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A COMPUTER PROGRAM FOR CALCULATING, TABULATING, AND PLOTTING OUTGASSING RATES OF SELECTED GASES

D. S. Easton, Sandra H. Merriman,
Carla L. Armstrong, and R. E. Clausing

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D. S. Easton, Sandra H. Merriman,[1]
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ABSTRACT

We have written a computer program in Fortran to be used at the Oak Ridge National Laboratory Computer Center on either an IBM 360/91 or 360/75 computer for calculating outgassing rates.

The experimental method is outlined, and the procedures for computing both total outgassing rates and rates based on measurement of partial pressures of various gases are described. Outgassing rates are calculated from the pressure drop across an orifice located between the chamber and the pumping system. Data from a residual-gas analyzer and three ion gages permit the simultaneous analysis of 12 gases. Results are available in both tabular and graphic form. The computer program is given along with a sample calculation and a series of plots of outgassing rate versus time. A Calcomp program for plotting data from a series of outgassing runs at different temperatures is also given. An example of plots of outgassing rates from a series of isothermal experiments is shown.

INTRODUCTION

We have written a computer program in Fortran to be used at the Oak Ridge National Laboratory Computer Center on either an IBM 360/91 or 360/75 computer for calculating outgassing rates.

The program was originally developed to calculate the outgassing rates of gases desorbed from NERVA fuel elements in an ultrahigh-vacuum environment.[2] It can be used in its present form for many other

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[1]Numerical Analysis Program, Mathematics Division.

[2]D. S. Easton and R. E. Clausing, "Outgassing of Nuclear Rocket Fuel Elements," paper presented at International Conference of the Vacuum Metallurgy Division of the American Vacuum Society, Anaheim, Calif., June 15–19, 1970. To be published as a Special Issue of The Journal of Vacuum Science and Technology.

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outgassing situations by simple changes in input constants. The equipment used to obtain input data for the calculations is included in most high-vacuum systems today.

EXPERIMENTAL METHOD

Figure 1 shows the schematic diagram of a vacuum system and the location of orifices and ion gages (P_1,P_2, and P_3) necessary for using this technique. The conductance of the orifice between the chamber and the pumping system should be a small fraction of the total speed of the pumping system to provide a constant pumping speed from the outgassing chamber, give high sensitivity, and prevent selective

