

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person * Conant Marcus (Last) (First) (Middle) C/O ENZO BIOCHEM, INC., 527 MADISON AVENUE (Street) NEW YORK, NY 10022 (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) 07/15/2004	3. Issuer Name and Ticker or Trading Symbol ENZO BIOCHEM INC [ENZ]		
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director <input type="checkbox"/> 10% Owner <input type="checkbox"/> Officer (give title below) <input type="checkbox"/> Other (specify below)		5. If Amendment, Date Original Filed (Month/Day/Year)
		6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person		

Table I - Non-Derivative Securities Beneficially Owned

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
Common Stock, Par Value \$.01 per share	0	D	

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

SEC 1473 (7-02)

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.

Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)		4. Conversion or Exercise Price of Derivative Security	5. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date	Title	Amount or Number of Shares			
Rule 16b-3 Stock Option (right to buy)	07/05/2005	07/14/2004	Common Stock	15,000 (1) (3)	\$ 14.57	D	
Rule 16 b-3 Stock Option (right to buy)	03/22/2002	03/21/2011	Common Stock	4,410 (1) (2)	\$ 1,265	D	
Rule 16 b-3 Stock Option (right to buy)	03/30/2000	03/29/2009	Common Stock	5,788 (1) (2)	\$ 8.75	D	

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Conant Marcus C/O ENZO BIOCHEM, INC. 527 MADISON AVENUE NEW YORK, NY 10022	X			

Signatures

/s/ Marcus Conant	07/15/2004
**Signature of Reporting Person	Date

Explanation of Responses:

* If the form is filed by more than one reporting person, see Instruction 5(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

- (1) These options were granted pursuant to Enzo Biochem, Inc.'s Stock Option Plans.
- (2) The options vest in four equal installments commencing one year from the date of grant.
- (3) The options vest in two equal installments commencing one year from the date of grant.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *See* Instruction 6 for procedure.

Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.