

**SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549**

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**SCHEDULE 13D  
(Rule 13d-101)**

**INFORMATION TO BE INCLUDED IN STATEMENTS FILED PURSUANT  
TO RULE 13d-1(a) AND AMENDMENTS THERETO FILED PURSUANT  
TO RULE 13d-2(a)**

(Amendment No. 5)

Thoratec Corporation

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(Name of Issuer)

Common Stock, no par value per share

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(Title of Class of Securities)

885175 30 7

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(CUSIP Number)

Seth H. Hoogasian, Esq.  
General Counsel  
Thermo Electron Corporation  
81 Wyman Street  
Waltham, Massachusetts 02454-9046  
(781) 622-1000

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(Name, Address and Telephone Number of Person  
Authorized to Receive Notices and Communications)

June 29, 2004

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(Date of Event Which Requires Filing of This Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(e), 13d-1(f) or 13d-1(g), check the following box .

*Note.* Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See Rule 13d-7(b) for other parties to whom copies are to be sent.

(Continued on following pages)

1.	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)  Thermo Electron Corporation 04-2209186		
2.	CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a) (b)		
3.	SEC USE ONLY		
4.	SOURCE OF FUNDS*  SC		
5.	CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e)		
6.	CITIZENSHIP OR PLACE OF ORGANIZATION State of Delaware		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7.	SOLE VOTING POWER 1,703,765	
	8.	SHARED VOTING POWER 2,731,779	
	9.	SOLE DISPOSITIVE POWER 4,435,544	
	10.	SHARED DISPOSITIVE POWER -0-	
11.	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 4,435,544		
12.	CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES*		
13.	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 7.9%		
14.	TYPE OF REPORTING PERSON*  CO		

\*SEE INSTRUCTIONS BEFORE FILLING OUT!

Thermo Electron Corporation, a Delaware corporation (“the “Reporting Person”), hereby amends its statement on Schedule 13D relating to the common stock, no par value per share (the “Common Stock”), of Thoratec Corporation (formerly known as Thoratec Laboratories Corporation), a California corporation (the “Company”).

## **ITEM 2. Identity and Background.**

Item 2 is hereby amended and restated as follows:

This Amendment is being filed by the Reporting Person pursuant to Rule 13d-2 to reflect the change of information previously reported under Item 5 of its Schedule 13D, as amended.

The principal business address and principal office address of the Reporting Person is 81 Wyman Street, Waltham, Massachusetts 02454-9046.

The Reporting Person is a leading provider of analytical and monitoring instruments used in a broad range of applications, from life sciences research to telecommunications to food, drug, and beverage production.

Appendix A attached to hereto sets forth with respect to each executive officer and director of the reporting Person the following information:

- (a) name;
- (b) business address;
- (c) present principal occupation or employment and the name, principal business and address of any corporation or other organization in which such employment is conducted; and
- (d) citizenship.

To the knowledge of the Reporting Person, there is no person who may be deemed to be a controlling person of the Reporting Person.

During the last five years, neither the Reporting Person nor, to the knowledge of the Reporting Person, any executive officer or director of the Reporting Person has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

During the last five years, neither the Reporting Person nor, to the knowledge of the Reporting Person, any executive officer or director of the Reporting Person has been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction which resulted in a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, Federal or State securities laws or finding any violation with respect to such laws.

## **ITEM 5. Interest in Securities of the Issuer.**

Item 5 is hereby amended and restated in its entirety as follows:

(a) As of the date of this Amendment, the Reporting Person owns 4,435,544 shares of Common Stock which represents 7.9% of the outstanding Common Stock of the Company, based upon the total Common Stock outstanding as reported on the Company’s Quarterly Report on Form 10-Q for the period ended April 3, 2004. Information with respect to the beneficial

ownership of the shares of Common Stock of the other persons named in Item 2 is set forth in Appendix A. Except as set forth in this Item 5, to the best knowledge of the Reporting Person, none of the parties named in Item 2 owns any of the Company's Common Stock.

(b) With respect to 2,731,779 shares of Common Stock of the Company beneficially owned by the Reporting Person, the Reporting Person shares the power to vote all of such shares with the Company pursuant to the Shareholder Agreement, as more fully described in Item 4 above. With respect to the remainder of the shares of Common Stock of the Company beneficially owned by the Reporting Person, the Reporting Person has the sole power to vote all such shares. Subject to the terms of the Shareholder Agreement, as more fully described in Item 4 above, the Reporting Person has the sole power to dispose of the shares of Common Stock beneficially owned by it. With respect to the shares of Common Stock of the Company beneficially owned by the other persons named in Item 2, except as set forth in Appendix A, each such person has the sole power to vote all of such shares and the sole power to dispose of all of such shares.

Item 1 sets forth the Company's name and state of incorporation along with the address of its principal business and principal office. The Company's principal business is the research, development, manufacturing and marketing of medical devices for circulatory support and vascular graft applications. To the best knowledge of the Reporting Person, during the last five years, the Company (i) has not been convicted in any criminal proceeding (excluding traffic violations or similar misdemeanors) and (ii) was not a party to a civil proceeding of a judicial or administrative body of competent jurisdiction as result of which it was or is subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, Federal or State securities laws or finding any violation with respect to such laws.

(c) Except as described below in this Item 5 and in Item 4, which item is incorporated herein by reference, neither the Reporting Person nor, to the knowledge of the Reporting Person, any person named in Appendix A beneficially has effected any transactions in Common Stock during the past 60 days.