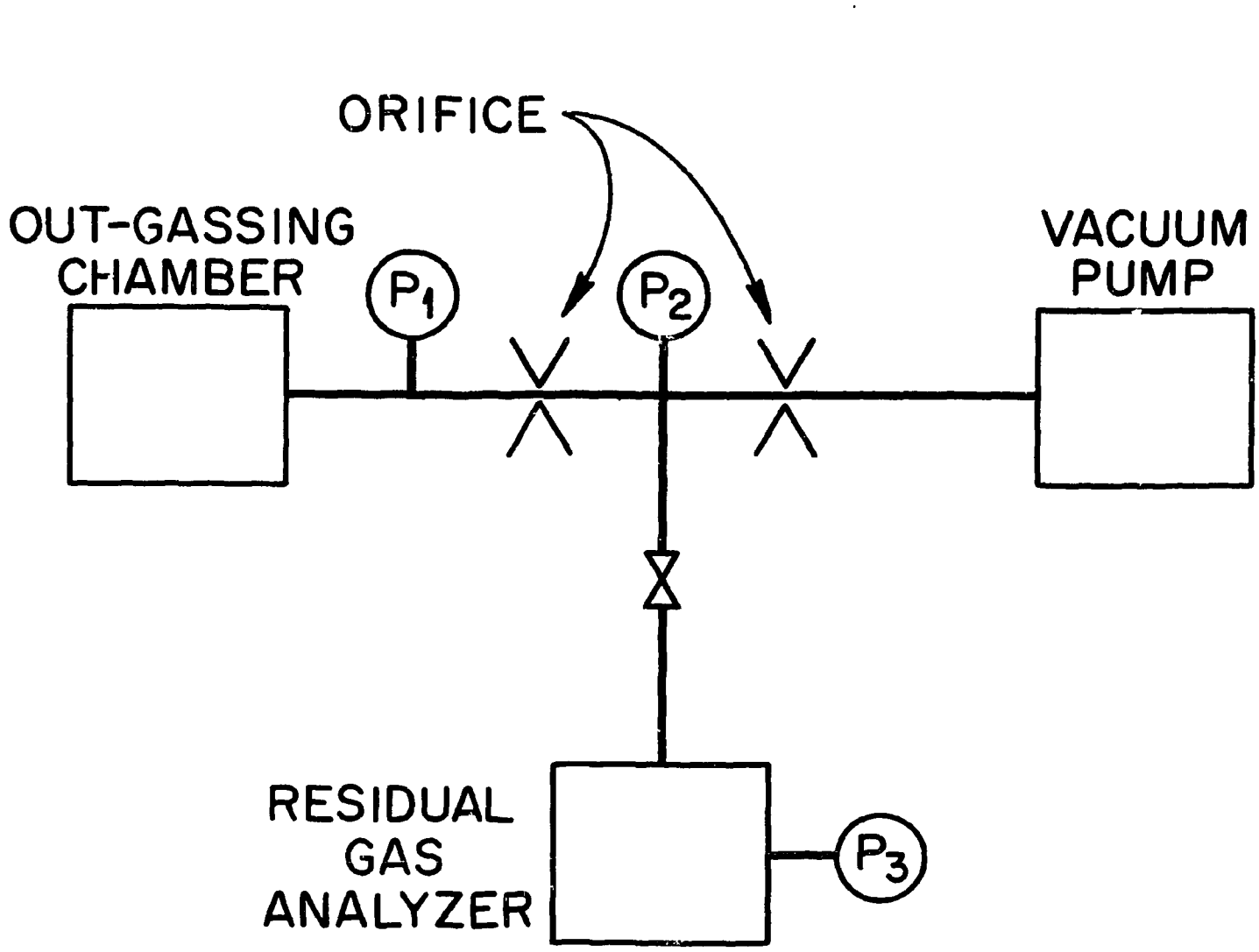

Fig. 1. Schematic Diagram of Vacuum System Showing Location of Gages and Orifice.

pumping of certain gases by the pumping system from interfering with the analysis. The outgassing rate for each gas is determined by multiplying the conductance of the orifice by the pressure drop across the orifice. (Corrections are made for gas composition, molecular weight, and temperature.) Outgassing rates in this work are given in units of torr liters per second. In order to relate to the surface area or mass of the material, the rates must be adjusted to either torr liters per second per square centimeter or torr liters per second per gram.

The program is consistent with the recommended practice for reporting outgassing data suggested by the American Vacuum Society.[3] The following assumptions are made:

1. The sample and sample chamber are the only sources of gas.

2. Pumping speeds at all points of pressure measurement are limited by conductance with no selective pumping of individual gas species.

3. Steady-state flow conditions exist [in other words, the pressure changes that occur are slow in comparison to the time constant for the outgassing chamber (τ = 1 sec).]

4. Ionization constants are assumed (based on values from the literature) for each gas to convert the readings of the ion gage and residual-gas analyzer to values of partial pressure in torr.

CALCULATION PROCEDURE

Pressure is measured at the following positions: P_1 – outgassing chamber, P_2 – vacuum manifold, P_3 – manifold of residual-gas analyzer.

Gases desorbed from the sample travel through a calibrated orifice between P_1 and P_2 and through a known conductance between P_2 and the pumping system. The pressure drop between these positions allows us to measure the flow of gas through the system by means of the following calculations.

---

[3] "American Vacuum Society Standard (tentative) AVS 9.1–1964," J. Vac. Sci. and Technol. 2(6) 314–319 (1965).

The outgassing rates are calculated[4] by

$$q = K(P_1 - P_2) \tag{1}$$

where

q = outgassing rate (in torr liters per second),

K = orifice conductance (in torr liters per second),

= 3.64 [area(in square centimeters)] $[(T/M)^{1/2}]$, where T is absolute temperature in degrees Kelvin and M is molecular mass,

P_1 = pressure of outgassing chamber (in torr), and

P_2 = pressure of vacuum manifold (in torr).

In our case, the orifice conductance was 10 liters/sec for air at 300°K [3.64 times the area of the orifice (0.855 cm^2) was 3.1 cm^2; this value appears in lines 2130 and 2200 in the attached program (see Appendix A) and must be changed if an orifice of different diameter is used].

All pressures are corrected[5] for temperatures other than 300°K by

$$P_{corr} = P_i(T_i\,°K/300\,°K)^{1/2}. \tag{2}$$

In general, the pressure in manifold P_3 of the residual-gas analyzer is the same as that at P_2; however, in cases where the pressure is excessively high and the residual-gas analyzer is throttled by the connecting valve, a correction is made to P_2 for the individual gases (i) by the relation

$$P_{2(i)} = P_{3(i)}(P_2/P_3). \tag{3}$$

For either the total or partial pressures, the ratio of the pressure drop across the orifice to the downstream pressure, P_2 or $P_{2(i)}$, is

$$(P_1 - P_2)/P_2 = \Delta P/P_2 = \Delta P_{(i)}/P_{2(i)}, \tag{4}$$

and the change in pressure for an individual gas is

$$\Delta P_{(i)} = (P_1 - P_2)(P_{3(i)}/P_3). \tag{5}$$

---

[4]Saul Dushman, Scientific Foundation of Vacuum Technique, 2nd ed., p. 91, Wiley, New York, 1965.

