

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
SCHEDULE 13D
Under the Securities Exchange Act of 1934
(Amendment No. ___)

Tegal Corporation

(Name of Issuer)

Common Stock, No Par Value
(Title of Class of Securities)

879008100

(CUSIP Number)

with a copy to:

Austin W. Marx and Allen B. Levithan, Esq.
153 East 53rd Street Lowenstein Sandler PC
New York, New York 10022 65 Livingston Avenue
Roseland, New Jersey
07068
(973) 597-2424

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

September 19, 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 sections 240.13d-1(e), 240.13d-1(f) or 240.13d-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 section 240.13d-7 for other parties to whom copies are to be sent.

*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).

Cusip No. 879008100

1. Names of Reporting Persons. I.R.S. Identification Nos. of above persons (entities only):

Austin W. Marx and David M. Greenhouse

2. Check the Appropriate Box if a Member of a Group (See Instructions):

(a) Not Applicable

(b)

3. SEC Use Only

4. Source of Funds (See Instructions): 00

5. Check if Disclosure of Legal Proceedings Is Required Pursuant to Items 2(d) or 2(e):

Not Applicable

6. Citizenship or Place of Organization: United States

Number of 7. Sole Voting Power: 0*

Shares Beneficially 8. Shared Voting Power:

24,334,728*

Owned by

Each Reporting 9. Sole Dispositive Power: 0*

Person With 10. Shared Dispositive Power:

24,334,728*

11. Aggregate Amount Beneficially Owned by Each Reporting Person:

24,334,728*

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares

(See Instructions): Not Applicable

13. Percent of Class Represented by Amount in Row (11): 26.2% *

14. Type of Reporting Person (See Instructions): IA, IN

* This is a joint filing by Austin W. Marx (?Marx?) and David M. Greenhouse (?Greenhouse?). Marx and Greenhouse share sole voting and investment power over 2,141,538 shares of Common Stock and 1,816,712 Warrants owned by Special Situations Private Equity Fund, L.P., 2,546,154 shares of Common Stock and 1,699,955 Warrants owned by Special Situations Technology Fund II, L.P., 404,615 shares of Common Stock and 287,292 Warrants owned by Special Situations Technology Fund, L.P., 2,076,923 shares of Common Stock and 1,038,462 warrants owned by Special Situations Cayman Fund, L.P., and 8,215,385 shares of Common Stock and 4,107,692 Warrants owned by Special Situations Fund III, L.P. See Items 2 and 5 of this Schedule 13D for additional information.

Item 1. Security and Issuer.

This schedule related to the Common Stock and Warrants of Tegal Corporation. (the ?Issuer?). The Issuer's principal executive officers are located at 2201 south McDowell blvd., Petaluma, CA 94954.

Item 2. Identity and Background.

The persons filing this report are Austin W. Marx (?Marx?) and David M. Greenhouse (?Greenhouse?), who are the controlling principals of AWM Investment Company, Inc. (?AWM?), the general partner of and investment adviser to Special Situations Cayman Fund, L.P. (?Cayman?). AWM also serves as the general partner of MGP Advisers Limited Partnership (?MGP?), the general partner of and investment adviser to Special Situations Fund III, L.P. (?SSF3?). Marx and Greenhouse are also members of MG Advisers L.L.C. (?MG?), the general partner of and investment adviser to Special Situations Private Equity Fund, L.P. (?SSPE?), and members of SST Advisers, L.L.C. (?SSTA?), the general partner of and investment adviser to Special Situations Technology Fund, L.P. (?Technology?) and the Special Situations Technology Fund II, L.P. (?Tech II?)(SSF3, Cayman, SSPE, Technology and Tech II will hereafter be referred to as, the ?Funds?).

The principal office and business address of the Reporting Persons, is 153 East 53rd Street, 55th Floor, New York NY 10022.

The principal business of each Fund is to invest in equity and equity-related securities and other securities of any kind or nature.

