

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

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)

Cryolife, Inc.

(Name of Issuer)

Common Stock, par value \$0.01 per share

(Title of Class of Securities)

228903100

(CUSIP Number)

Marc Weingarten, Esq.
Schulte Roth & Zabel LLP
919 Third Avenue
New York, New York 10022
(212) 756-2000

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

December 1, 2005

(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. [X]

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

(Continued on following pages)

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* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

(1) NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NO.
OF ABOVE PERSONS (ENTITIES ONLY)
O.S.S. Capital Management LP

(2) CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP *
(a) [X]
(b) []

(3) SEC USE ONLY

(4) SOURCE OF FUNDS*
AF

(5) CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDING IS REQUIRED PURSUANT
TO ITEM 2(d) or 2(e) []

(6) CITIZENSHIP OR PLACE OF ORGANIZATION
Delaware, USA

NUMBER OF (7) SOLE VOTING POWER
SHARES -0-

BENEFICIALLY (8) SHARED VOTING POWER
OWNED BY 2,000,000 shares of common stock; 85,000 shares of
convertible preferred stock convertible into 528,607
shares of common stock

EACH (9) SOLE DISPOSITIVE POWER
REPORTING -0-

PERSON WITH (10) SHARED DISPOSITIVE POWER
2,000,000 shares of common stock; 85,000 shares of
convertible preferred stock convertible into 528,607
shares of common stock

(11) AGGREGATE AMOUNT BENEFICIALLY OWNED
BY EACH REPORTING PERSON
2,000,000 shares of common stock; 85,000 shares of
convertible preferred stock convertible into 528,607
shares of common stock

(12) CHECK BOX IF THE AGGREGATE AMOUNT
IN ROW (11) EXCLUDES CERTAIN SHARES * []

(13) PERCENT OF CLASS REPRESENTED
BY AMOUNT IN ROW (11)
10.2% (as converted)

(14) TYPE OF REPORTING PERSON *
PN

* SEE INSTRUCTIONS BEFORE FILLING OUT!

(1) NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NO.
OF ABOVE PERSONS (ENTITIES ONLY)
Oscar S. Schafer & Partners I LP

(2) CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP *
(a) [X]
(b) []

(3) SEC USE ONLY

(4) SOURCE OF FUNDS*
WC

(5) CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDING IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) []

(6) CITIZENSHIP OR PLACE OF ORGANIZATION
Delaware, USA

NUMBER OF (7) SOLE VOTING POWER
SHARES -0-

BENEFICIALLY (8) SHARED VOTING POWER
OWNED BY 90,370 shares of common stock; 3,536 shares of convertible preferred stock convertible into 21,990 shares of common stock

EACH (9) SOLE DISPOSITIVE POWER
REPORTING PERSON WITH -0-

(10) SHARED DISPOSITIVE POWER
90,370 shares of common stock; 3,536 shares of convertible preferred stock convertible into 21,990 shares of common stock

(11) AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
90,370 shares of common stock; 3,536 shares of convertible preferred stock convertible into 21,990 shares of common stock

(12) CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES * []

(13) PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)
0.5% (as converted)

(14) TYPE OF REPORTING PERSON *
PN

* SEE INSTRUCTIONS BEFORE FILLING OUT!

(1) NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NO.
OF ABOVE PERSONS (ENTITIES ONLY)
Oscar S. Schafer & Partners II LP

(2) CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP *
(a) [X]
(b) []

(3) SEC USE ONLY

(4) SOURCE OF FUNDS*
WC

(5) CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDING IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) []

(6) CITIZENSHIP OR PLACE OF ORGANIZATION
Delaware, USA

NUMBER OF (7) SOLE VOTING POWER
SHARES -0-

BENEFICIALLY (8) SHARED VOTING POWER
951,222 shares of common stock; 39,542 shares of
convertible preferred stock convertible into 245,908
shares of common stock
OWNED BY

