

MILLENNIUM CHEMICALS INC
Form 424B3
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Registration No. 333-113841

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Prospectus Supplement

(To Prospectus Dated September 24, 2004)

\$150,000,000

Millennium Chemicals Inc.

4% Convertible Senior Debentures

Unconditionally Guaranteed by Millennium America Inc.

This document supplements the prospectus dated September 24, 2004 relating to the \$150,000,000 aggregate principal amount of our 4% convertible senior debentures due November 15, 2023 and the shares of common stock issuable upon conversion of the debentures. The information in this supplement replaces and supersedes the information set forth under the heading "Selling Security Holders" in the prospectus dated September 24, 2004 and all other prior supplements to that prospectus.

On November 30, 2004, we became a 100 percent owned subsidiary of Lyondell Chemical Company pursuant to the Agreement and Plan of Merger between Lyondell, us and our 100 percent owned subsidiary providing for a stock-for-stock business combination between Millennium and Lyondell (the "transaction"). The transaction closed effective as of 11:59 p.m. on Tuesday, November 30, 2004. In the transaction, each share of our common stock was converted into the right to receive shares of the common stock, par value \$1.00 per share, of Lyondell, and our debentures became convertible into shares of Lyondell common stock instead of shares of our common stock. The conversion rate will be adjusted upon the occurrence of specified events as set forth in the indenture that governs the terms of the debentures. The debentures continue to be our obligation.

Lyondell's common stock is listed on the New York Stock Exchange under the symbol "LYO." On October 13, 2005, the closing price for Lyondell common stock on the New York Stock Exchange was \$27.17 per share.

This investment involves risks. See "Risk Factors" beginning on page 6 of the prospectus dated September 24, 2004.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is October 14, 2005.

SELLING SECURITY HOLDERS

We originally sold the debentures to J.P. Morgan Securities Inc., Banc of America Securities LLC, Credit Lyonnais Securities (USA) Inc., SG Cowen Securities Corporation and Daiwa Securities SMBC Europe Limited (which we refer to as the initial purchasers in this prospectus supplement) in private placements in November 2003 and December 2003. The debentures were immediately resold by the initial purchasers in transactions exempt from registration under Rule 144A under the Securities Act. Selling security holders, which term includes their transferees, pledgees, donees or their successors, may from time to time offer and sell the debentures and the common stock into which the debentures are convertible pursuant to this prospectus or any applicable supplement or amendment to this prospectus.

On November 30, 2004, we became a 100 percent owned subsidiary of Lyondell pursuant to the Agreement and Plan of Merger between Lyondell, us and our 100 percent owned subsidiary providing for a stock-for-stock business combination transaction between Millennium and Lyondell. The transaction closed effective as of 11:59 p.m. on Tuesday, November 30, 2004. In the transaction, each share of our common stock was converted into the right to receive 0.95 of a share of Lyondell common stock, and our debentures became convertible into shares of Lyondell common stock instead of shares of our common stock, initially at a conversion rate of 69.6890 shares per \$1,000 principal amount of debentures. This conversion rate will be adjusted upon the occurrence of specified events as set forth in the indenture that governs the terms of the debentures. Events that may result in an adjustment to the conversion rate include payments by us of cash or non-cash dividends; share splits or share combinations of our common stock; issuance by us of rights, warrants or options to our stockholders entitling them to obtain additional shares of our common stock at below market prices; purchases by us of our common stock pursuant to a tender offer or exchange offer at above market prices or reclassifications by us of our common stock into securities other than common stock. No adjustment to the applicable conversion rate will be required unless the adjustment would require an increase or decrease of at least 1% of the applicable conversion rate. However, any adjustments which are not required to be made because they would have required an increase or decrease of less than 1% will be carried forward and taken into account in any subsequent adjustment. Based on a quarterly test related to the price of Lyondell common stock, the debentures are currently convertible at a conversion rate of 71.0095 Lyondell shares per \$1,000 principal amount of debentures.

Upon conversion, shares of Lyondell common stock will be issued to converting holders under a registration statement of Lyondell after it has been declared effective by the SEC. The following table sets forth certain information concerning the principal amount of debentures beneficially owned and the number of shares of Lyondell common stock issuable upon conversion of those debentures that may be offered from time to time under this prospectus by the selling security holders named in the table. We prepared this table based on the information supplied to us by the selling security holders named in the table and we have not sought to verify such information. This table only reflects information regarding selling security holders who have provided us with such information. We expect that we will update this table as we receive more information from holders of the debentures who have not yet provided us with their information. To be included in the table below, selling security holders must complete and submit a Notice and Questionnaire to us. The footnotes to the table identify each selling security holder that is a registered broker-dealer. Each such selling security holder acquired its debentures for investment purposes, and not as compensation for underwriting activities. Each of these selling security holders will be considered to be an underwriter, within the meaning of the Securities Act, with respect to any securities that it sells pursuant to this prospectus. The footnotes to the table also identify each selling security holder that is an affiliate of a registered broker-dealer. Each of these selling security holders (1) purchased its debentures in the ordinary course of business and (2) at the time of purchase, had no agreements or understandings, directly or indirectly, with any person to distribute such securities.

