

AD-A268 303

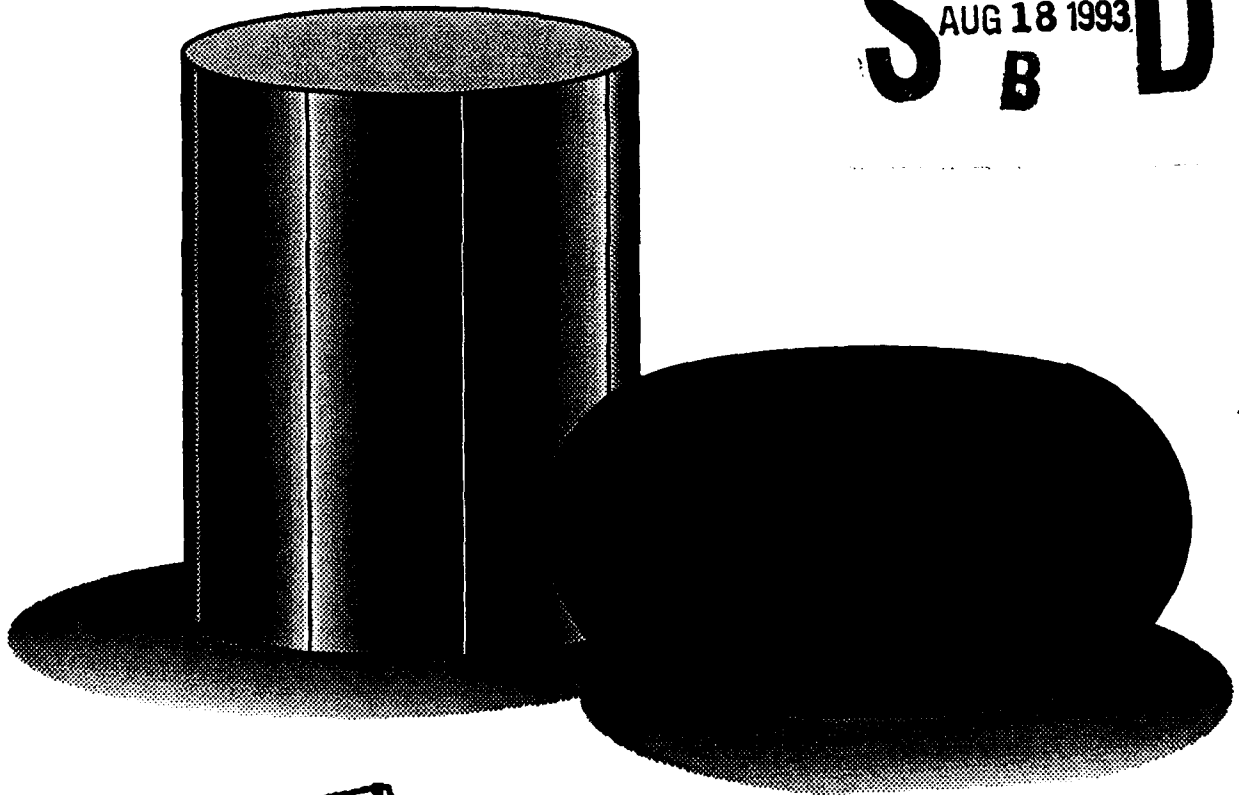


①

Atlas of Formability

Cast Aluminum 6063
Flow Stress Curves

DTIC
ELECTE
AUG 18 1993
S B D



DISTRIBUTION STATEMENT A
Approved for public release
Distribution Unlimited

93-18454

NCEM

93

REPORT DOCUMENTATION PAGE

Form Approved

OMB No 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204 Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503

1. AGENCY USE ONLY (Leave blank)**2. REPORT DATE**

January 31, 1991

3. REPORT TYPE AND DATES COVERED

Final, October 31, 1990-January 31, 1991

4. TITLE AND SUBTITLEAtlas of Formability
Cast Aluminum 6063**5. FUNDING NUMBERS**

C-N00140-88-C-RC21

6. AUTHOR(S)

Howard A. Kuhn

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)National Center for Excellence in Metalworking
Technology (NCEMT)
1450 Scalp Avenue
Johnstown, PA 15904**8. PERFORMING ORGANIZATION
REPORT NUMBER****9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)**Naval Industrial Resources Support Activity
Building 75-2, Naval Base
Philadelphia, PA 19112-5078**10. SPONSORING/MONITORING
AGENCY REPORT NUMBER****11. SUPPLEMENTARY NOTES****12a. DISTRIBUTION / AVAILABILITY STATEMENT****12b. DISTRIBUTION CODE****13. ABSTRACT (Maximum 200 words)**

In this investigation, flow behavior of Aluminum 6063 alloy was studied by conducting compression tests over a wide range of temperatures and strain rates. Stress-strain curves were recorded for each test condition. These data are essential in metalworking process design or finite element analysis of high temperature deformation.

14. SUBJECT TERMSAluminum 6063, High Temperature Deformation,
Metalworking**15. NUMBER OF PAGES**

21

16. PRICE CODE**17. SECURITY CLASSIFICATION
OF REPORT**

Unclassified

**18. SECURITY CLASSIFICATION
OF THIS PAGE**

Unclassified

**19. SECURITY CLASSIFICATION
OF ABSTRACT**

Unclassified

20. LIMITATION OF ABSTRACT

**ATLAS OF FORMABILITY
CAST ALUMINUM 6063**

by

Howard A. Kuhn

**National Center for Excellence in Metalworking Technology
1450 Scalp Avenue
Johnstown, PA 15904**

for

**Naval Industrial Resource Support Activity
Building 75-2, Naval Base
Philadelphia, PA 19112-5078**

January 31, 1991

The views, opinions, and/or findings contained in this report are those of the authors and should not be construed as an official Department of the Navy position, policy, or decision, unless so designated by other documentation

TABLE OF CONTENTS

Testing Parameters	1
Stress-Strain Curves	2

DTIC QUALITY INSPECTED 3

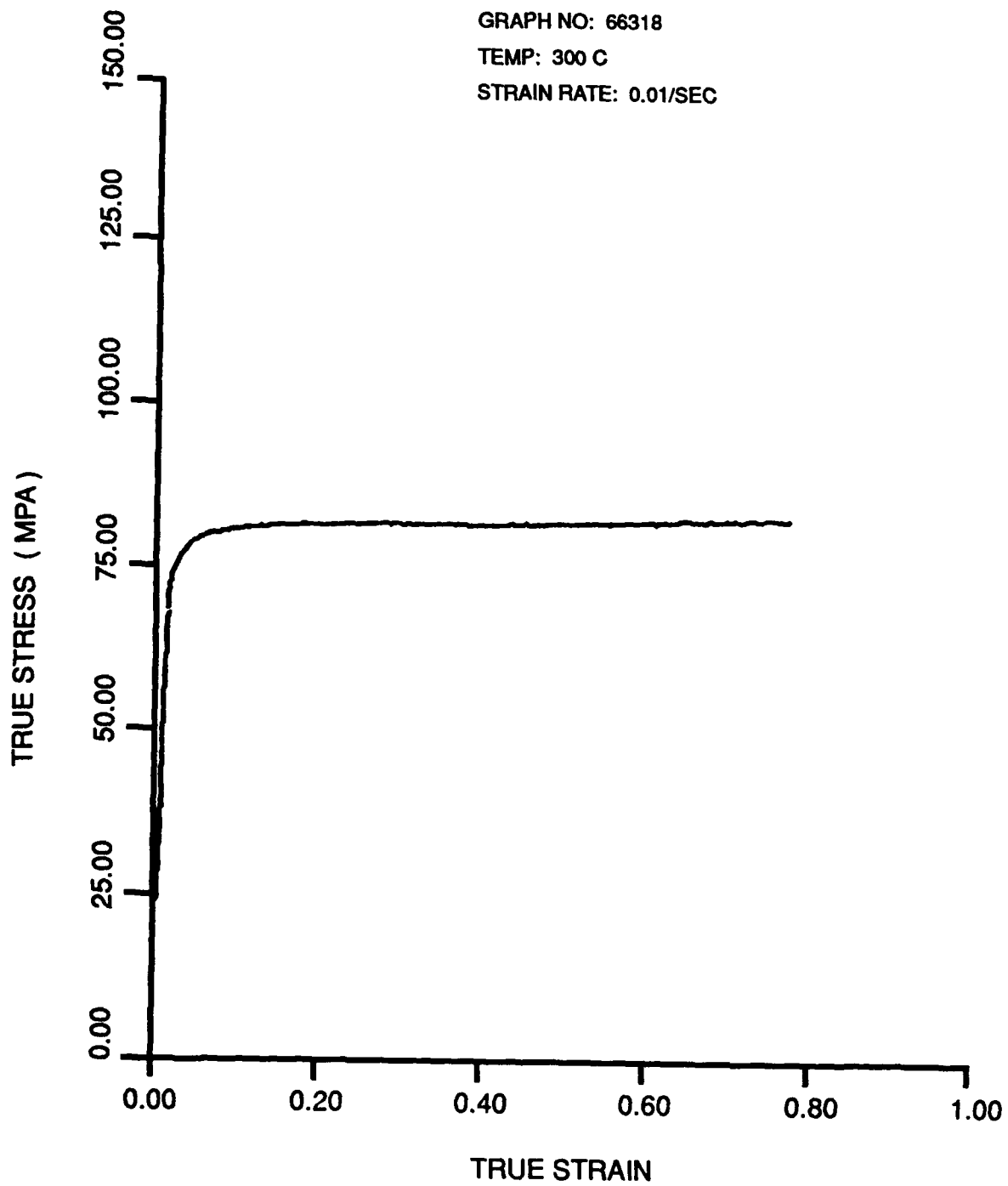
ST #A, AUTH USNAVIRSA (MR PLONSKY 8/443-6684)
PER TELECON, 17 AUG 93 CB