EACH (9) SOLE DISPOSITIVE POWER
REPORTING -0-

PERSON WITH (10) SHARED DISPOSITIVE POWER
951,222 shares of common stock; 39,542 shares of
convertible preferred stock convertible into 245,908
shares of common stock

(11) AGGREGATE AMOUNT BENEFICIALLY OWNED
BY EACH REPORTING PERSON
951,222 shares of common stock; 39,542 shares of
convertible preferred stock convertible into 245,908
shares of common stock

(12) CHECK BOX IF THE AGGREGATE AMOUNT
IN ROW (11) EXCLUDES CERTAIN SHARES * []

(13) PERCENT OF CLASS REPRESENTED
BY AMOUNT IN ROW (11)
4.8% (as converted)

(14) TYPE OF REPORTING PERSON *
PN

* SEE INSTRUCTIONS BEFORE FILLING OUT!

(1) NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NO.
OF ABOVE PERSONS (ENTITIES ONLY)
O.S.S. Overseas Fund Ltd.

(2) CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP *
(a) [X]
(b) []

(3) SEC USE ONLY

(4) SOURCE OF FUNDS*
WC

(5) CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDING IS REQUIRED PURSUANT
TO ITEM 2(d) or 2(e) []

(6) CITIZENSHIP OR PLACE OF ORGANIZATION
Cayman Islands

NUMBER OF (7) SOLE VOTING POWER
SHARES -0-

BENEFICIALLY (8) SHARED VOTING POWER
958,408 shares of common stock; 41,922 shares of
convertible preferred stock convertible into 260,709
shares of common stock
OWNED BY

EACH (9) SOLE DISPOSITIVE POWER -0-

REPORTING -----

PERSON WITH (10) SHARED DISPOSITIVE POWER
 958,408 shares of common stock; 41,922 shares of
 convertible preferred stock convertible into 260,709
 shares of common stock

(11) AGGREGATE AMOUNT BENEFICIALLY OWNED
 BY EACH REPORTING PERSON
 958,408 shares of common stock; 41,922 shares of
 convertible preferred stock convertible into 260,709
 shares of common stock

(12) CHECK BOX IF THE AGGREGATE AMOUNT
 IN ROW (11) EXCLUDES CERTAIN SHARES * []

(13) PERCENT OF CLASS REPRESENTED
 BY AMOUNT IN ROW (11)
 4.9% (as converted)

(14) TYPE OF REPORTING PERSON *
 CO

* SEE INSTRUCTIONS BEFORE FILLING OUT!

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(1) NAMES OF REPORTING PERSONS
 I.R.S. IDENTIFICATION NO.
 OF ABOVE PERSONS (ENTITIES ONLY)
 O.S.S. Advisors LLC

(2) CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP *
 (a) [X]
 (b) []

(3) SEC USE ONLY

(4) SOURCE OF FUNDS*
 AF

(5) CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDING IS REQUIRED PURSUANT
 TO ITEM 2(d) or 2(e) []

(6) CITIZENSHIP OR PLACE OF ORGANIZATION
 Delaware, USA

NUMBER OF (7) SOLE VOTING POWER -0-

SHARES -----

BENEFICIALLY (8) SHARED VOTING POWER
 1,041,592 shares of common stock; 43,078 shares of
 convertible preferred stock convertible into 267,898
 shares of common stock

OWNED BY -----

EACH (9) SOLE DISPOSITIVE POWER -0-

REPORTING -----

PERSON WITH (10) SHARED DISPOSITIVE POWER
 1,041,592 shares of common stock; 43,078 shares of
 convertible preferred stock convertible into 267,898
 shares of common stock

(11) AGGREGATE AMOUNT BENEFICIALLY OWNED
 BY EACH REPORTING PERSON

1,041,592 shares of common stock; 43,078 shares of convertible preferred stock convertible into 267,898 shares of common stock

(12) CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES * []

(13) PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 5.3% (as converted)

(14) TYPE OF REPORTING PERSON * 00

* SEE INSTRUCTIONS BEFORE FILLING OUT!