The number of shares of Lyondell common stock issuable upon conversion of the debentures shown in the table below assumes conversion of the full amount of debentures held by each selling security holder at a conversion rate of 71.0095 shares per \$1,000 principal amount of debentures. This conversion rate is subject to adjustment in certain events. Accordingly, the number of conversion shares may increase or decrease from time to time. The percentages of common stock beneficially owned and being offered are based on the number of shares of Lyondell common stock that were outstanding as of September 30, 2005. Because the selling security holders may offer all or some portion of the debentures or the shares of common stock issuable upon conversion of the debentures pursuant to this prospectus, we have assumed for purposes of the table below that the selling security holders will sell all of

the debentures offered by this prospectus pursuant to this prospectus. In addition, the selling security holders identified below may have sold, transferred or otherwise disposed of all or a portion of their debentures in transactions exempt from the registration requirements of the Securities Act since the date on which they provided the information to us regarding their holdings. As of September 30, 2005, (1) we had \$150,000,000 in principal amount of the debentures outstanding, and (2) Lyondell had 246,918,784 shares of its common stock outstanding.

The total principal amount of debentures and shares of common stock issuable upon conversion of debentures listed in the table may be more than \$150,000,000 and 10,651,425 shares (based on the current conversion rate described in footnote (2) of the table below, which is subject to adjustment pursuant to the terms of the debentures), respectively, because certain of the selling security holders may have sold, transferred or otherwise disposed of all or a portion of their debentures in transactions exempt from the registration requirements of the Securities Act since the date on which they provided information regarding their debentures for inclusion in this table. The purchasers of such debentures may have thereafter provided information to us indicating their ownership of debentures that may already be represented in the table below. In no case will the maximum principal amount of debentures that may be sold under this prospectus and the corresponding shares of Lyondell common stock to be issued upon conversion thereof exceed \$150,000,000 and 10,651,425 shares (based on the current conversion rate described in footnote (2) of the table below, which is subject to adjustment pursuant to the terms of the debentures), respectively.

Based on information provided by the selling security holders, none of the selling security holders has held any position or office or has had any material relationship with us within the past three years except as described below.

Name	Principal Amount of Debentures Beneficially Owned and Offered	Percentage of Debentures Outstanding	Shares of Lyondell Common Stock Beneficially Owned Before the Offering (1)	Conversion Shares of Lyondell Common Stock Offered (2)	Percentage of Lyondell Common Stock Outstanding (3)
Alexian Brothers Medical Center	\$135,000	*	0	9,586	*
Allstate Insurance Company(4)	\$750,000	*	76,400	53,257	*
Aloha Airlines Non-Pilots Pension Trust	\$65,000	*	0	4,615	*
Aloha Pilots Retirement Trust	\$30,000	*	0	2,130	*
Arkansas Teacher Retirement	\$1,460,000	*	0	103,673	*
Banc of America Securities LLC(5)	\$4,620,000	3.08%	0	328,063	*
Baptist Health of South Florida	\$195,000	*	0	13,846	*
C & H Sugar Company Inc.	\$70,000	*	0	4,970	*
CNH CA Master Account, L.P.	\$3,100,000	2.07%	0	220,129	*
Context Convertible Arbitrage Fund, LP	\$750,000	*	0	53,257	*
Context Convertible Arbitrage Offshore, LTD	\$730,000	*	0	51,836	*
Deutsche Bank Securities Inc.(6)	\$1,000,000	*	0	71,009	*
Engineers Joint Pension Fund	\$125,000	*	0	8,876	*
Fidelity Financial Trust: Fidelity Convertible Securities Fund(7)	\$5,500,000	3.67%	0	390,552	*