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By <i>per telecon</i>	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
<i>A-1</i>	

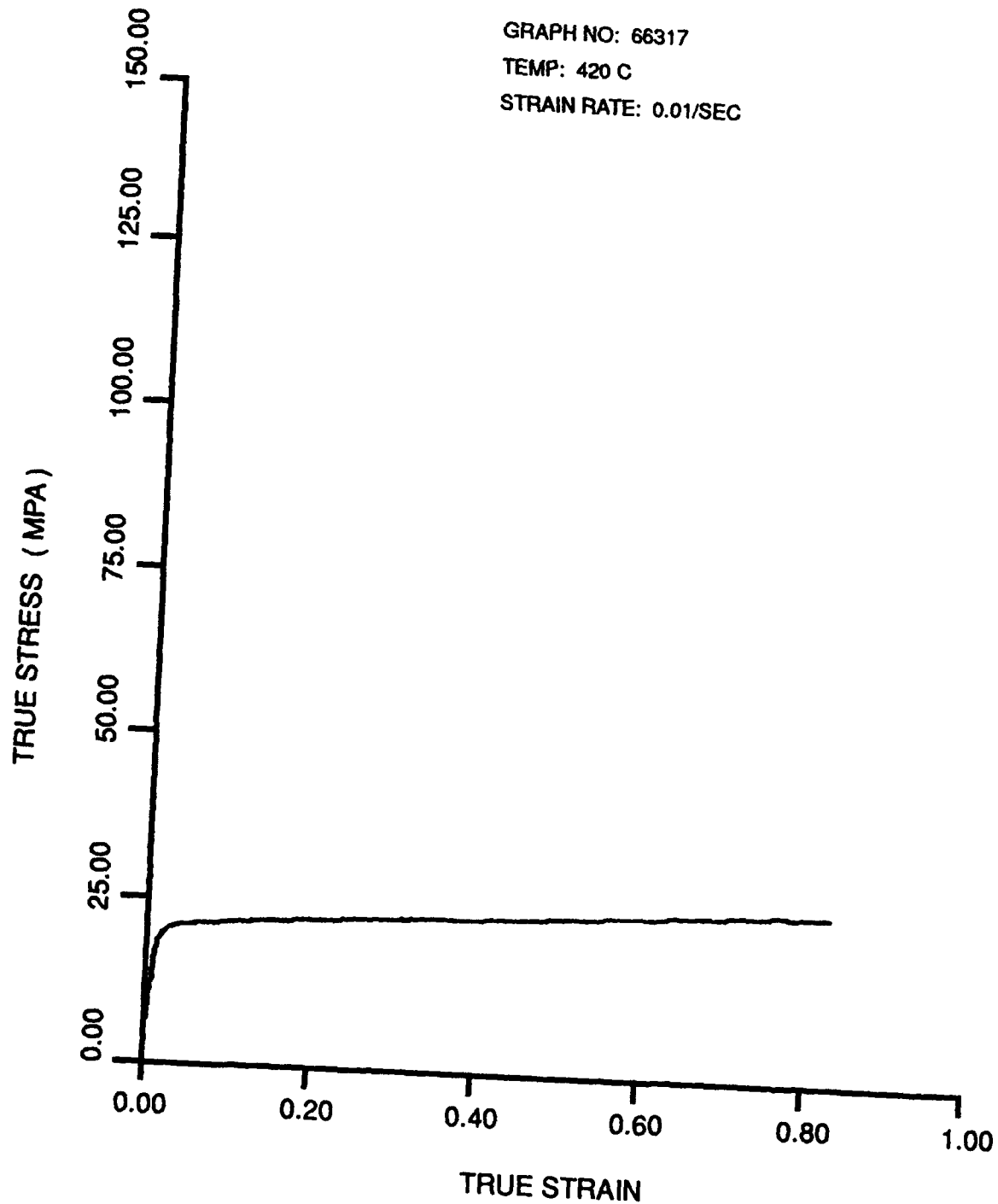
Cast Aluminum 6063

Testing Parameters

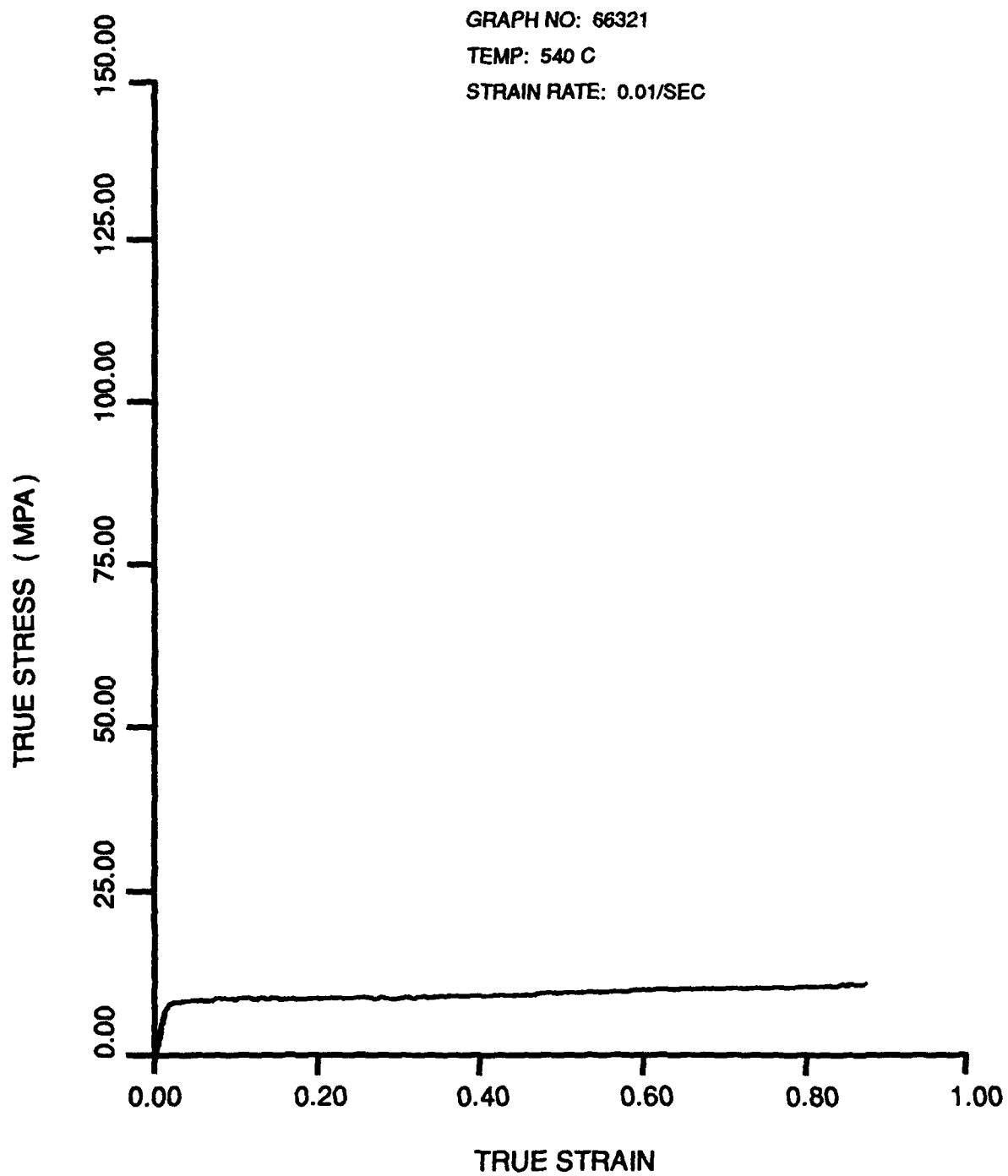
Strain Rate (1/sec.)	Temperature (deg. C)	Graph Number	Page Number
0.01	300	66318	2
0.01	420	66317	3
0.01	540	66321	4
0.01	Combination	66322	5
0.1	360	66315	6
1.0	300	66314	7
1.0	420	66309	8
1.0	480	66316	9
1.0	540	66313	10
1.0	300, 420, 540	66323	11
5.0	360	66301	12
5.0	480	66302	13
5.0	Combination	66324	14
12.0	300	66304	15
12.0	420	66303	16
12.0	540	66307	17
12.0	Combination	66325	18