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(1) NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NO. OF ABOVE PERSONS (ENTITIES ONLY) Schafer Brothers LLC

(2) CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP * (a) [X] (b) []

(3) SEC USE ONLY

(4) SOURCE OF FUNDS* AF

(5) CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDING IS REQUIRED PURSUANT TO ITEM 2(d) or 2(e) []

(6) CITIZENSHIP OR PLACE OF ORGANIZATION Delaware, USA

NUMBER OF (7) SOLE VOTING POWER -0- SHARES

BENEFICIALLY (8) SHARED VOTING POWER 2,000,000 shares of common stock; 85,000 shares of convertible preferred stock convertible into 528,607 shares of common stock

OWNED BY

EACH (9) SOLE DISPOSITIVE POWER -0- REPORTING

PERSON WITH (10) SHARED DISPOSITIVE POWER 2,000,000 shares of common stock; 85,000 shares of convertible preferred stock convertible into 528,607 shares of common stock

(11) AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,000,000 shares of common stock; 85,000 shares of convertible preferred stock convertible into 528,607 shares of common stock

(12) CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES * []

(13) PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 10.2% (as converted)

(14) TYPE OF REPORTING PERSON *

OO

* SEE INSTRUCTIONS BEFORE FILLING OUT!

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(1) NAMES OF REPORTING PERSONS
I.R.S. IDENTIFICATION NO.
OF ABOVE PERSONS (ENTITIES ONLY)

Oscar S. Schafer

(2) CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP *

(a)

(b)

(3) SEC USE ONLY

(4) SOURCE OF FUNDS*

AF

(5) CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDING IS REQUIRED PURSUANT
TO ITEM 2(d) or 2(e)

(6) CITIZENSHIP OR PLACE OF ORGANIZATION

United States

NUMBER OF (7) SOLE VOTING POWER

-0-

SHARES

BENEFICIALLY (8) SHARED VOTING POWER

2,000,000 shares of common stock; 85,000 shares of
convertible preferred stock convertible into 528,607
shares of common stock

OWNED BY

EACH (9) SOLE DISPOSITIVE POWER

-0-

REPORTING

PERSON WITH (10) SHARED DISPOSITIVE POWER

2,000,000 shares of common stock; 85,000 shares of
convertible preferred stock convertible into 528,607
shares of common stock

(11) AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

2,000,000 shares of common stock; 85,000 shares of
convertible preferred stock convertible into 528,607
shares of common stock

(12) CHECK BOX IF THE AGGREGATE AMOUNT
IN ROW (11) EXCLUDES CERTAIN SHARES *

(13) PERCENT OF CLASS REPRESENTED
BY AMOUNT IN ROW (11)

10.2% (as converted)

(14) TYPE OF REPORTING PERSON *

IN

* SEE INSTRUCTIONS BEFORE FILLING OUT!

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Item 1. Security and Issuer.

This statement on Schedule 13D relates to the shares ("Shares") of common stock, \$0.01 par value, of Cryolife, Inc. (the "Issuer"). The principal executive office of the Issuer is located at 1655 Roberts Boulevard, NW Kennesaw, Georgia 30144. This statement supercedes the statement with respect to the Shares previously filed on Schedule 13G on January 18, 2005, as amended by Amendment No. 1 on August 3, 2005.

Item 2. Identity and Background.

(a) This statement is filed by:

