

#### Search history

Search 1: TAC=(method and elaborat\* and TEV) (Results 6)  
Search 2: TAC=(method and elaborat\* and (thermoplastics elastomers vulcanizable)) (Results 0)  
Search 3: TAC=((thermoplastics elastomers vulcanizable)) (Results 0)  
Search 4: TAC=((vulcanized thermoplastic elastomer)) (Results 99)  
Search 5: 4 and method (Results 47)  
Search 6: 5 and pvc (Results 0)  
Search 7: 5 and waste (Results 0)  
Search 8: 5 and cataly\* (Results 7)

**Title:** GOLF BALL COVER

**Abstract:** Source: US5492972A A polymer blend and a golf ball employing a cover formed of that composition are disclosed. The polymer blend is made from about 95 to about 50 parts by weight of one or more sodium ionomer resins, one of which has a lower flexural modulus than the other sodium ionomer. About 20 to about 50 parts by weight of a lithium ionomer resin is included in the blend. The ball that employs the cover has excellent spin characteristics.

**Classifications:**

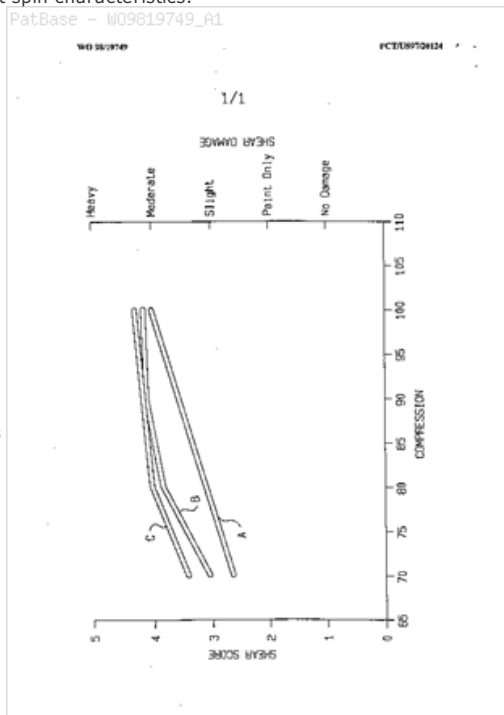
**International (IPC 8-9):** A63B37/00 A63B37/02 A63B37/04  
A63B37/12 C08L23/08 C08L23/26 C08L33/02 (Advanced/Invention);  
A63B37/02 A63B37/12 (Advanced/Non-invention);  
A63B37/00 A63B37/02 A63B37/12 C08L23/00 (Core/Invention)

**International (IPC 1-7):** A63B37/00 A63B37/02 A63B37/04  
A63B37/06 A63B37/12 C08J C08K3/14 C08L23/08 C08L23/26  
C08L33/02

**CPC:** A63B37/0062 A63B37/0065 Y10S524/908 Y10S525/919  
A63B37/0031 A63B37/0074 A63B37/0084 Y10T428/2982  
Y10T428/2991 Y10T428/24942 C08L23/08 A63B37/0003  
A63B37/0024 A63B37/0033 A63B37/0036 A63B37/0037  
A63B37/0053 A63B37/0064 A63B37/0095 A63B37/12 C08L23/0876  
C08L2205/02 Y10T428/24953 Y10T428/31551 Y10T428/31573  
Y10T428/31909 Y10T428/31913 Y10T428/31928 Y10T428/31935

**European:** A63B37/00G A63B37/12 C08L23/08 K63B37/00G  
K63B37/00G10B4 K63B37/00G10D4 K63B37/00G10D6  
K63B37/00G10D8 K63B37/00G12D34 K63B37/00G6B  
K63B37/00G6D11 K63B37/00G6D16 K63B37/00G6D6 M08L205/02  
M08L23/08 M08L23/08C3A

**US:** 125/221 125/222 125/330.2 125/919 273/235R 428/212 428/213  
428/304.4 428/402 428/403 428/423.1 428/424.2 428/515 428/516  
428/520 428/522 473/361 473/363 473/364 473/365 473/372  
473/377 473/385 524/908 525/196 525/221 525/222 525/330.2  
525/919