[5]P. A. Redhead, J. P. Hobson, and E. V. Kornelsen, in The Physical Basis of Ultrahigh Vacuum, pp. 281–287, Chapman & Hall, Ltd., London, 1968.

Therefore, the outgassing rate for gas (i) is

$$q_{(i)} = K_{(i)}(P_1 - P_2)(P_{3(i)}/P_3). \tag{6}$$

The total quantity of gas desorbed from the sample is the integral of the outgassing rate as a function of time:

$$Q = \int_{t_o}^{t} q(t)dt, \tag{7}$$

where

Q = total quantity of gas,

t_o = initial time, and

t = time.

Scans of the spectra of the gas analyzer are recorded along with other data on a regular schedule. The intensities of the spectrometer peaks at 18 separate values of m/e (ratio of mass to charge), including all the major peaks of the 12 calibration gases, are recorded. These values plus the date, the accumulated time, the sample temperature, and the pressures of the outgassing chamber, vacuum manifold, and manifold of the residual-gas analyzer are put into a computer program. The program obtains a least-squares fit of a set of 18 simultaneous equations (18 values of m/e) with 12 unknowns (gases):

$$B_i = \sum_{j=1}^{12} A_{ij}X_j, \tag{8}$$

where

B_i = intensity of each peak (ion current),

A_{ij} = fractional part of gas as determined by experimental cracking pattern, and

X_j = ion current associated with each gas.

The coefficients of the equations are obtained from the cracking pattern.

The first tabular output from the computer includes the following for each data scan:

1. The pressures are corrected for thermal effects, and thermocouple readings in millivolts are changed to degrees Celsius.

2. For each peak, the measured ion current is compared with a calculated value based on the least-squares fit.

3. The tabulated ratio of P_1 to P_2 is printed to provide a check on pumping conditions of the system.

4. Ion currents are converted to corrected partial pressures, printed, and summed.

5. The partial pressures of the hydrocarbons are summed and printed separately.

6. The percentage composition is calculated and printed.

7. The outgassing rates are calculated as shown in Eq. (6).

8. The ion currents of the residual-gas analyzer are summed and divided by the pressure read from the ion gage to give a check on the total sensitivity of the residual-gas analyzer.

9. The readings from the residual-gas analyzer and the ion gage are compared by summing the partial pressures and comparing the total pressure to the reading from the ion gage after it has been corrected for composition.

The computer then sorts all the data and prints the time versus outgassing rate for each gas. These values are fitted to a power equation:

$$q = A(t/t_o)^B, \tag{9}$$

where

q = outgassing rate (in torr liters per second),

A = intercept at time t_o (in torr liters per second),

t = time (in hours),

t_o = one hour, and

B = slope of the curve for the log of the outgassing rate versus the log of time.

The values of A and B are tabulated for each gas. The program then integrates the fitted curve between selected times and tabulates the quantity of each gas evolved in the selected time interval.

The program includes a graphical output of the log of the outgassing rate versus the log of time. Data points and a curve are plotted for the ion gage, each gas, and the summed hydrocarbons. A composite graph containing selected gases is also available for comparison. The

experimenter may obtain a qualitative assessment of his results from the correlation coefficient and correlations of determination. These are convenient and useful for testing the fit to the relationship of Eq. (9) and for comparing the scatter in data for different gases or from different runs. The 95% confidence limits are tabulated for B and for the log of the outgassing rate (designated as log Y in the computer printout).

The program for outgassing rate, together with an example of an experiment in which outgassing data from a fuel element was taken for a period of 350 hr at a constant temperature, is included in this report as Appendix A. A second program, which compiles and plots outgassing rate as a function of temperature with time as a selected parameter, is attached as Appendix B. The input data for this program are obtained from a series of isothermal experiments. In our case, each experiment represents a separate sample hold at a different temperature.

ACKNOWLEDGMENTS

We wish to acknowledge the assistance of R. O. Williams and L. R. Lieto in the solution of Eq. (8).