Mr. Marx and Mr. Greenhouse have never been convicted in any criminal proceeding (excluding traffic violations or similar misdemeanors), nor have either of them been a party to any civil

proceeding commenced before a judicial or administrative body of competent jurisdiction as a result of which he was or is now 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. Mr. Marx and Mr. Greenhouse are citizens of the United States.

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

Each Fund utilized its own available net assets to purchase the securities referred to in this Schedule.

Item 4. Purpose of Transaction.

The securities referred to in this Schedule have been acquired by each of the Funds for investment purposes and not with the purpose or effect of changing or influencing control of the Issuer. Each Fund acquired the securities in the ordinary course of business and is holding the securities for the benefit of its investors.

Item 5. Interest in Securities of the Issuer.

SSPE owns 2,141,538 shares of Common stock and 1,816,712 Warrants, or 4.6% of the outstanding shares, Technology owns 404,615 shares of Common Stock and 287,292 Warrants or .8% of the shares outstanding, Technology II owns 2,546,154 shares of Common Stock and 1,699,955 Warrants or 5.0% of the shares outstanding, SSF3 owns 8,215,385 shares of Common Stock and 4,107,692 Warrants or 14.0% of the shares outstanding and Cayman owns 2,076,923 shares of Common Stock and 1,038,462 Warrants or 3.7% of the shares outstanding. Marx and Greenhouse share the power to vote and direct the disposition of all shares owned by each of, the Funds. Messrs. Marx and Greenhouse are deemed to beneficially own a total 15,384,615 shares of Common Stock and 8,950,113 Warrants or 26.2% of the outstanding shares.

The following table reflects the acquisition of Common Stock and Warrants purchased in the September 2005 Private Placement. There were no other transactions during the sixty days preceding the date of the event that requires the filing of this statement:

A. Special Situations Cayman Fund, L.P.

Date
Quantity
Average Price

(Sales)

Date
Quantity
Average Price

(Purchases)

9/19/05
1,698,923 Common Stock
\$.65

849,462 Warrants

B. Special Situations Private Equity Fund, L.P.

Date
Quantity
Average Price

(Sales)

Date

Quantity

Average Price

(Purchases)

9/19/05

1,751,778 Common Stock

\$.65

875,889 Warrants

C. Special Situations Technology Fund, L.P.

Date

Quantity

Average Price

(Sales)

Date

Quantity

Average Price

(Purchases)

9/19/05

330,975 Common Stock

\$.65

165,488 Warrants

D Special Situations Technology Fund II, L.P.

Date

Quantity

Average Price

(Sales)

Date

Quantity

Average Price

(Purchases)

9/19/05

2,082,754 Common Stock

\$.65

1,041,377 Warrants

E. Special Situations Fund III, L.P.

Date

Quantity

Average Price

(Sales)

Date

Quantity

Average Price

(Purchases)

9/19/05

6,720,185 Common Stock

\$.65

3,360,092 Warrants

Item 6. Contracts, Arrangements, Understandings or Relationships With Respect to Securities of the Issuer.

No contracts, arrangements, understandings or similar relationships exist with respect to the securities of the Company between Messrs. Marxe and Greenhouse and any other individual or entity.

Item 7. Material to be Filed as Exhibits.

Joint Filing Agreement.

Signature

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.

September 29, 2005

/s/ Austin W. Marxe
Austin W. Marxe

/s/ David M. Greenhouse
David M. Greenhouse

Attention: Intentional misstatements or omissions of fact constitute Federal criminal violations (See 18 U.S.C. 1001).

JOINT FILING AGREEMENT

Austin W. Marxe and David M. Greenhouse hereby agree that the Schedule 13D to which this agreement is attached is filed on behalf of each of them.

/s/ Austin W. Marxe
Austin W. Marxe

/s/ David M. Greenhouse
David M. Greenhouse

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