The Reporting Person has affected the following open market sales with respect to the Common Stock since the filing of Amendment No. 4 to its Schedule 13D:

<u>Date</u>	<u>Amount</u>	<u>Price Per Share</u>
12/16/03	1,000,000	\$12.45
3/10/04	250,000	\$12.99
5/12/04	133,671	\$15.49
5/14/04	18,326	\$15.00
6/2/04	98,003	\$14.50
6/9/04	62,600	\$14.53
6/10/04	110,675	\$14.51
6/15/04	26,725	\$14.42

6/16/04	40,739	\$14.52
6/17/04	88,500	\$14.38
6/18/04	80,000	\$14.37
6/21/04	33,426	\$14.33
6/22/04	57,335	\$14.22
6/23/04	60,000	\$14.24
6/24/04	50,000	\$14.23
6/25/04	41,148	\$14.22
6/28/04	41,376	\$14.20
6/29/04	57,476	\$14.14

In addition to the foregoing, Mr. Theo Melas-Kyriazi, an Executive Officer of the Reporting Person, has affected the following open market sales with respect to the Common Stock since the filing of Amendment No. 4 to Schedule 13D:

<u>Date</u>	<u>Amount</u>	<u>Price Per Share</u>
12/16/03	6,500	\$12.93
12/16/03	800	\$12.96
12/16/03	300	\$12.94
12/16/03	200	\$13.00
12/16/03	100	\$12.98
12/16/03	100	\$12.97
12/17/03	8,500	\$12.95
12/17/03	200	\$12.97

(d) None.

(e) Not applicable.

## **SIGNATURES**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: July 28, 2004

THERMO ELECTRON CORPORATION

By: /s/ Theo Melas-Kyriazi  
Name: Theo Melas-Kyriazi  
Title: Vice President and Chief  
Financial Officer

## APPENDIX A

### Thermo Electron Corporation

The name, present principal occupation or employment and beneficial ownership of shares of common stock of Thoratec Corporation (the “Company”) of each director and executive officer of Thermo Electron Corporation (“Thermo Electron”) is set forth below. Unless otherwise noted, all such individuals are citizens of the United States. Unless otherwise noted, the business address of each executive officer and director of Thermo Electron is 81 Wyman Street, Waltham, Massachusetts 02454-9046.

### Directors

Name/Present Principal Occupation or Employment	Business Address	Beneficial Ownership of Shares of the Company Common Stock		
		Shares Held Outright	Shares Underlying Options Exercisable Prior to May 31, 2004	Total Beneficial Ownership
<b>John L. LaMattina</b> Senior Vice President of Pfizer Inc. and the President of Pfizer Global Research and Development	Pfizer Inc. 50 Pequot Avenue New London, Connecticut 06230	0	0	0
<b>Peter J. Manning</b> Director of Safety Insurance Group Inc.		0	0	0
<b>Jim P. Manzi</b> Chairman of the Board of Thermo Electron and Chairman of Stonegate Capital		0	0	0
<b>Robert A. McCabe</b> Chairman of Pilot Capital Corporation	Pilot Capital Corporation 2 East 73 <sup>rd</sup> Street, 15th Floor New York, New York 10021	4,393	0	4,393
<b>Robert W. O’Leary</b> Chairman and Chief Executive Officer of Valeant Pharmaceuticals International	Valeant Pharmaceuticals International 3000 Hyland Avenue Costa Mesa, California 92626	0	0	0
<b>Michael E. Porter</b> Bishop William Lawrence University Professor at Harvard Business School	Harvard Business School Soldiers Field Road Boston, Massachusetts 02163	0	0	0
<b>Elaine S. Ullian</b> President and Chief Executive Officer of Boston Medical Center	Boston Medical Center Talbot 1 One Boston Medical Center Place Boston, Massachusetts 02118	0	0	0
<b>Marijn E. Dekkers<sup>(1)</sup></b> President, Chief Executive Officer and Director of Thermo Electron		0	0	0

(1) Mr. Dekkers is a citizen of The Netherlands.

## Executive Officers Who are Not Directors

No person is a controlling stockholder of Thermo Electron.

Name/Present Principal Occupation or Employment	Business Address	Beneficial Ownership of Shares of the Company Common Stock		
		Shares Held Outright	Shares Underlying Options Exercisable Prior to May 31, 2004	Total Beneficial Ownership
<b>Guy Broadbent(2)</b> Vice President of Thermo Electron, President, Optical Technologies		0	0	0
<b>Marc N. Casper</b> Senior Vice President of Thermo Electron		0	0	0
<b>Seth H. Hoogasian</b> Vice President, General Counsel and Secretary of Thermo Electron		0	0	0
<b>Peter E. Hornstra</b> Corporate Controller and Chief Accounting Officer of Thermo Electron		0	0	0
<b>Theo Melas-Kyriazi(3)</b> Vice President and Chief Financial Officer of Thermo Electron		2,975	0	2,975
<b>Stephen G. Sheehan</b> Vice President, Human Resources of Thermo Electron		0	0	0
<b>Peter M. Wilver</b> Vice President, Financial Operations of Thermo Electron		0	0	0
<b>All directors and current executive officers as a group</b>		7,368	0	7,368

(2) Mr. Broadbent is a citizen of the United Kingdom.

(3) Mr. Melas-Kyriazi is a citizen of Greece.