

ARCH CAPITAL GROUP LTD.
 Form 8-A12B
 May 26, 2006

**UNITED STATES
 SECURITIES AND EXCHANGE COMMISSION
 WASHINGTON, D.C. 20549**

FORM 8-A

**FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES
 PURSUANT TO SECTION 12(b) OR (g) OF THE
 SECURITIES EXCHANGE ACT OF 1934**

Arch Capital Group Ltd.

(Exact Name of Registrant as Specified in Its Charter)

| | | |
|--|--|--------------------------------------|
| Bermuda | | Not Applicable |
| (State of Incorporation or Organization) | | (I.R.S. Employer Identification no.) |
| | | |
| Wessex House, 45 Reid Street | | |
| Hamilton HM 12, Bermuda | | N/A |
| (Address of Principal Executive Offices) | | (Zip Code) |

If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective upon filing pursuant to General Instruction A.(c), please check the following box. x

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective upon filing pursuant to General Instruction A.(d), please check the following box. 0

Securities Act registration statement file number to which this form relates: **333-117099**

Securities to be registered pursuant to Section 12(b) of the Act:

| Title of Each Class to be so Registered | Name of Each Exchange on Which Each Class is to be Registered |
|--|---|
| 7.875% Non-Cumulative Preferred Shares, Series B, \$0.01 par value | New York Stock Exchange |

Securities to be registered pursuant to Section 12(g) of the Act:

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| | | |
|------------------|--|--------------------|
| None | | None |
| (Title of Class) | | (Name of Exchange) |
| | | |

ITEM 1. DESCRIPTION OF REGISTRANT'S SECURITIES TO BE REGISTERED

For a description of the securities to be registered hereunder, reference is made to the information set forth under the heading "Description of the Series B Non-Cumulative Preferred Shares" in the Registrant's Prospectus Supplement, dated May 17, 2006, to the Prospectus, dated August 25, 2004, which constitutes a part of the Registrant's Registration Statement on Form S-3 (File No. 333-117099), filed under the Securities Act of 1933, as amended, which information is hereby incorporated herein by reference.

ITEM 2. EXHIBITS

- 3.1 Memorandum of Association of Arch Capital Group Ltd. (Incorporated by reference to Arch Capital Group Ltd.'s registration statement on Form S-4 (File No. 333-45418), as filed with the SEC on September 26, 2000.)
- 3.2 Bye-laws of Arch Capital Group Ltd. (Incorporated by reference to Arch Capital Group Ltd.'s registration statement on Form S-4 (File No. 333-45418), as filed with the SEC on September 26, 2000.)
- 3.3 Amended and Restated Bye-law 45 and Bye-law 75. (Incorporated by reference to the current report on Form 8-K of Arch Capital Group Ltd. (File No. 001-16209), as filed with the SEC on January 4, 2002.)
- 3.4 Certificate of Designations of 7.875% Non-Cumulative Preferred Shares, Series B. (Incorporated by reference to the current report on Form 8-K of Arch Capital Group Ltd. (File No. 001-16209), as filed with the SEC on May 24, 2006.)
- 4.1 Specimen 7.875% Non-Cumulative Preferred Shares, Series B, share certificate (Incorporated by reference to the current report of Arch Capital Group Ltd.'s (File No. 001-16209), as filed with the SEC on May 24, 2006.)

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SIGNATURE

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the Registrant has duly caused this Registration Statement or amendment thereto to be signed on its behalf by the undersigned, thereunto duly authorized.

Dated: May 24, 2006

ARCH CAPITAL GROUP LTD.

By: /s/ John D. Vollaro
Name: John D. Vollaro
Title: Executive Vice President and Chief
Financial Officer

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