Name	Principal Amount of Debentures Beneficially Owned and Offered	Percentage of Debentures Outstanding	Shares of Lyondell Common Stock Beneficially Owned Before the Offering (1)	Conversion Shares of Lyondell Common Stock Offered (2)	Percentage of Lyondell Common Stock Outstanding (3)
GE Singapore Life Insurance Fund	\$115,000	*	0	8,166	*
Goldman Sachs & Co.(8)	\$10,500,000	7.00%	532,230	745,599	*
Hawaiian Airlines Employees Pension Plan- IAM	\$20,000	*	0	1,420	*
Hawaiian Airlines Pension Plan for Salaried Employees	\$3,000	*	0	213	*
Hawaiian Airlines Pilots Retirement Plan	\$55,000	*	0	3,905	*
LDG Limited(9)	\$340,000	*	0	24,143	*
McMahan Securities Co. L.P.(10)	\$300,000	*	0	21,302	*
Morgan Stanley Fundamental Value Fund(11)	\$23,000	*	0	1,633	*
MSS Convertible Arbitrage 1 c/o TQA Investors(12)	\$17,000	*	0	1,207	*
Nicholas Applegate Capital Management U.S. Convertible Mutual Fund	\$145,000	*	0	10,296	*
Pioneer High Yield Fund(13)	\$79,050,000	52.70%	0	5,613,300	2.22%
Pioneer High Yield VCT Portfolio, a series of Pioneer Variable Contracts Trust	\$200,000	*	0	14,201	*
Pioneer U.S. High Yield Corp. Bond Sub Fund(14)	\$10,900,000	7.27%	0	774,003	*
San Diego City Retirement San Diego County Convertible	\$285,000	*	0	20,237	*
Sphinx Fund(15)	\$410,000	*	0	29,113	*
State of Oregon/SAIF Corporation	\$389,000	*	0	27,622	*
Sterling Invest Co	\$1,517,000	1.01%	0	107,721	*
TQA Master Fund, Ltd.(16)	\$1,250,000	*	0	88,761	*
TQA Master Plus Fund, Ltd.	\$2,781,000	1.85%	0	197,477	*
TQA Special Opportunities Master Fund	\$4,622,000	3.08%	0	328,205	*
UFJ International plc	\$4,000,000	2.67%	0	284,038	*
Universal Institutional Funds Equity & Income Fund(17)	\$100,000	*	0	7,100	*
US Bank FBO Benedictine Health Systems	\$9,000	*	0	639	*
Van Kampen Equity and Income Fund(18)	\$105,000	*	0	7,456	*
	\$1,968,000	1.31%	0	139,746	*

Name	Principal Amount of Debentures Beneficially Owned and Offered	Percentage of Debentures Outstanding	Shares of Lyondell Common Stock Beneficially Owned Before the Offering (1)	Conversion Shares of Lyondell Common Stock Offered (2)	Percentage of Lyondell Common Stock Outstanding (3)
Wyoming State Treasurer	\$260,000	*	0	18,462	*
Xavex - Convertible Arbitrage 7 c/o TQA	\$363,000	*	0	25,776	*
Zurich Institutional Benchmarks Master c/o TQA(19)	\$541,000	*	0	38,416	*

* Less than one percent.

- (1) Figures in this column do not include the shares of Lyondell common stock issuable upon conversion of the debentures listed in the column to the right.
- (2) Figures in this column represent the number of shares of Lyondell common stock issuable upon conversion of all of the debentures owned by the security holders based on the conversion rate of 71.0095 shares per \$1,000 principal amount of debentures. This conversion rate is subject to adjustment as described under "Description of Debentures" in the prospectus dated September 24, 2004, as supplemented by all other prior supplements to that prospectus. Accordingly, the number of shares of Lyondell common stock issuable upon conversion of the debentures may increase or decrease from time to time. Fractional shares will not be issued upon conversion of the debentures. Cash will be paid instead of fractional shares, if any.
- (3) Calculated pursuant to Rule 13d-3(d)(1)(i) of the Securities Exchange Act of 1934, using shares of Lyondell common stock outstanding as of September 30, 2005.
- (4) Allstate Insurance Company informed us that as of November 23, 2004 it is an affiliate of a broker-dealer registered pursuant to Section 15 of the Exchange Act. Allstate Insurance Company also informed us that as of November 23, 2004 it beneficially owned 46,800 shares of our common stock. In addition, Allstate New Jersey Insurance Company, an indirect subsidiary of Allstate Insurance Company, informed us that as of November 23, 2004 it beneficially owned 3,700 shares of our common stock. Allstate Retirement Plan and Agents Pension Plan are qualified ERISA plans maintained for the benefit of certain employees and agents of Allstate Insurance Company. Allstate Retirement Plan informed us that as of November 23, 2004 it beneficially owned 20,800 shares of our common stock, and Agents Pension Plan informed us that as of November 23, 2004 it beneficially owned 5,100 shares of our common stock. BNY Midwest Trust Company, as Trustee for such plans, holds title to all plan investments. Allstate has informed us that it disclaims any interest in securities held in such trusts, although the Investment Committee for such plans consists of Allstate Insurance Company officers.
- (5) Banc of America Securities LLC informed us that as of December 20, 2004 it is a broker-dealer registered pursuant to Section 15 of the Exchange Act. Banc of America Securities LLC also informed us that it served as Joint-Lead Book Manager in Millennium's offering of the debentures being registered in this prospectus and has acted as Co-Lead Manager in Lyondell debt offerings within the past three years.
- (6) Deutsche Bank Securities Inc. informed us that as of March 30, 2005 it is a broker-dealer registered pursuant to Section 15 of the Exchange Act.
- (7) Fidelity Financial Trust: Fidelity Convertible Securities Fund informed us that as of March 29, 2005 it is a registered investment fund (the "Fund") advised by Fidelity Management & Research Company ("FMR Co."), a registered investment adviser under the Investment Advisers Act of 1940, as amended. FMR Co., 82 Devonshire Street, Boston, Massachusetts 02109, a wholly-owned subsidiary of FMR Corp. and an investment adviser registered under Section 203 of the Investment Advisers Act of 1940, is also the beneficial owner of 22,720,268 shares of our outstanding common stock as a result of acting as investment