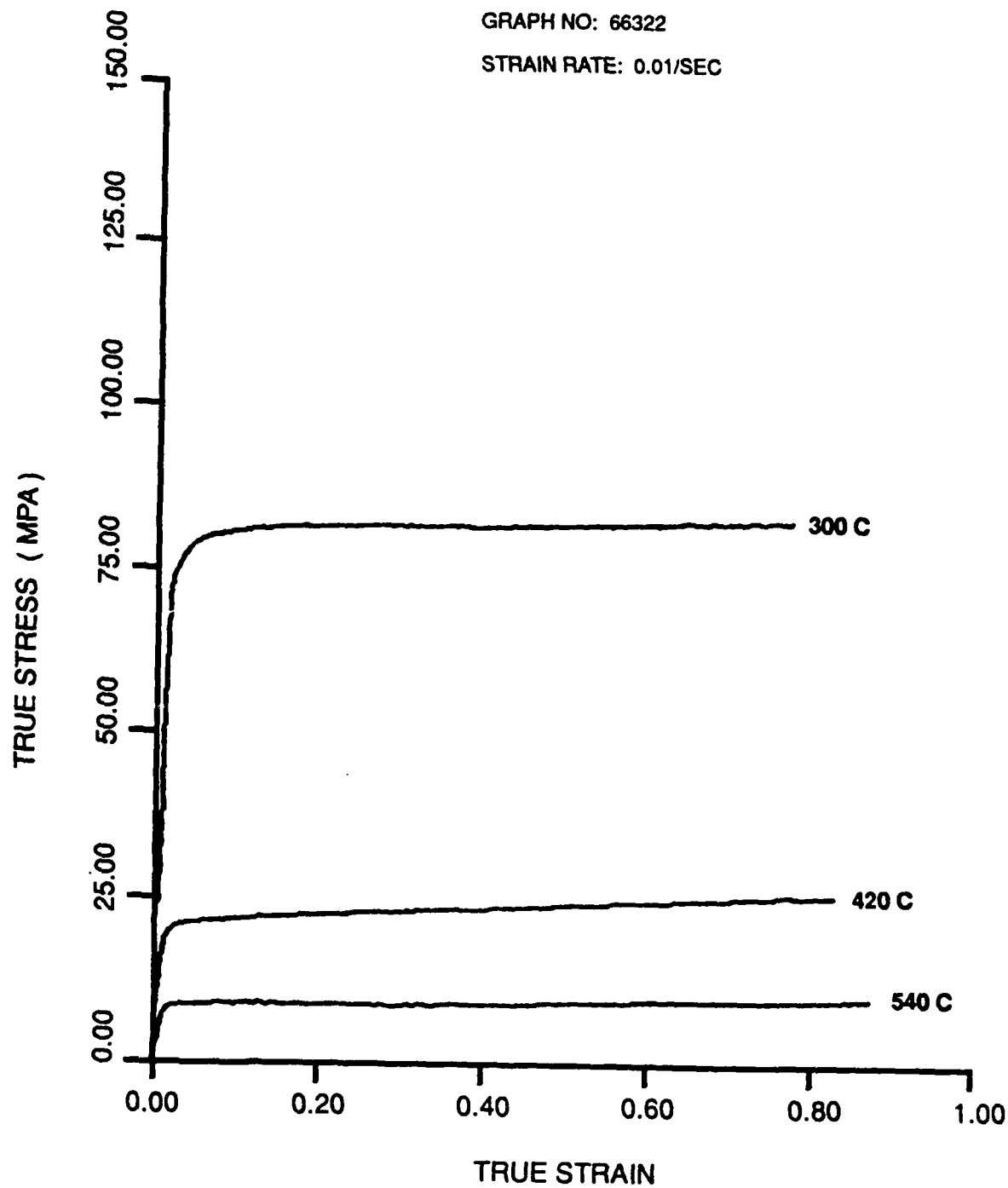
NCEMT



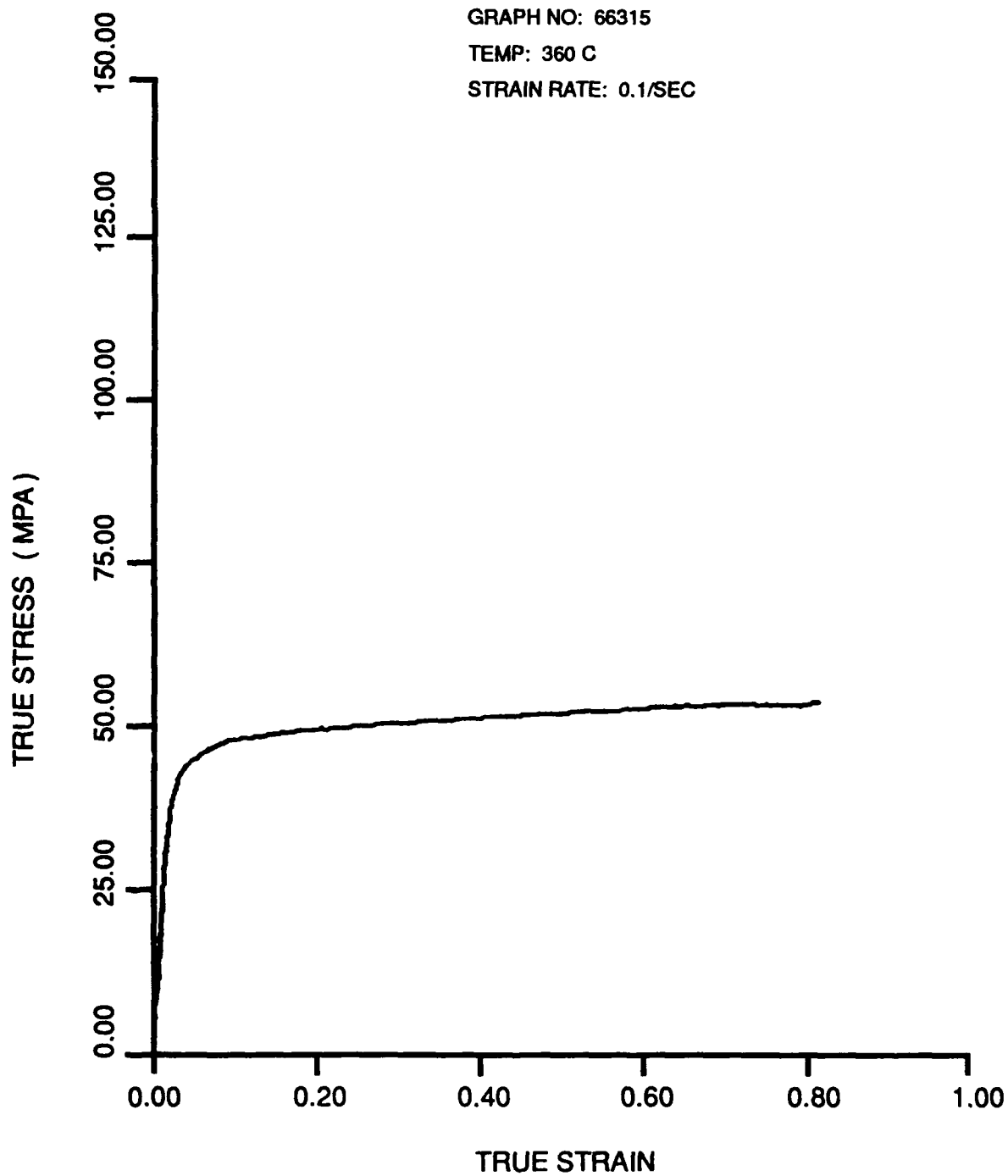
NCEMT