**Family:**

| Publication number | Publication date | Application number | Application date |
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| AU199188956 A1     | 19920611         | AU19910088956      | 19911209         |
| AU199460756 A1     | 19941103         | AU19940060756      | 19940429         |
| AU199711617 A1     | 19970611         | AU19970011617      | 19961120         |
| AU199851676 A1     | 19980529         | AU19980051676      | 19971106         |
| CA2057347 AA       | 19920611         | CA19912057347      | 19911210         |
| CA2122542 AA       | 19941031         | CA19942122542      | 19940429         |
| DE69423123 D1      | 20000406         | DE19946023123      | 19940429         |
| EP0490619 A1       | 19920617         | EP19910311445      | 19911209         |
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| GB2322563 A1       | 19980902         | GB19980010603      | 19961120         |
| GB2322563 B2       | 19990623         | GB19980010603      | 19961120         |
| GB2334455 A1       | 19990825         | GB19990010471      | 19971106         |
| GB2334455 B2       | 20000329         | GB19990010471      | 19971106         |
| GB9810603 A0       | 19980715         | GB19980010603      | 19961120         |
| GB9910471 A0       | 19990707         | GB19990010471      | 19971106         |
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| JP2000504253 T2    | 20000411         | JP19980521733T     | 19971106         |
| JP4314463 A2       | 19921105         | JP19910326119      | 19911210         |
| JP7149978 A2       | 19950613         | JP19940111834      | 19940428         |
| US5492972 A        | 19960220         | US19930056046      | 19930430         |
| US5670579 A        | 19970923         | US19960603796      | 19960220         |
| US5837775 A        | 19981117         | US19960745138      | 19961107         |
| US5873796 A        | 19990223         | US19950562318      | 19951122         |
| WO9718861 A1       | 19970529         | WO1996US18689      | 19961120         |
| WO9819749 A1       | 19980514         | WO1997US20124      | 19971106         |
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| ZA9402961 A        | 19950105         | ZA19940002961      | 19940428         |

**Priority:**

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| CA19912057347 | 19911210 | CA19942122542 | 19940429 | US19900625225 | 19901210 |
| US19930056046 | 19930430 | WO1996US18689 | 19961120 | WO1996US18689 | 19961120 |
| WO1997US20124 | 19971106 | US19960603796 | 19960220 | US19960745138 | 19961107 |
| US19950562318 | 19951122 | US19950482521 | 19950607 | US19930160370 | 19931129 |

**Probable Assignee:** ACUSHNET CO

**Assignee(s):** (std): ACUSHNET CO ; ACUSHNET COMPANY

**Assignee(s):** KOREA DEVELOPMENT BANK NEW YORK BRANCH ; STEFANI BARBARA ; STEFANI BARBARA R

**Inventor(s):** (std): BAABARA SUTEFUANI ; BAABARA SUTEFUANII ; BARBARA S LEVITT ; BARBARA STEFANI ; CAVALLARO CHRISTOPHER ; CHRISTOPHER CAVALLARO ; DEAN A SNELL ; LEVITT BARBARA S ; LEVITT BARBARA STEFFANI ; MURALI RAJAGOPALAN ; RAJAGOPALAN MURALI ; SNELL DEAN A ; STEFANI BARBARA ;

LEVITT BARBARA STEFANI

**Inventor(s):** STEFANI BARBARA R

**Agent(s):** DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; MACRAE AND CO

**Designated states:** AT AU BE CA CH DE DK ES FI FR GB GR IE IT JP LU MC NL NZ PT SE

Title: **METHOD** FOR MAKING A MULTILAYERED GOLF BALL

**Abstract:** Source: US2003131921A The invention provides a **method** for making a golf ball. Two cups are molded from an elastomer separately from an inner sphere. In one embodiment of the **method**, the cups are molded on both sides of a single mold part with hemispherical protrusions that form cavities in the cups. An inner sphere is placed within the cavities, and the cups are joined, by preferably crosslinking the cups together or applying adhesive there between. To retain the characteristics of the cup material where the cups meet, an embodiment of the cups can be formed with nonplanar mating surfaces that mesh with each other. The nonplanar mating surfaces preferably have a pattern that is symmetrical about the inner sphere, such as concentric ridges, for example a tongue and a groove.