APPENDIX A

FORTRAN REFERENCE LISTING

```
**FTN,L,E,G.                          KEYWORDS = IF, DO, GOTO, READ, PRINT
      PROGRAM OUTGAS                                                    OUTGA 10
C                                                                       OUTGA 20
C                                                                       OUTGA 30
C THIS PROGRAM WAS WRITTEN TO HANDLE THE LARGE VOLUME OF DATA COLLECTED OUTGA 40
C DURING THE OUTGASSING OF GRAPHITE IN AN ULTRA-HIGH VACUUM APPARATUS.  OUTGA 50
C THE PROGRAM USES DATA TAKEN AT INTERVALS OF TIME AND/OR TEMPERATURE   OUTGA 60
C FROM A RESIDUAL GAS ANALYZER AND ION GAGES TO CALCULATE THE FOLLOWING OUTGA 70
C VALUES OF VARIOUS GASES  (1) PARTIAL PRESSURE, (2) OUTGASSING RATE,   OUTGA 80
C (3) FIT OF THE RATE VS TIME TO AN ANALYTICAL EXPRESSION,              OUTGA 90
C (4) INTEGRATING OF THE DATA TO OBTAIN THE TOTAL QUANTITY OF GAS       OUTG 100
C EVOLVED,  (5)PROVIDES FOR GRAPHICAL PLOTTING,  (6) PRINTS OUT CERTAIN OUTG 110
C CONTROL DATA FOR INFORMATION AND IDENTIFICATION.                      OUTG 120
C THE PROGRAM INCLUDES THESE 5 SUBROUTINES (1)PRINT,  (2)LSFIT,         OUTG 130
C (3)INTEGRAL   (4)HPMINV,  (5)GRAPHS.                                  OUTG 140
C THE FOLLOWING DATA ARE NECESSARY FOR THE PROGRAM                      OUTG 150
C    1. DATE                                                            OUTG 160
C    2. ACCUMULATED TIME                                                OUTG 170
C    3. TEMPERATURE OF THE SAMPLE                                       OUTG 180
C    4. OUTGASSING CHAMBER PRESSURE (TORR)                              OUTG 190
C    5. VACUUM MANIFOLD PRESSURE (TORR)                                 OUTG 200
C    6. RGA MANIFOLD PRESSURE (TORR)                                    OUTG 210
C    7. CERTAIN SELECTED PEAKS (ION CURRENT IN AMPS) FROM A RESIDUAL    OUTG 220
C          GAS ANALYZER.                                                OUTG 230
C    8. TEMPERATURE OF THE APPARATUS.                                   OUTG 240
C    IN ADDITION THE CRACKING PATTERN, SENSITIVITY (AMPS/TORR), AND THE OUTG 250
C    IONIZATION CONSTANTS (NORMALIZED TO NITROGEN) FOR EACH GAS MUST BE OUTG 260
C    KNOWN. HOWEVER,THESE VALUES NEED NOT BE GENERATED FOR EVERY RUN    OUTG 270
C    AS DO THE VALUES LISTED ABOVE.                                     OUTG 280
C FOR EACH SET OF DATA(ONE ELAPSED TIME OR TEMPERATURE), OUTPUT CONSISTSOUTG 290
C    OF MEASURED PEAK HEIGHT, THE CALCULATED PEAK, DIFFERENCE BETWEEN   OUTG 300
C    THE MEASURED AND CALCULATED PEAK, THE PERCENT DIFFERENCE, THE      OUTG 310
C    PARTIAL PRESSURE  AND OUTGASSING RATE OF EACH GAS, PERCENT OF TOTALOUTG 320
C    PRESSURE AND OUTGASSING FOR EACH GAS, THE SUM OF THE CURRENTS,     OUTG 330
C    TOTAL CURRENT/RGA PRESSURE, THE SUM OF THE PARTIAL PRESSURES, THE  OUTG 340
C    RGA ADJUSTED PRESSURE, AND THE DIFFERENCE IN THE RGA               OUTG 350
C    PRESSURE AND SUM.                                                  OUTG 360
C AN ADDITIONAL PRINT OUT SHOWS EACH GAS AND ALL THE ACCUMULATED        OUTG 370
C    OUTGASSING RATES AS A FUNCTION OF TIME OR TEMPERATURE.             OUTG 380
C THE USER MAY SPECIFY 3 OTHER OPTIONS                                  OUTG 390
C    1.BY SETTING LSQFIT=1, PROGRAM WILL PRINT A TABULATED LEAST SQUARESOUTG 400
C         FIT OF THE OUTGASSING RATE VS. TIME. A CURVE OF THE FORM      OUTG 410
C         Y=A*X**B WILL BE FITTED TO THE DATA. IN THIS EQUATION,        OUTG 420
C         Y=OUTGASSING RATE, A=INTERCEPT AT TIME 1, X=TIME IN HOURS,    OUTG 430
C         AND B=SLOPE OF CURVE ON LOG-LOG PLOT.                         OUTG 440
C    2.BY SETTING INTEG=1,THE ABOVE EQUATION WILL BE  INTEGRATED TO     OUTG 450
C         SOLVE FOR THE OUTGASSING RATE AS A FUNCTION OF TIME.          OUTG 460
C    3.A THIRD OPTION ALLOWS THE USER TO OBTAIN LOG-LOG OR LOG-LINEAR   OUTG 470
C         PLOTS OF OUTGASSING RATE VS. TIME OR TEMPERATURE FOR EACH     OUTG 480
C         GAS PLUS A COMPOSITE PLOT OF A SELECTION OF GASES.            OUTG 490
C                                                                       OUTG 500
C  *** PREPARING INPUT ***                                              OUTG 510
C                                                                       OUTG 520
C ALL DATA CARDS FOLLOW THIS CONTROL CARD                               OUTG 530
C   //GO.FT50F001 DD *                                                  OUTG 540