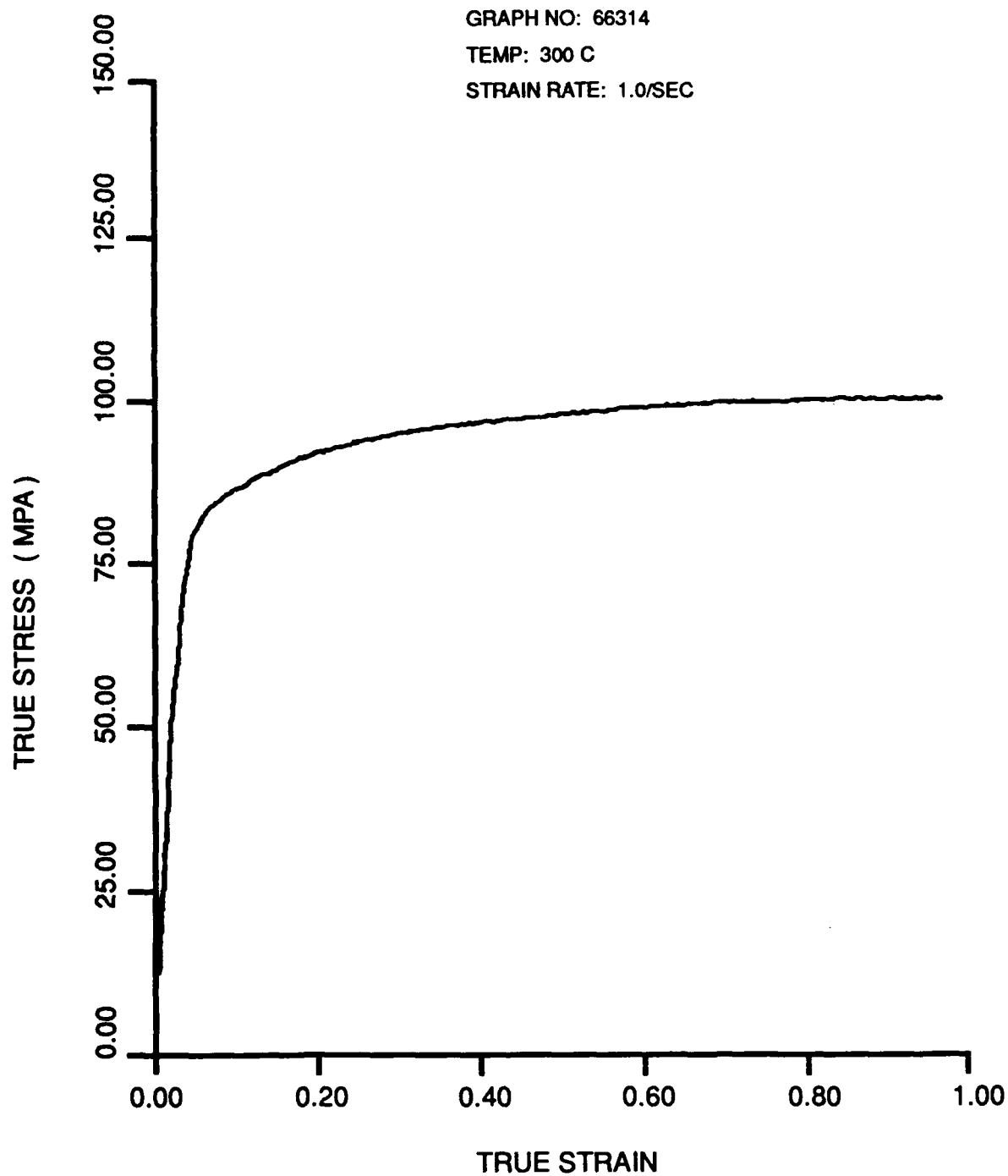
NCEMT



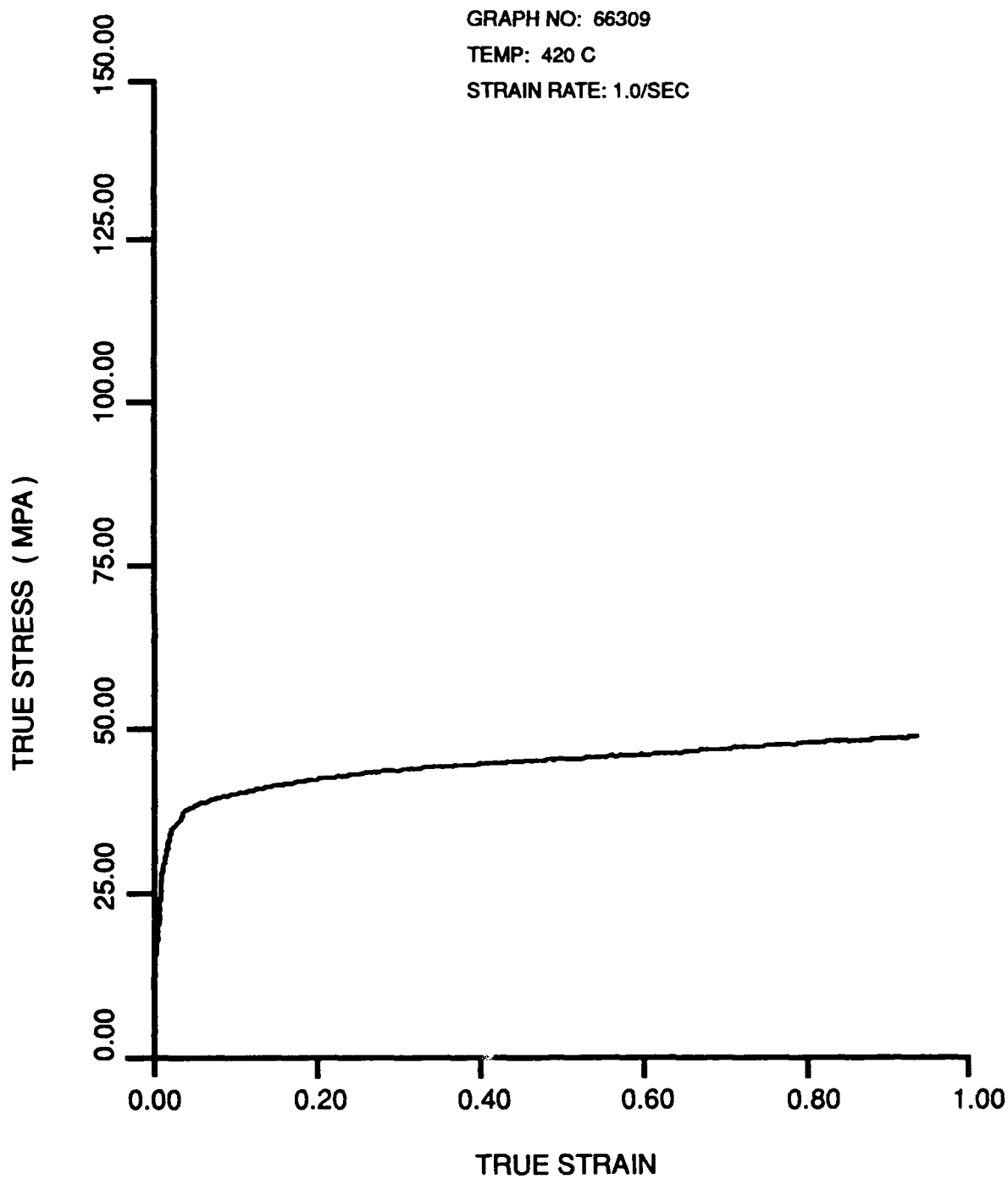
NCEMT



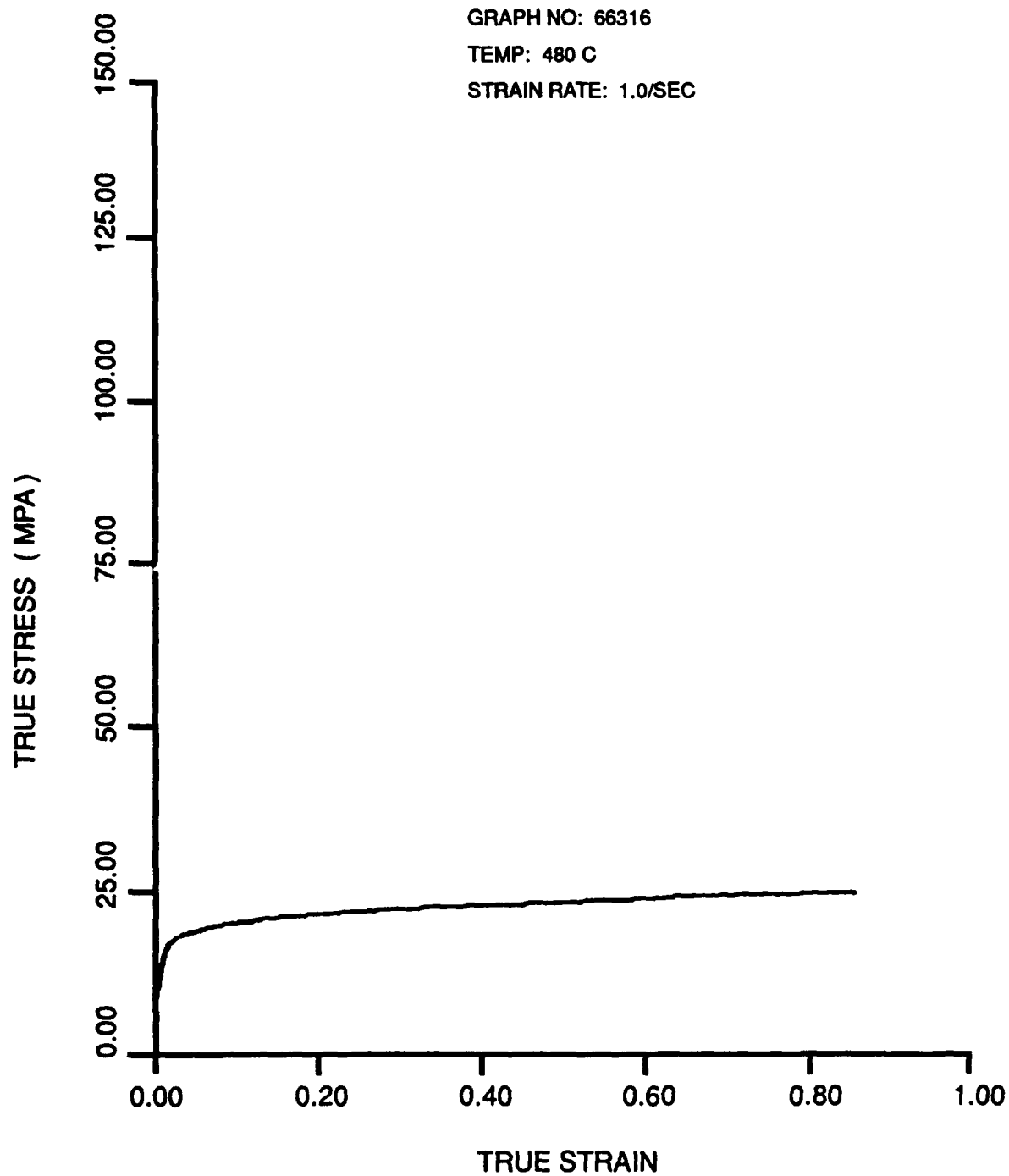