adviser to various investment companies registered under Section 8 of the Investment Company Act of 1940. Edward C. Johnson 3d, FMR Corp., through its control of FMR Co., and the funds each has sole power to dispose of the shares owned by the Fund. Neither FMR Corp. nor Edward C. Johnson 3d, Chairman of FMR Corp., has the sole power to vote or direct the voting of the shares owned directly by the Fund, which power resides with the Fund's Board of Trustees. The Fund is an affiliate of a broker-dealer. The Fund purchased the debentures in the ordinary course of business and, at the time of the purchase of the debentures to be resold, the Fund did not have any agreements or understandings, directly or indirectly, with any person to distribute the debentures or conversion shares.

- (8) Goldman Sachs & Co. informed us that as of October 6, 2005 it is a broker-dealer registered pursuant to Section 15 of the Exchange Act. Goldman Sachs & Co. also informed us that as of October 6, 2005 it beneficially owned 469,180 shares of Lyondell common stock and \$5,065,000 principal amount of our registered 4% convertible senior debentures due November 15, 2023.
- (9) LDG Limited informed us that as of March 31, 2005 it also beneficially owned \$53,000 principal amount of our registered 4% convertible senior debentures due November 15, 2023.
- (10) McMahan Securities Co. L.P. informed us that as of November 17, 2004 it is a broker-dealer registered pursuant to Section 15 of the Exchange Act.
- (11) Morgan Stanley Fundamental Value Fund informed us that as of January 4, 2005 it is a broker-dealer registered pursuant to Section 15 of the Exchange Act.
- (12) MSS Convertible Arbitrage 1 c/o TQA Investors informed us that as of April 1, 2005 it also beneficially owned \$10,000 principal amount of our registered 4% convertible senior debentures due November 15, 2023.
- (13) Pioneer High Yield Fund informed us that as of February 28, 2005 it also beneficially owned \$21,000,000 principal amount of Lyondell's 10.5% senior secured notes due 2013, \$8,315,000 principal amount of Lyondell's 11.125% senior secured notes due 2012 and \$2,500,000 principal amount of Lyondell's 9.625% senior secured notes due 2007.
- (14) Pioneer U.S. High Yield Corp. Bond Sub Fund informed us that as of December 27, 2004 it also beneficially owned \$2,000,000 principal amount of Lyondell's 10.5% senior secured notes due 2013 and \$1,000,000 principal amount of Lyondell's 11.125% senior secured notes due 2012.
- (15) Sphinx Fund informed us that as of April 1, 2005 it also beneficially owned \$59,000 principal amount of our registered 4% convertible senior debentures due November 15, 2023.
- (16) TQA Master Fund, Ltd. informed us that as of April 1, 2005 it also beneficially owned \$129,000 principal amount of our registered 4% convertible senior debentures due November 15, 2023.
- (17) Universal Institutional Funds Equity & Income Fund informed us that as of January 4, 2005 it is a broker-dealer registered pursuant to Section 15 of the Exchange Act.
- (18) Van Kampen Equity and Income Fund informed us that as of January 4, 2005 it is a broker-dealer registered pursuant to Section 15 of the Exchange Act.
- (19) Zurich Institutional Benchmarks Master c/o TQA informed us that as of April 1, 2005 it also beneficially owned \$89,000 principal amount of our registered 4% convertible senior debentures due November 15, 2023.