C                                                                       OUTG 550
C THE  FOLLOWING DATA ARE ENTERED IN COLUMNS THAT ARE RIGHT ADJUSTED.   OUTG 560
C THE DATA CARDS OR SETS OF CARDS ARE ASSEMBLED AS FOLLOWS              OUTG 570
C    1. CONTAINS THE VALUES OF LSQFIT AND INTEG IN COLUMN 5 AND 10      OUTG 580
C       RESPECTIVELY. IF NEITHER OF THESE OPTIONS IS  DESIRED, INCLUDE  OUTG 590
C       A BLANK CARD.                                                   OUTG 600
C    2. A SET OF CARDS(NUMBER OF PEAKS * 2) CONTAINING VALUES OF THE    OUTG 610
C       CRACKING PATTERN OF THE GASES, IN FIELDS OF 8 COLUMNS EACH.     OUTG 620
C       FOR EACH M/E VALUE, THERE MUST BE 2 CARDS. THE FIRST CONTAINING OUTG 630
C       THE CRACKING PATTERN OF H, HE, CH4, H2O, N2, CO, O2, AR, CO2,   OUTG 640
C       C2H4. THE SECOND CONTAINING C2H6, C3H8.                         OUTG 650
C    3. VALUES OF THE RGA SENSITIVITY (IN AMPS/TORR) OF THE ABOVE GASES OUTG 660
C       IN THE SAME ORDER. 8 COLUMNS, 10 PER CARD.                      OUTG 670
C    4. CARDS CONTAINING THE IONIZATION CONSTANTS OF THE GASES. 8       OUTG 680
C       COLUMNS, 10 PER CARD.                                           OUTG 690
C    5. TEMPERATURE OF THE APPARATUS IN DEGREES C, (D), COLUMN 1-8.     OUTG 700
C    6. 2 CARDS FOR IDENTIFICATION OF RUN, COLUMNS 1-80.                OUTG 710
C    7. A SET OF CARDS FOR EACH TIME/TEMP. RUN CONTAINING               OUTG 720
C         A. 1 CARD WITH THE FOLLOWING 6 VALUES IN FIELDS OF 8 COLUMNS  OUTG 730
C            EACH,   DATE(DAY AND MONTH), TIME(HOURS), TEMPERATURE      OUTG 740
C            (MV OF CR-AL THERMOCOUPLE), CHAMBER PRESSURE(TORR),        OUTG 750
C            VACUUM MANIFOLD PRESSURE(TORR), AND RGA MANIFOLD PRESSURE  OUTG 760
C            (TORR).                                                    OUTG 770
C         B. VALUES OF ION CURRENTS OF 18 PEAKS AT M/E VALUES OF        OUTG 780
C            2,4,12,13,14,15,16,17,18,22,26,27,28,29,30,32,40,AND 44.   OUTG 790
C            8 COLUMNS,  8 PER CARD.                                    OUTG 800
C    8. 1 BLANK CARD.                                                   OUTG 810
C IF PLOTS ARE DESIRED, SEE SUBROUTINE GRAPHS FOR DATA CARD DESCRIPTION OUTG 820
C   AND INCLUDE THOSE DATA CARDS HERE. IF NO PLOTS ARE DESIRED, THIS    OUTG 830
C   CONCLUDES DATA AND THE LAST 2 CARDS IN THE DECK ARE THE FOLLOWING   OUTG 840
C   CONTROL CARDS.                                                      OUTG 850
C  /*                                                                   OUTG 860
C  //                                                                   OUTG 870
C                                                                       OUTG 880
```

```
      REAL*8 TITLE,GASLEG,GASES,HEADING,XTIT                                    OUTG 890
      COMMON/BLK1/TEMP,LSQFIT                                                   OUTG 900
      COMMON /EATOGR/ LINE                                                      OUTG 910
      COMMON /HILO/ XAL,YL,TETLE,GASLEG                                         OUTG 920
      DIMENSION COEFF(11),DI(15),CON(15),CON1(15),F1(15),DT(15),                OUTG 930
     1    A(15,25),B(15,15),Q(15,25),V(25),S(15),C(25),T(15,15),               OUTG 931
     2    TITLE(50),AS(20),BS(20),XTIT(4),TETLE(40),DATE(2),XAL(2),            OUTG 932
     3    YL(2),ME(25),CONION(15),RGA(15),GASES(50),HEADING(14),               OUTG 933
     4    PG(15),HCURS(  50),TEMP(  50),OUTGAS(  50,20),GASLEG(50),Z(3),OUTG 934
     5      ZZ(3)                                                              OUTG 935
      DATA (XTIT=8HTIME (HO,8HURS)$   ,8HTEMPERAT,8HURE (C)$)                   OUTG 940
      DATA (COEFF=.378678,24.2906,8.69756E-02,-7.90107E-03,2.0144E-04,          OUTG 950
     1-1.5116E-06,5(0.))                                                        OUTG 951
      DATA  (ME=2,4,12,13,14,15,16,17,18,22,26,27,28,29,30,32,40,44)            OUTG 960
      DATA (TITLE=8H GAGE P1,8H         ,8H TOTAL  ,8H         ,               OUTG 970
     1             8H H      ,8H         ,8H HELIUM ,8H         ,               OUTG 971
     2             8H METHANE,8H         ,                                     OUTG 972
     3             8H WATER V,8HAPOR     ,8H NITROGE,8HN        ,               OUTG 973
     4             8H CO     ,8H         ,8H OXYGEN ,8H         ,               OUTG 974