- (i) Oscar S. Schafer & Partners I LP, a Delaware limited partnership ("OSS I"), with respect to the Shares directly owned by it;
- (ii) Oscar S. Schafer & Partners II LP, a Delaware limited partnership ("OSS II", and together with OSS I, the "Partnerships"), with respect to the Shares directly owned by it;
- (iii) O.S.S. Advisors LLC, a Delaware limited liability company (the "General Partner"), which serves as the general partner of each of the Partnerships, with respect to the Shares directly owned by each of the Partnerships;
- (iv) O.S.S. Overseas Fund Ltd., a Cayman Islands exempted company ("OSS Overseas"), with respect to the Shares directly owned by it;
- (v) O.S.S. Capital Management LP, a Delaware limited partnership (the "Investment Manager"), which serves as investment manager, and management company, to OSS Overseas and the Partnerships, respectively, and has investment discretion with respect to the Shares directly owned by OSS Overseas and the Partnerships;
- (vi) Schafer Brothers LLC, a Delaware limited liability company ("SB LLC"), which serves as the general partner to the Investment Manager, with respect to the Shares directly owned by OSS Overseas and the Partnerships; and
- (vii) Mr. Oscar S. Schafer ("Mr. Schafer"), who serves as the senior managing member of the General Partner and of SB LLC, with respect to Shares directly owned by OSS Overseas and the Partnerships.

The Partnerships, OSS Overseas, the General Partner, the Investment Manager, SB LLC and Mr. Schafer are hereinafter sometimes collectively referred to as the "Reporting Persons."

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Any disclosures made herein with respect to persons or entities other than the Reporting Persons are made on information and belief after making inquiry to the appropriate party. The Reporting Persons expressly disclaim beneficial ownership of securities held by any person or entity other than, to the extent of any pecuniary interest therein, the various accounts under the Reporting Persons' management and control. The securities reported herein as being beneficially owned by the Reporting Persons do not include any securities held by any other person or entity other than the various accounts under the Reporting Persons' management and control.

(b) The address of the principal business offices of each of the Reporting Persons other than OSS Overseas is 598 Madison Avenue, New York, NY 10022. The address of the principal business office of OSS Overseas is SEI Investments Global (Cayman) Limited, Harbor Place, 5th Floor, South Church Street, P.O. Box 30464 SMB, Grand Cayman, Cayman Islands, British West Indies.

(c) The principal business of the Partnerships and OSS Overseas is investing. The principal business of the General Partner and the Investment Manager is investing for accounts under their management. The principal business of SB LLC is as general partner of the Investment Manager. The principal

business of Mr. Schafer is as senior managing member of the General Partner and SB LLC.

(d) The Reporting Persons have not, during the last five years, been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors).

(e) The Reporting Persons have not, during the last five years, been party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding were or are 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.

(f) Mr. Schafer is a US citizen

Item 3. Source and Amount of Funds or Other Consideration.

Of the 2,528,607 Shares reported herein by the Reporting Persons, 2,000,000 Shares were acquired at an aggregate purchase price of approximately \$14,643,844 and the remaining 85,000 shares of convertible preferred stock (the "Convertible Securities"), which are convertible into 528,607 Shares, were acquired at an aggregate purchase price of approximately \$4,250,000. The Shares beneficially owned by the Reporting Persons were acquired with investment funds in accounts under management.

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Item 4. Purpose of Transaction.

The Reporting Persons originally acquired Shares for investment in the ordinary course of business. The Reporting Persons believe that the Shares at current market prices are undervalued and represent an attractive investment opportunity.

In the ordinary course of their investment business, from time to time, representatives of the Reporting Persons engage in discussions with the management of companies in which they have invested concerning the business and operations of the company and potential approaches to maximizing shareholder value. The Reporting Persons intend to engage in such discussions with the Issuer, other holders of the Issuer's Shares and/or third parties.

The Reporting Persons have no present plan or proposal that would relate to or result in any of the matters set forth in subparagraphs (a)-(j) of Item 4 of Schedule 13D except as set forth herein or such as would occur upon completion of any of the actions discussed herein. The Reporting Persons intend to review their investment in the Issuer on a continuing basis. Depending on various factors including, without limitation, the Issuer's financial position and strategic direction, price levels of the Shares, conditions in the securities market and general economic and industry conditions, the Reporting Persons may in the future take such actions with respect to their investment in the Issuer as they deem appropriate including, without limitation, purchasing additional Shares or selling some or all of their Shares, converting the Convertible Securities to Shares, hedging their positions and/or otherwise changing their intentions with respect to any and all matters referred to in Item 4.