NCEMT



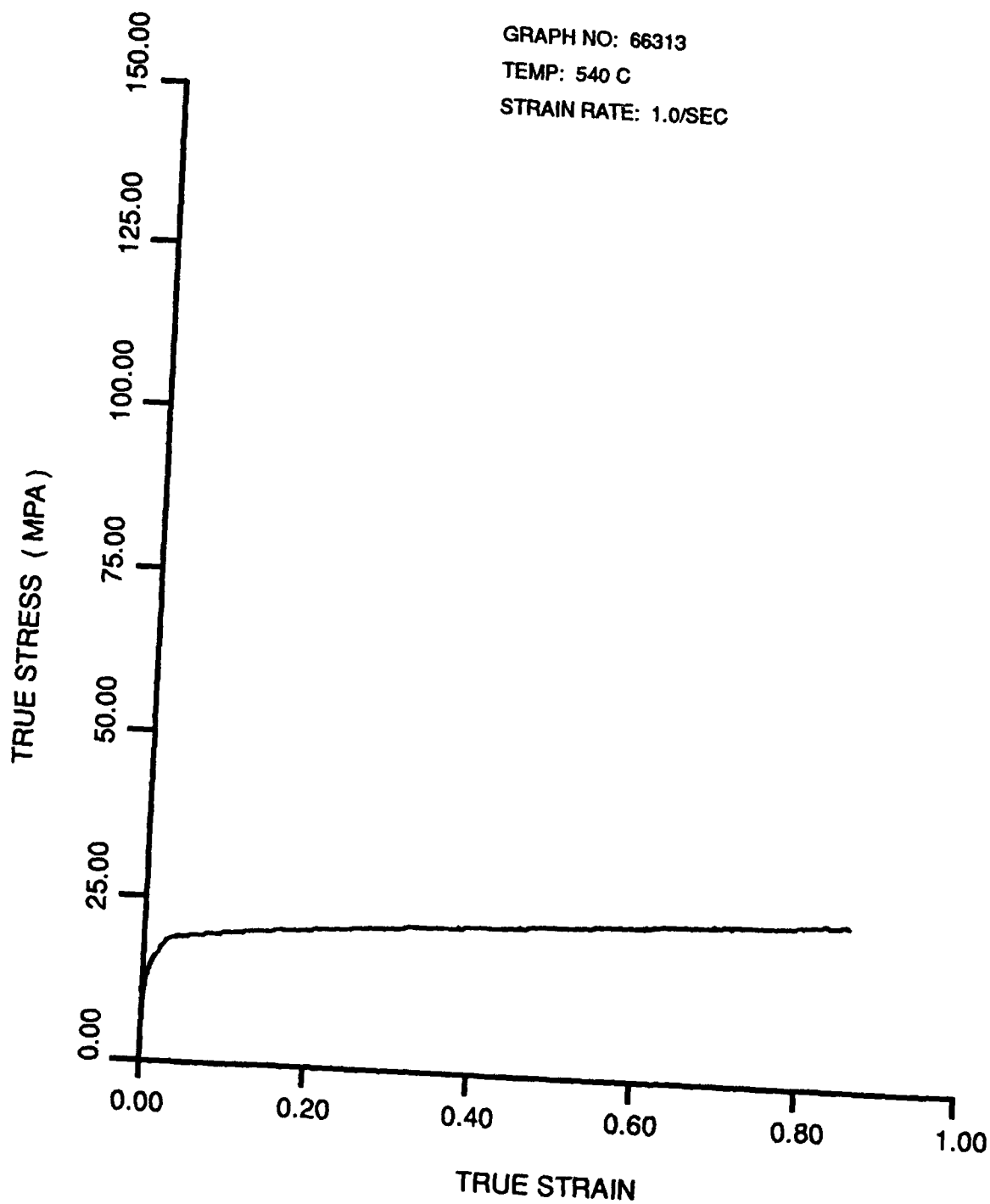
NCEMT



NCEMT

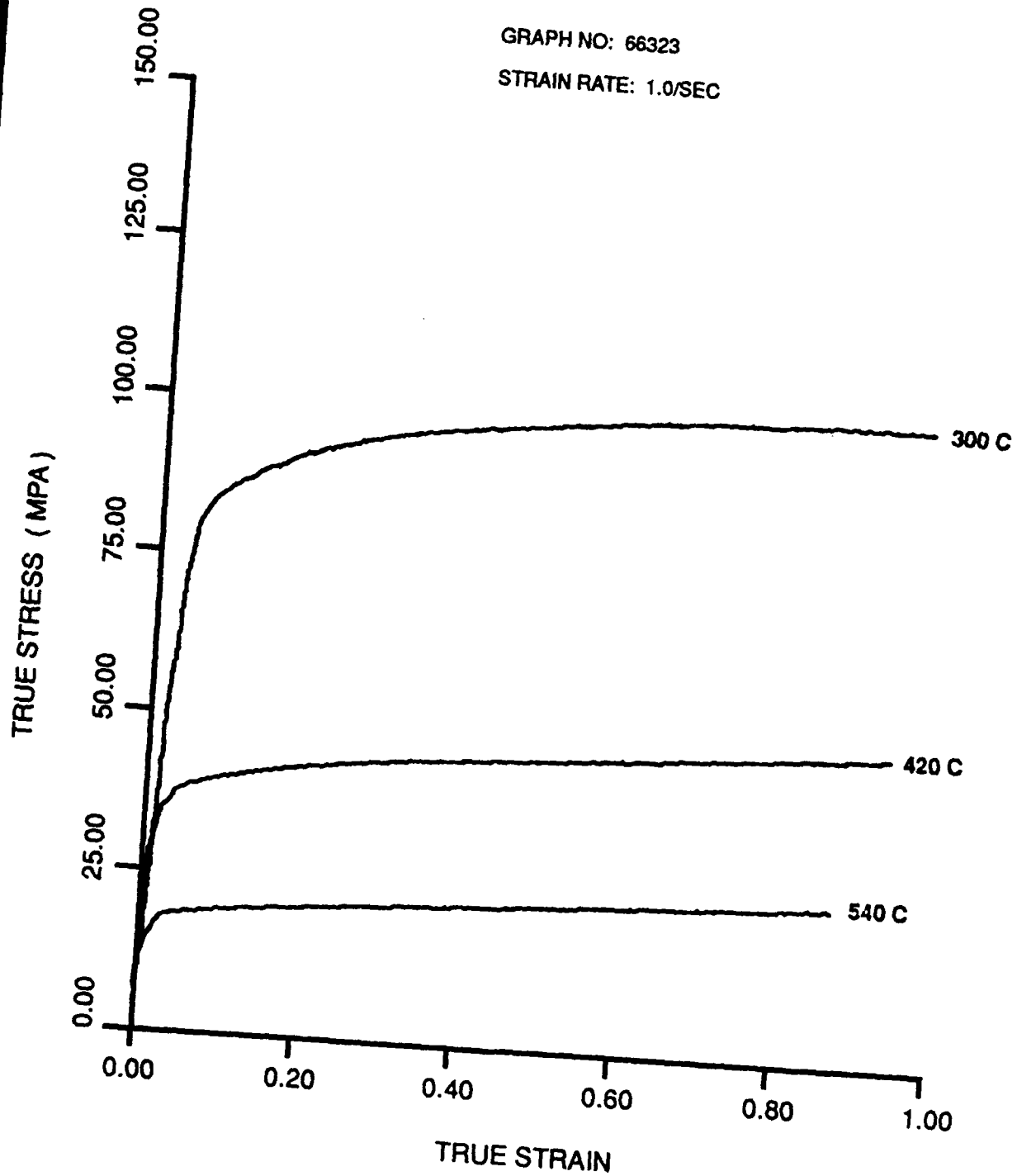


NCEMT