     5             8H ARGON  ,8H         ,8H CO2    ,8H         ,               OUTG 975
     6             8H C2H4   ,8H         ,8H C2H6   ,8H         ,               OUTG 976
     7             8H C3H8   ,8H         ,8H HYDROCA,8HRBONS    )               OUTG 977
      DATA (GASLEG=8H GAGE   ,8H TOTA   ,8H P      ,8H HELI   ,                 OUTG 980
     1  8H METH   ,8H WATR   ,8H NITR   ,8H CO     ,8H OXYG   ,                 OUTG 981
     2  8H ARGO   ,8H CO2    ,8H C2H4   ,8H C2H6   ,8H C3H8   ,                 OUTG 982
     3  8H HYDR   )                                                            OUTG 983
      DATA(GASES=8HH       ,8HHELIUM  ,8HMETHANE ,8HWATER   ,                   OUTG 990
     1           8HNITROGEN,                                                    OUTG 991
     2           8HCO      ,8HOXYGEN  ,8HARGON   ,8HCO2     ,                 OUTG 992
     3           8HC2H4    ,                                                    OUTG 993
     4           8HC2H6    ,8HC3H8    ,8HVAPOR   )                            OUTG 994
      DATA(HEADING=8HGAS     ,8H        ,8H  HOURS ,8H      TE,                OUT 1000
     1             8HMP   OUT,8HGASSING ,8HRATE    ,8HGAS     ,               OUT 1001
     2             8H        ,8H  HOURS ,8H      TE,8HMP   PAR,               OUT 1002
     3             8HTIAL PRE,8HSSURE   )                                     OUT 1003
      DATA (CON1(1)=2.,4.,16.,18.,28.,28.,32.,40.,44.,28., 30.,44.)             OUT 1010
      DATA  (M=12),(N=18)                                                       OUT 1020
      READ 1, LSQFIT,INTEG                                                      OUT 1030 ----------READ
    1 FORMAT(2I5)                                                               OUT 1040
J-----------  DO 100 J=1,N                                                      OUT 1050 ------DO
J             READ 2,(A(I,J),I=1,M)                                             OUT 1060 ----------READ
J----------- 100  CONTINUE                                                      OUT 1070
      READ 2,  (RGA(I),I=1,M )                                                  OUT 1080 ----------READ
      READ 2,(CONION(I),I=1,M)                                                  OUT 1090 ----------READ
    2 FORMAT(10F8.0)                                                            OUT 1100
      NC=0                                                                      OUT 1110
C                                                                               OUT 1120
C  SET UP CONSTANTS FOR SOLVING SYSTEM OF EQUATIONS.                            OUT 1130
C                                                                               OUT 1140
I-----------  DO 105 I=1,15                                                     OUT 1150 ------DO
I
I  J--------  DO 105 J=1,15                                                     OUT 1160 ------DO
I--J-------- 105  B(I,J)=T(I,J)=0.0                                           OUT 1170

I-----------  DO 115 I=1,M                                                      OUT 1180 ------DO
I
I  J--------  DO 115 J=1,M                                                     OUT 1190 ------DO
I  J          X=0.                                                            OUT 1200
I  J  K-----  DO 110 K=1,N                                                     OUT 1210 ------DO
I  J  K----- 110  X=X+A(I,K)*A(J,K)                                            OUT 1220
I--J-------- 115  T(I,J)=X                                                     OUT 1230
C                                                                               OUT 1240
C SUBROUTINE HPMINV PERFORMS A MATRIX INVERSION ON T AND RETURNS                OUT 1250
C     VALUES IN B.                                                              OUT 1260
C                                                                               OUT 1270
      CALL HPMINV(T,M,B,200.0,1.0E-6,ITER,EMAX)                                 OUT 1280
I-----------  DO 125 I=1,N                                                      OUT 1290 ------DO
I
I  J--------  DO 125 J=1,M                                                     OUT 1300 ------DO
I  J          X=0                                                             OUT 1310
I  J  K-----  DO 120 K=1,M                                                     OUT 1320 ------DO
I  J  K----- 120  X=X+A(K,I)*B(K,J)                                            OUT 1330