**Classifications:**

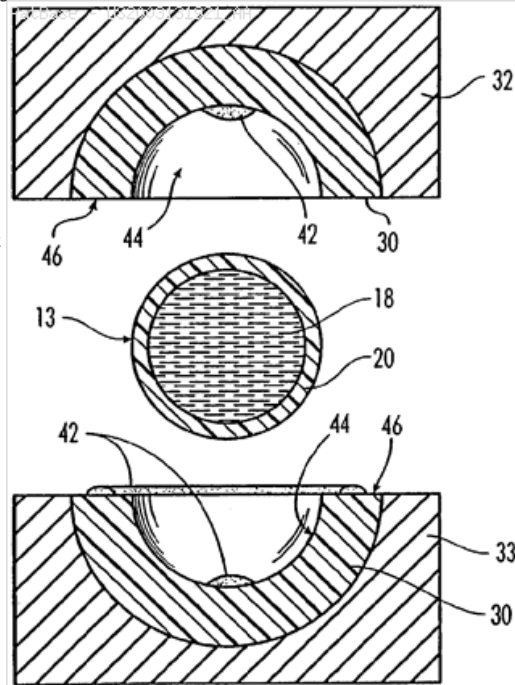
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**International (IPC 1-7):** A63B37/00 A63B37/04 A63B37/06 A63B37/08 A63B37/12 A63B39/00 A63B45/00 A63F37/08 B29C35/02 B29C39/10 B29C39/12 B29C39/22 B29C43/18 B29C59/00 B29C69/00 B29D31/00 B29L31/54 C08L101/00

**CPC:** B29C39/10 B29K2609/06 B29K2621/00 A63B37/0096 A63B37/0048 A63B37/0053 A63B37/0047 Y10S273/20 A63B37/002 A63B37/0021 A63B37/0031 A63B37/0065 A63B2037/087 B29C66/543 B29C66/545 A63B37/0075 A63B37/0039 A63B37/0045 A63B37/0066 A63B37/0078 B29C43/00 B29C63/22 B29C66/1142 B29D22/04 B29C65/483 B29C65/4835 B29C65/484 B29C65/485 A63B37/0005 B29C65/48 B29D99/0042 B29C66/8322 B29C66/83221 A63B37/0062 A63B37/0087 A63B37/08 A63B37/0003 A63B37/0033 A63B37/0037 A63B37/0052 A63B37/0056 A63B37/0064 A63B37/0069 A63B37/0076 A63B37/008 A63B39/08 A63B45/00 A63B2037/085 B29C33/0022 B29C43/027 B29C43/146 B29C65/02 B29C66/54 B29C2043/023 B29K2009/06 B29K2021/00 B29L2031/54 B29L2031/545 B29C66/7375 B29C66/7392 B29C66/73921 B29C66/7394 B29C66/73941 B29C66/73756 B29C66/73775 B29C66/73774 B29C66/71 A63B37/04

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**US:** 156/146 156/146.6 156/228 156/245 156/304.2 264/102 264/155 264/239 264/248 264/250 264/265 264/296 264/322 264/4 273/DIG.2 273/DIG.20 473/354 473/354P 473/358 473/369 473/371 473/371P 473/375 473/376 473/376S 473/378 473/384



**Family:**

| Publication number | Publication date | Application number | Application date |
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| AU200018160 A5     | 20000529         | AU20000018160      | 19991109         |
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| GB2326106 B2       | 20000308         | GB19980019761      | 19970310         |
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| JP2001511412 T2    | 20010814         | JP20000504929T     | 19980728         |
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| US5922252 A     | 19990713 | US19970868170 | 19970603 |
| US6096255 A     | 20000801 | US19980188893 | 19981110 |
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| US6575846 BA    | 20030610 | US19990312480 | 19990517 |
| US6635133 BA    | 20031021 | US20000482336 | 20000114 |
| US6797097 BB    | 20040928 | US20030336023 | 20030103 |
| US7041007 BB    | 20060509 | US20030670514 | 20030926 |
| US7458904 BB    | 20081202 | US20060353563 | 20060214 |
| WO0027481 A1    | 20000518 | WO1999US26571 | 19991109 |
| WO9733659 A1    | 19970918 | WO1997US03860 | 19970310 |
| WO9805386 A1    | 19980212 | WO1997US12845 | 19970801 |
| WO9855186 A1    | 19981210 | WO1998US11451 | 19980602 |
| WO9906122 A1    | 19990211 | WO1998US15924 | 19980728 |
| WO9922822 A1    | 19990514 | WO1998US22995 | 19981029 |
| WO9961112 A1    | 19991202 | WO1999US11213 | 19990520 |

