA
Calculations	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) 10-11% lower (Relative to Comp Ex 1) 13-15% higher	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) 39-112% higher (Relative to Comp Ex 1) 49-126% higher (Relative to Comp Ex 2) 58-140% higher	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) 39-46% higher (Relative to Comp Ex 1) 25-31% higher
Performance Conclusions - *Inventive Examples are:*	similar	dramatically superior	superior

NA = not available.
( ) provides the Example designation as set forth in Table 2.
* Tensile break strength values were corrected to 71,600 equivalent Molecular Weight for each Example.

C-40,121AU

FEB-02-99 10:47 From:DOW CHEMICAL 409-238-7564 T-302 P.01 Job-835

08/927393

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Attorney Docket No. 40121BU