I--J-------- 125  Q(J,I)=X                                                     OUT 1340
C                                                                               OUT 1350
C READ TEMPERATURE CORRECTION FACTOR                                            OUT 1360
C  READ RUN TITLE                                                               OUT 1370
C                                                                               OUT 1380
      READ 10,D                                                                 OUT 1390 ----------READ
      READ 3,(TETLE(IJ),IJ=1,40)                                                OUT 1400 ----------READ
    3 FORMAT (20A4)                                                             OUT 1410
      CALL IDAY(DATE)                                                           OUT 1420
      PRINT 4,DATE                                                              OUT 1430 ----------PRINT
    4 FORMAT (    '0' ,51X, '*** CURRENT DATE IS ',2A4,' ***'//46X,'NERVAOUT 1440
     1 XE-II FUEL ELEMENT OUTGASSING PROGRAM'//60X,'DEWEY EASTON'//)            OUT 1441
      PRINT 5,(TETLE(IJ),IJ=1,40)                                               OUT 1450 ----------PRINT
    5 FORMAT (25X,20A4)                                                         OUT 1460
      PRINT 6,D                                                                 OUT 1470 ----------PRINT
    6 FORMAT (1HO,53X,'APPARATUS TEMPERATURE (D) = ',F4.0)                      OUT 1480
      PRINT 7,(GASES(I),I=1,13),((ME(J),(A(I,J),I=1,M)),J=1,N)                  OUT 1490 ----------PRINT
    7 FORMAT (1H1,53X,'*** CRACKING PATTERN ***'//2X,'M/E',7X,12(A8,2X)/OUT 1500
     1   42X,A8/(3X,I2,3X,12F10.4))                                             OUT 1501
I-----------  DO 130 I=1,M                                                      OUT 1510 ------DO
I---------- 130  CON(I)=CONION(I)*RGA(I)                                       OUT 1520
      PRINT 8,(TITLE(2*I+3),TITLE(2*I+4),CONION(I),RGA(I),CON(I),               OUT 1530 ----------PRINT
     1 I=1,M)                                                                   OUT 1531
    8 FORMAT(1HO,53X,'*** CORRECTION CONSTANTS ***'//58X,'IONIZATION',          OUT 1540
     1' * RGA SENSITIVITY = MASTER'/59X,'CONSTANT',7X,'AMPS/TORR'//             OUT 1541
     2   (38X,2A8,F12.4,2X,F12.4,4X,F12.4))                                     OUT 1542
      PRINT 9,DATE,(TETLE(IJ),IJ=1,40)                                          OUT 1550 ----------PRINT
    9 FORMAT(//// 51X,'*** CURRENT DATE IS ',2A4,' ***'//(46X,20A4))           OUT 1560
      D=D+273.                                                                  OUT 1570
      G=SQRT(D/300.)                                                            OUT 1580
  135 NC=NC+1                                                                   OUT 1590
```

```
                C                                                                       OUT 1600
                C  READ DATE, TIME, TEMPERATURE OF RUN, CHAMBER PRESSURE, MANIFOLD PRES-OUT 1610
                C  SURE, RGA PRESSURE.                                                  OUT 1620
                C                                                                       OUT 1630
                      READ 10,DAY,HOURS(NC),XMLVOL,Z(1),Z(2),Z(3)                       OUT 1640 ------------------READ
                 10   FORMAT (6E8.1)                                                    OUT 1650
                      IF (DAY.EQ.C.C.AND.HOURS(NC).EQ.0.) GC TO 190                     OUT 1660 IF
I-------------        DO 140 I=1,3                                                      OUT 1670 ------DO
I------------- 140   ZZ(I)=Z(I)*G                                                      OUT 1680
                      X=COEFF(1)                                                        OUT 1690
I-------------        DO 145 I=1,10                                                     OUT 1700 ------DO
I------------- 145   X=X+COEFF(I+1)*XMLVOL**I                                         OUT 1710
                      TEMP(NC)=X                                                        OUT 1720
                      PRINT 11,(TETLE(IJ),IJ=1,20)                                      OUT 1730 ----------------------PRINT
                 11   FORMAT(1H1///1X,20A4)                                            OUT 1740