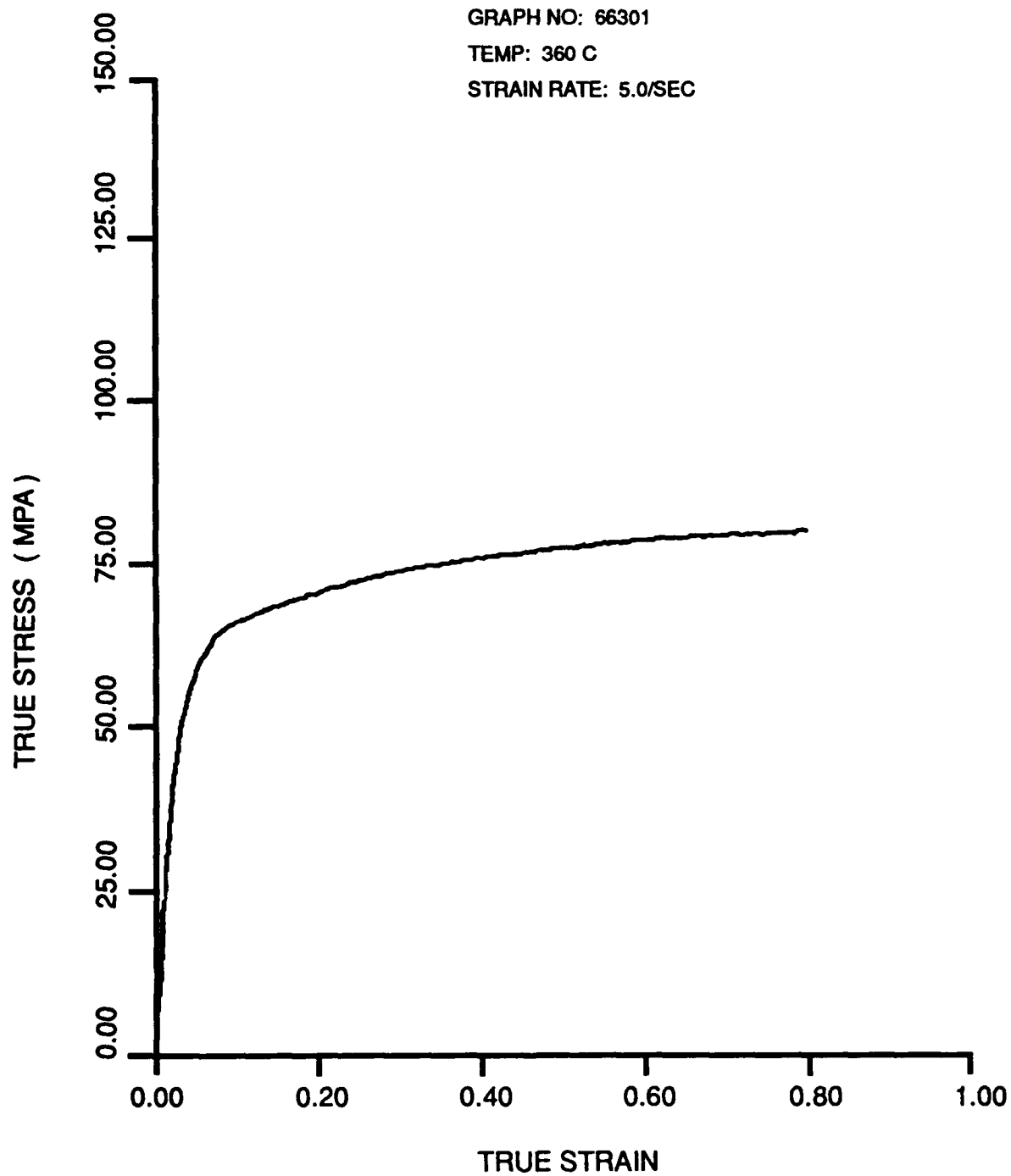


NCEMT

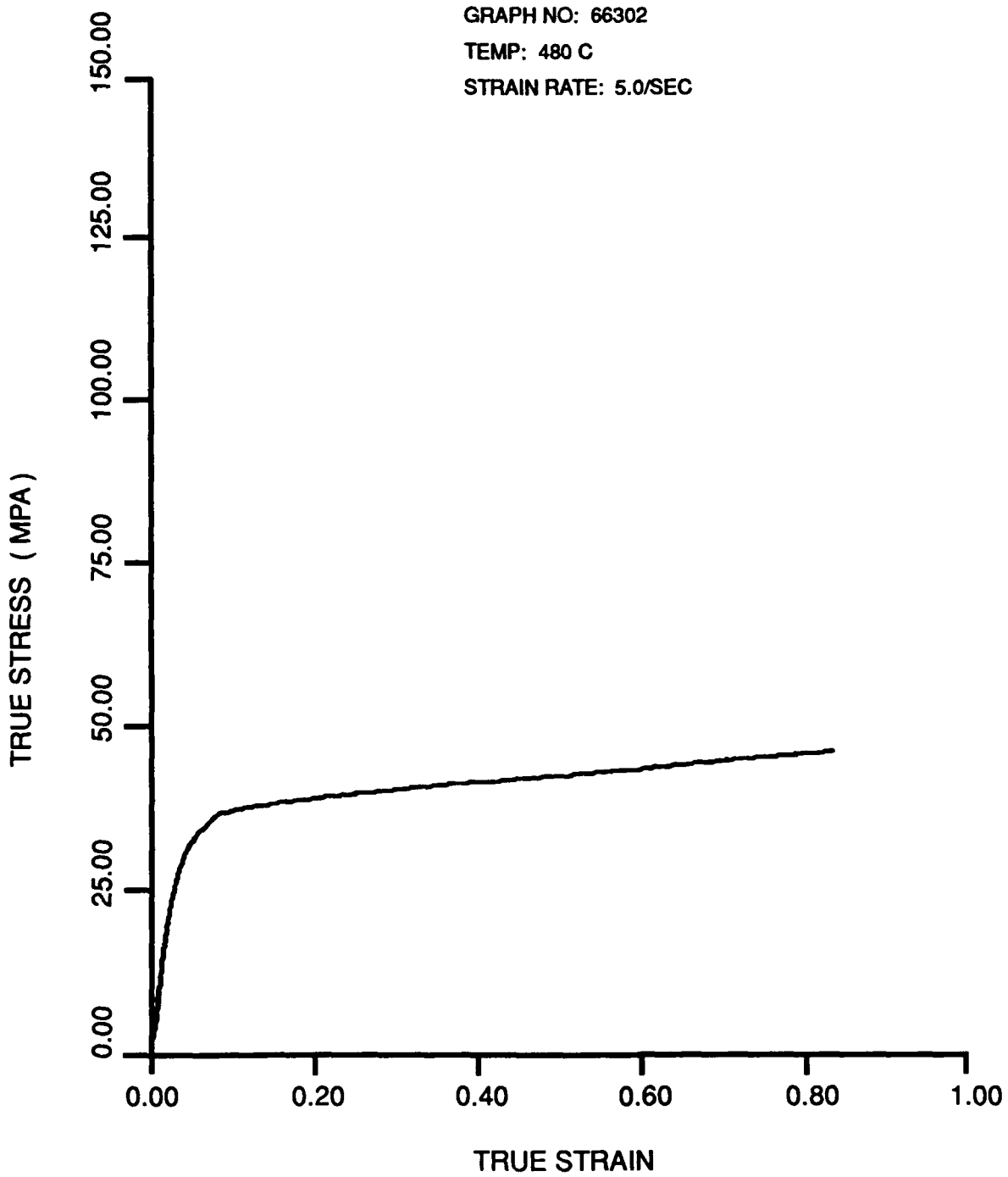
GRAPH NO: 66323