**Priority:**

|               |          |               |          |               |          |
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| US20030670514 | 20030926 |               |          |               |          |

**Probable Assignee:** ACUSHNET CO

**Assignee(s):** (std): D C NORRIS AND CO ENGINEERING LT ; D C NORRIS AND CO ; LADD DEREK A ; HEBERT EDMUND A ; ACUSHNET CO ; BOEHM HERBERT C ; ACUSHNET COMPANY ; SULLIVAN MICHAEL J

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**Inventor(s):** HEBERT EDMUND ; KEVEN M HARRIS ; JR WALTER L ; JR SAMUEL A ; LADD DEREK ; BOEHM HERBERT ; WILLIAM E MORGAN ; WALTER L REID JR ; WALTER L REID ; STEPHEN K SCOLAMIERO ; SAMUEL A PASQUA JR ; MURALI RAJAGOPALAN ; LAWRENCE E STANTON ; KEVIN M HARRIS ; KEVEN M HARRIS ; JEFFREY L DALTON ; HERBERT C BOEHM ; CHRISTOPHER CAVALLARO ; PASQUA ; REID ; ROBERT A BROWN ; WALTER L REID ; SULLIVAN MICHAEL

**Agent(s):** MIYATA MASAOKI ; SAWADA TOSHIO ; YAMADA EIJI ; ACUSHNET COMPANY ; ACUSHNET CO ; BINGHAM MCCUTCHEN LLP ; WHEELER KRISTIN D ; KRISTIN D

**Designated states:** AT AU BE CA CH CY DE DK ES FI FR GB GR IE IT JP LU MC NL NZ PT SE

**Title:** USE OF A METALLIC MERCAPTOTHIAZOLE OR METALLIC MERCAPTOBENZOTHAZOLE IN GOLF BALL COMPOSITIONS

**Abstract:** Source: US2004230005A The present invention is directed to a golf ball having at least one of a center, cover, or intermediate layer that includes a reaction product that includes a resilient polymer component, a free radical source, at one of a metallic mercaptothiazole and optionally one or more of a cis-to-trans **catalyst**, a crosslinking agent, or a filler.

**Classifications:**

**International (IPC 8-9):** C08K5/098 C08K5/14 C08K5/372

C08K5/47 (Advanced/Invention);

A63B37/00 (Advanced/Non-invention);

C08K5/00 (Core/Invention);

A63B37/00 (Core/Non-invention)

**International (IPC 1-7):** A63B37/06 C08F271/00

**CPC:** C08K5/372 A63B37/0003 A63B37/0024 A63B37/0027

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**European:** C08K5/098 C08K5/14 C08K5/372 C08K5/47

K63B37/00G

**US:** 473/372 473/373 525/256 525/256P 525/261 525/274

PatBase - US2004230005\_A1

Patent Application Publication: Nov. 18, 2004

US 2004/0230005 A1

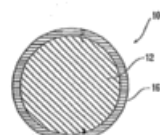


FIG. 1

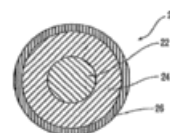


FIG. 2



FIG. 3

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2004230005 AA    | 20041118         | US20030437386      | 20030514         |
| US6960629 BB       | 20051101         | US20030437386      | 20030514         |

**Priority:**

US20030437386 20030514

**Probable Assignee:** ACUSHNET CO

**Assignee(s):** (std): ACUSHNET CO

**Assignee(s):** ACUSHNET COMPANY ; KOREA DEVELOPMENT BANK NEW YORK BRANCH ; RAJAGOPALAN MURALI ; VOORHEIS PETER R

**Inventor(s):** (std): RAJAGOPALAN MURALI ; VOORHEIS PETER R

**Agent(s):** SWIDLER BERLIN LLP

**Title:** USE OF A METALLIC MERCAPTOTHIAZOLE OR METALLIC MERCAPTOBENZOTHAZOLE IN GOLF BALL COMPOSITIONS

**Abstract:** Source: US2004230006A The present invention is directed to a golf ball having at least one of a center, cover, or intermediate layer that includes a reaction product that includes a resilient polymer component, a free radical source, at one of a metallic mercaptobenzothiazole and optionally one or more of a cis-to-trans **catalyst**, a crosslinking agent, or a filler.