Item 5. Interest in Securities of the Company.

(a) The aggregate percentage of Shares reported to be beneficially owned by the Reporting Persons is based upon 24,189,043 Shares outstanding, which is the total number of Shares outstanding as of October 31, 2005, as reported in the Issuer's Quarterly Report on Form 10-Q for the quarter ended September 30, 2005.

As of the close of business on December 1, 2005, the Reporting Persons may be deemed to beneficially own 2,528,607 Shares (including Convertible Securities convertible to 528,607 Shares), constituting approximately 10.2% of the Shares outstanding.

(b) The Reporting Persons have the following voting and dispositive powers over the 2,528,607 Shares reported herein (including, if the Convertible Securities are converted, the 528,607 Shares underlying such Convertible Securities):

(i) Investment Manager: Beneficial owner, with shared power to vote or direct the vote and to dispose or direct the disposition, of 2,000,000 Shares and 85,000 shares of Convertible Securities convertible into 528,607 Shares, or an aggregate of 10.2% of outstanding Shares on an as-converted basis.

(ii) OSS I: Beneficial owner, with shared power to vote or direct the vote and to dispose or direct the disposition, of 90,370 Shares and 3,536 shares of Convertible Securities convertible into 21,990 Shares, or an aggregate of 0.5% of outstanding Shares on an as-converted basis.

(iii) OSS II: Beneficial owner, with shared power to vote or direct the vote and to dispose or direct the disposition, of 951,222 Shares and 39,542 shares of Convertible Securities convertible into 245,908 Shares, or an aggregate of 4.8% of outstanding Shares on an as-converted basis.

(iv) OSS Overseas: Beneficial owner, with shared power to vote or direct the vote and to dispose or direct the disposition, of 958,408 Shares and 41,922 shares of Convertible Securities convertible into 260,709 Shares, or an aggregate of 4.9% of outstanding Shares on an as-converted basis.

(v) General Partner: Beneficial owner, with shared power to vote or direct the vote and to dispose or direct the disposition, of 1,041,592 Shares and 43,078 shares of Convertible Securities convertible into 267,898 Shares, or an aggregate of 5.3% of outstanding Shares on an as-converted basis.

(vi) SB LLC: Beneficial owner, with shared power to vote or direct the vote and to dispose or direct the disposition, of 2,000,000 Shares and 85,000 shares of Convertible Securities convertible into 528,607 Shares, or an aggregate of 10.2% of outstanding Shares on an as-converted basis.

(vii) Mr. Schafer: Beneficial owner, with shared power to vote or direct the vote and to dispose or direct the disposition, of 2,000,000 Shares and 85,000 shares of Convertible Securities convertible into 528,607 Shares, or an aggregate of 10.2% of outstanding Shares on an as-converted basis.

The Investment Manager, the General Partner, SB LLC and Mr. Schafer expressly declare that this filing shall not be construed as an admission that each is, for the purposes of sections 13(d) or 13(g) of the Securities Exchange Act of 1934, as amended, the beneficial owner of any securities covered by this filing.

(c) No transactions in the Shares have been effected by the Reporting Persons during the past sixty days.

(d) No person (other than the Reporting Persons) is known to have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, the Shares.

(e) Not applicable.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Company.

Except as otherwise set forth herein, the Reporting Persons do not have any contract, arrangement, understanding or relationship with any person with respect to securities of the Company.

Item 7. Material to be Filed as Exhibits.

None.

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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.

December 1, 2005

(Date)

/s/ Oscar S. Schafer

(Signature)

Oscar S. Schafer, individually and as senior managing member of:

- (a) O.S.S. Advisors LLC, for itself
and as the general partner of
Oscar S. Schafer & Partners I LP
and
Oscar S. Schafer & Partners II
LP; and
- (b) Schafer Brothers LLC, for itself
and as the general partner of
O.S.S. Capital Management LP

(Name/Title)