STRAIN RATE: 1.0/SEC



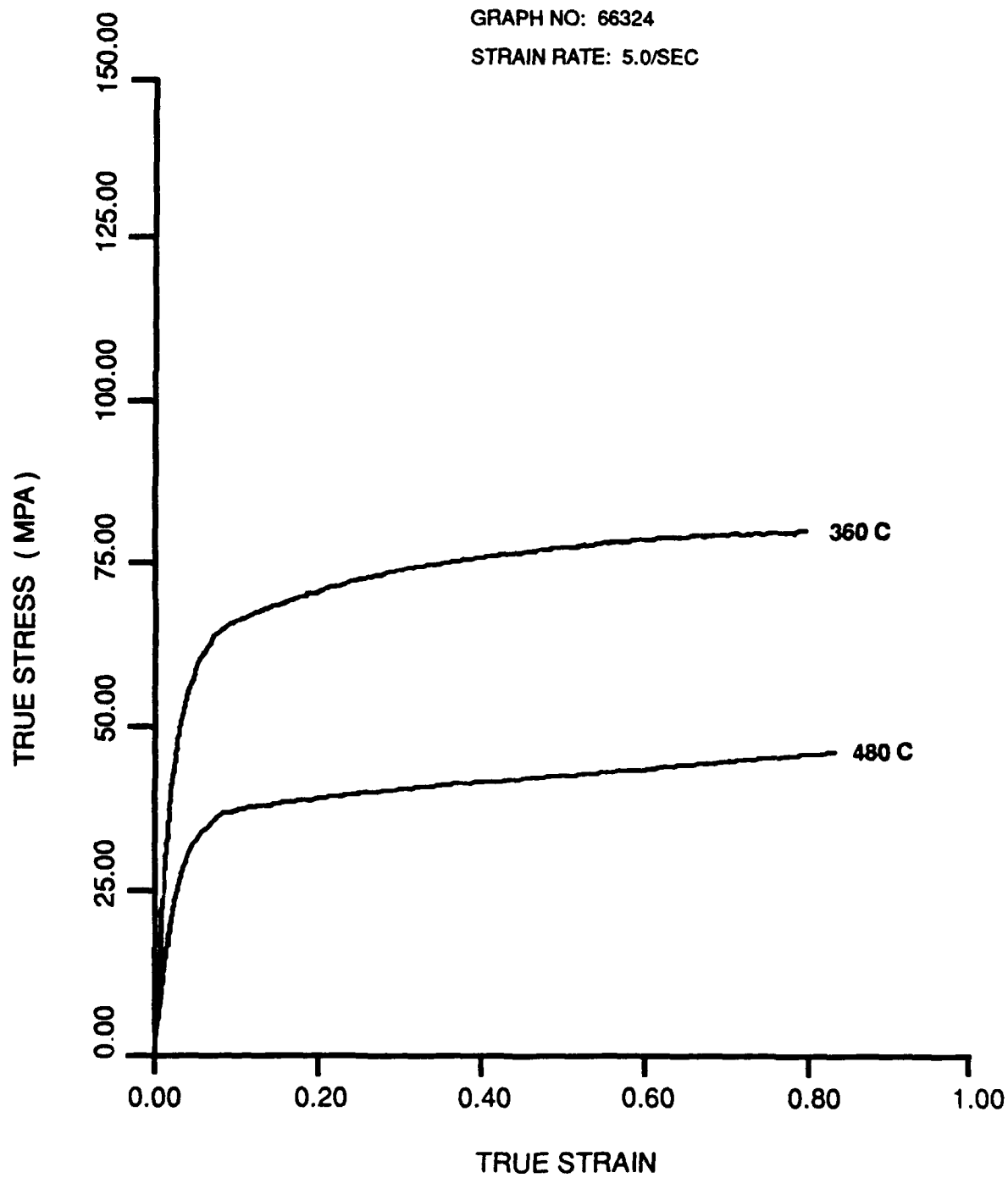
NCEMT



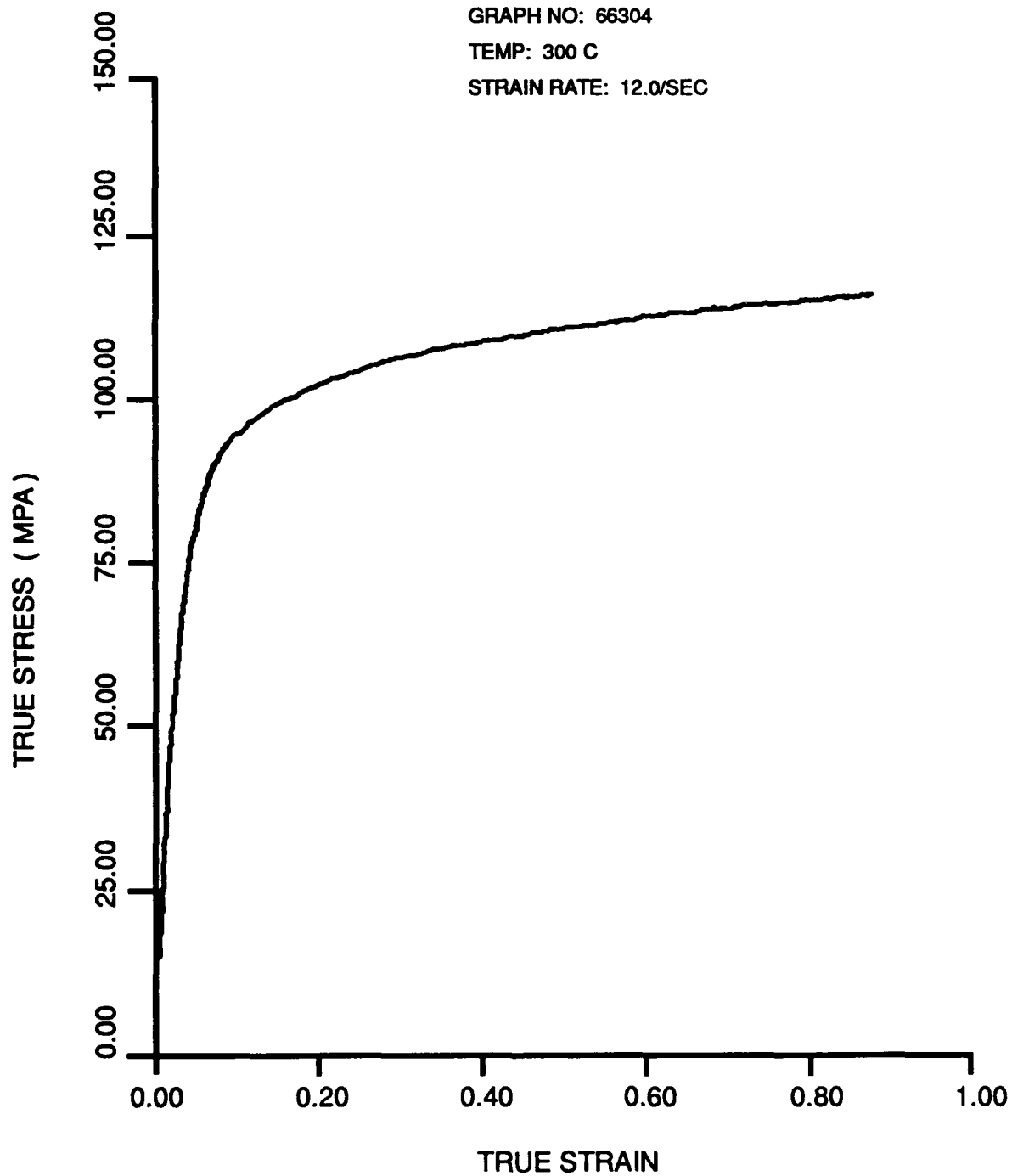
NCEMT