**Classifications:**

**International (IPC 8-9):** A63B37/00 A63B37/06 C08K5/098

C08K5/14 C08K5/47 (Advanced/Invention);

A63B37/00 C08K5/00 (Core/Invention)

**International (IPC 1-7):** A63B37/00 C08F36/06

**CPC:** C08K5/14 A63B37/0003 A63B37/0031 A63B37/0037

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**US:** 473/351 473/351S 473/372 473/373 473/377 525/256 525/261

525/261P 525/274

PatBase - US2004230006\_RR

Patent Application Publication: Nov. 18, 2004

US 2004/0230006 A1

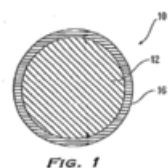


FIG. 1

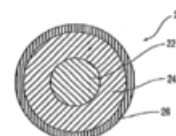


FIG. 2



FIG. 3

**Family:**

| Publication number | Publication date | Application number | Application date |
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| US2004230006 AA    | 20041118         | US20030437387      | 20030514         |
| US6998444 BB       | 20060214         | US20030437387      | 20030514         |

**Priority:**

US20030437387 20030514

**Probable Assignee:** ACUSHNET CO

**Assignee(s):** (std): ACUSHNET CO

**Assignee(s):** ACUSHNET COMPANY ; KOREA DEVELOPMENT BANK NEW YORK BRANCH ; RAJAGOPALAN MURALI ; VOORHEIS PETER R ; WELLS FARGO BANK NATIONAL ASSOCIATION ADMINISTRATIVE AGENT AS

**Inventor(s):** (std): RAJAGOPALAN MURALI ; VOORHEIS PETER R

**Agent(s):** SWIDLER BERLIN LLP

**Title:** HIGH COR GOLF BALL USING ZINC DIMETHACRYLATE

**Abstract:** Source: US2005137344A The present invention is directed to resilient golf balls and portions thereof including compositions containing zinc dimethacrylate and zinc pentachlorothiophenol, and **methods** for making same. In particular, the present invention is directed to a golf ball having at least one of a center, cover, or intermediate layer that includes a reaction product that includes a resilient polymer component, a free radical source, zinc dimethacrylate and at least one halogenated organosulfur compound having the following general formula I: where R<sub>1</sub> -R<sub>5</sub> can be substituted or unsubstituted C<sub>1</sub> -C<sub>8</sub> alkyl groups; halogen groups; thiol groups (-SH), carboxylated groups; sulfonated groups; and hydrogen; in any order.

**Classifications:**

**International (IPC 8-9):** A63B37/00 A63B37/06 A63B37/12

C08F279/02 C08F4/00 C08J3/24 (Advanced/Invention);

C08K5/37 C08L23/10 (Advanced/Non-invention);

A63B37/00 C08F4/00 C08J3/24 (Core/Invention);

C08K5/00 C08L23/00 (Core/Non-invention)

**International (IPC 1-7):** A63B37/00 C08F4/00

**CPC:** A63B37/0003 A63B37/0031 A63B37/0037 A63B37/0043

A63B37/0049 A63B37/0061 A63B37/0062 A63B37/0065

A63B37/0096 C08K5/37 C08L23/10

**European:** A63B37/00G K63B37/00G10D2 K63B37/00G10D4

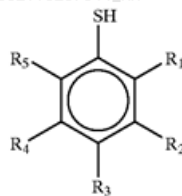
K63B37/00G10D8 K63B37/00G12D36 K63B37/00G6D16

K63B37/00G6D4 K63B37/00G8D16 K63B37/00G8D4 M08K5/37 M08L23/10

**US:** 473/371 473/372 473/373 473/374 473/376 473/377 525/261 525/261P 525/274

PatBase - US2005137344\_AA

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**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP2005177511 A2    | 20050707         | JP20040371660      | 20041222         |
| US2005137344 AA    | 20050623         | US20030740530      | 20031222         |
| US2008214739 AA    | 20080904         | US20080073088      | 20080229         |
| US7342073 BB       | 20080311         | US20030740530      | 20031222         |
| US7888432 BB       | 20110215         | US20080073088      | 20080229         |