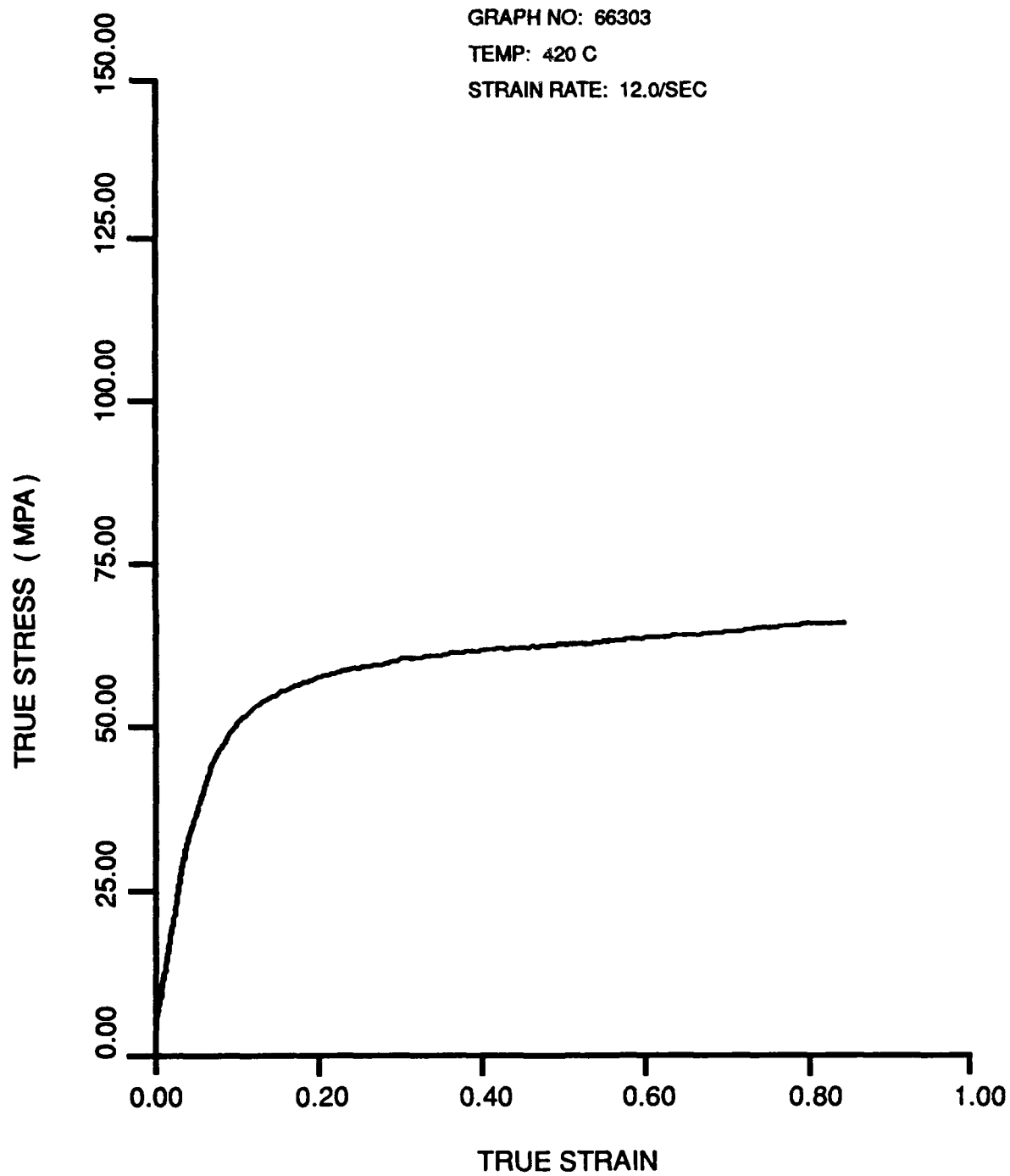
NCEMT



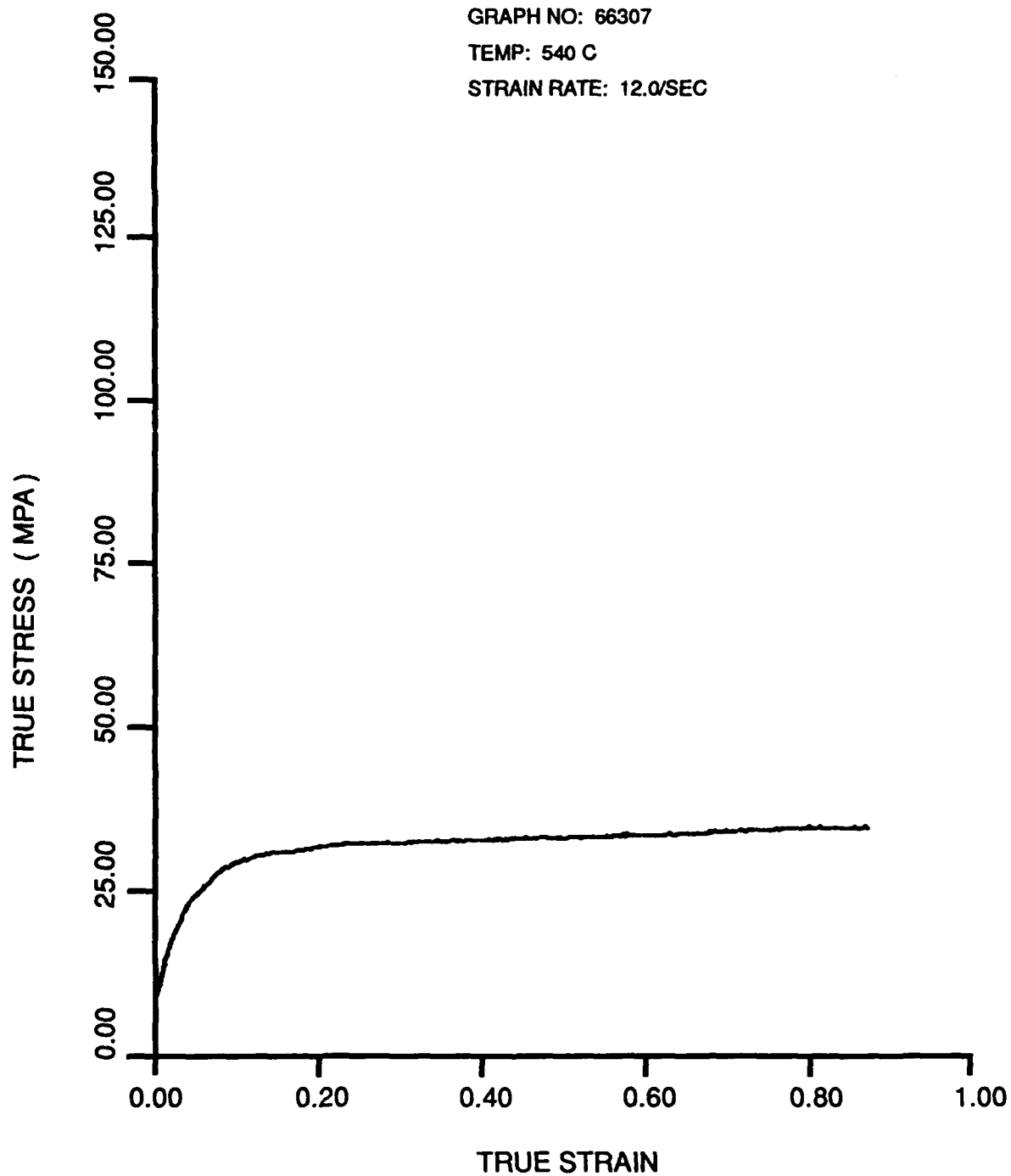
NCEMT



NCEMT



NCEMT



NCENT