**Priority:**

US20030740530 20031222 US20080073088 20080229

**Probable Assignee:** ACUSHNET CO

**Assignee(s):** (std): ACUSHNET CO ; VOORHEIS PETER R

**Assignee(s):** WELLS FARGO BANK NATIONAL ASSOCIATION ADMINISTRATIVE AGENT AS ; ACUSHNET COMPANY ; KOREA DEVELOPMENT BANK NEW YORK BRANCH

**Inventor(s):** (std): VOORHEIS PETER R

**Inventor(s):** VOORHEIS PETER

**Agent(s):** JOHN P MULGREW ESQ SWIDLER BERLIN SHEREFF FRIEDMAN LLP; BINGHAM MCCUTCHEN LLP; MURPHY AND KING PC

**Title:** SILANE CROSS-LINKED DYNAMICALLY-VULCANIZED THERMOPLASTIC ELASTOMER

**Abstract:** Source: CN102030959A The invention relates to the technical field of thermoplastic elastomer materials, in particular to a silane cross-linked dynamically-vulcanized thermoplastic elastomer and a preparation method thereof. The elastomer comprises the following components in percentage by weight: 27 to 75 percent of silane-grafted elastomer, 20 to 70 percent of polyolefine resin, 0.1 to 0.3 percent of cross-linked catalyst, 0.5 to 2 percent of water producing agent, 0.1 to 0.5 percent of antioxidant and 0.2 to 0.5 percent of lubricant and is prepared by a reactive double-screw extruder. The influence of the conventional cross-linked system on the performance of the dynamically-vulcanized thermoplastic elastomer can be avoided.

**Classifications:**

**International (IPC 8-9):** B29B9/06 B29C47/92 C08F255/02 C08L23/00 C08L23/06 C08L23/08 C08L23/12 C08L51/06 (Advanced/Invention)

**CPC:** B29C47/0011

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN102030959 A      | 20110427         | CN201010612529     | 20101229         |
| CN102030959 B      | 20120215         | CN201010612529     | 20101229         |

**Priority:**

CN201010612529 20101229

**Probable Assignee:** DONGGUAN PUCA PLASTIC TECHNOLOGY CO LTD

**Assignee(s):** (std): DONGGUAN PUCA PLASTIC TECHNOLOGY CO LTD

**Assignee(s):** DONGGUAN PUCA PLASTIC TECHNOLOGY CO

**Inventor(s):** (std): WEI LI ; BIXUN QIN

**Inventor(s):** QIN BIXUN ; LI WEI

**Title:** METHOD FOR PREPARING DYNAMICALLY VULCANIZED THERMOPLASTIC ELASTOMER IN CONTINUOUS MANNER

**Abstract:** Source: CN106239765A The invention relates to a method for preparing dynamically vulcanized thermoplastic elastomer in a continuous manner. The method comprises the following steps: crushing standard blocky oil-filled ethylene propylene diene monomer to rubber particles with diameters of 50 to 100 mm by using a crusher and smoothly and accurately conveying the rubber particles to a double-screw extruder by using a single-screw extruder and a gear pump; feeding polypropylene, a filling material and a catalyst into the double-screw extruder via a main feed inlet in a stoichiometric way; conveying a liquid component into the double-screw extruder at a different position by using the liquid feeding device; and carrying out mixing and dynamic vulcanization on all the components in a molten state so as to obtain the dynamically vulcanized thermoplastic elastomer with both excellent physical properties and processing properties. The method provided by the invention overcomes the problems of complex operation, low efficiency and high investment for equipment in the prior art.

**Classifications:**

**International (IPC 8-9):** B29B9/06 C08K3/22 C08K3/34 C08K5/14 C08K5/3492 C08K9/00 C08L23/12 C08L23/16 (Advanced/Invention)

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN106239765 A      | 20161221         | CN201610640825     | 20160805         |

**Priority:**

CN201610640825 20160805

**Probable Assignee:** CHANGZHOU RUIANPU NEW MAT CO LTD

**Assignee(s):** (std): CHANGZHOU RUIANPU NEW MAT CO LTD

**Assignee(s):** CHANGZHOU RUIANPU NEW MATERIAL CO ; CHANGZHOU RYAN PU MATERIAL CO LTD

**Inventor(s):** (std): DAI HUIBIN ; FAN MEIJUN ; HU XIUGANG ; JIANG BO ; LI LIANG ; WANG YONG