                      PRINT 12,DAY,HOURS(NC),TEMP(NC),XMLVOL,Z(1),ZZ(1),Z(2),           OUT 1750 ----------------------PRINT
                     1   ZZ(2),Z(3),ZZ(3)                                             OUT 1751
                 12   FORMAT (1H , 'DATE =',F15.2/' HOURS =',F14.2/' TEMPERATURE (DEGREEOUT 1760
                     1S C.) =',F8.2,10X,' MILLIVOLTS (CR/AL) =',F8.2,1P                 OUT 1761
                     2/' CHAMBER PRESSURE =',E15.5,10X,'THERMAL CORRECTION =',E15.5/    OUT 1762
                     3' MANIFOLD PRESSURE =',E14.5,10X,'THERMAL CORRECTION =',E15.5/    OUT 1763
                     4' RGA PPESSURE =',E19.5,10X,'THERMAL CORRECTION =',E15.5// )      OUT 1764
                C                                                                       OUT 1770
                C  READ ION CURRENT FOR N PEAKS.                                        OUT 1780
                C                                                                       OUT 1790
                      READ 13,(V(I),I=1,N)                                              OUT 1800 ------------------READ
                 13   FORMAT (8E8.1)                                                    OUT 1810
                C                                                                       OUT 1820
                C  SOLVE SYSTEM OF EQUATIONS.  FIND COMPUTED M/E VALUES.                OUT 1830
                C                                                                       OUT 1840
I-------------        DO 155 I=1,M                                                      OUT 1850 ------DO
I                     X=0                                                               OUT 1860
I  J----------        DO 150 J=1,N                                                      OUT 1870 ------DO
I  J---------- 150   X=X+Q(I,J)*V(J)                                                   OUT 1880
I------------- 155   S(I)=X                                                           OUT 1890

I-------------        DO 165 I=1,N                                                      OUT 1900 ------DO
I                     X=0                                                               OUT 1910
I  J----------        DO 160 J=1,M                                                      OUT 1920 ------DO
I  J---------- 160   X=X+S(J)*A(J,I)                                                   OUT 1930
I------------- 165   C(I)=X                                                           OUT 1940
                      PRINT 14                                                          OUT 1950 ----------------------PRINT
                 14   FORMAT ('    M/E',3X,'MEASURED PEAK',6X,'CALCULATED M/E',7X,'DIFFEOUT 1960
                     1RENCE',9X,'PERCENT DIFF'/10X,'HEIGHT (AMPS)')                     OUT 1961
                C                                                                       OUT 1970
                C  SUM ION CURRENTS                                                     OUT 1980
                C                                                                       OUT 1990
                      U=0.                                                              OUT 2000
I-------------        DO 170 I=1,N                                                      OUT 2010 ------DO
I                     PCNT=(C(I)-V(I))/V(I)*100.                                        OUT 2020
I                     U=U+V(I)                                                          OUT 2030
I                     DIFFER=C(I)-V(I)                                                  OUT 2040
I------------- 170   PRINT 15,ME(I),V(I),C(I),DIFFER,PCNT                             OUT 2050 ----------------------PRINT
                 15   FORMAT (I7,1PE15.5,2E20.5,2PE20.5)                                OUT 2060
                      RATIO=Z(1)/Z(2)                                                   OUT 2070
                      PRINT 16,RATIO                                                    OUT 2080 ----------------------PRINT
                 16   FORMAT ( ///' RATIO OF GAGE P1 TO GAGE P2 =',1PE12.5//)          OUT 2090
                C                                                                       OUT 2100
                C  COMPUTE PARTIAL PRESSURES AND OUTGASSING RATES FOR M GASES.          OUT 2110
                C                                                                       OUT 2120
                      OUTGAS(NC,1)=(3.1*SQRT(D/28))*(ZZ(1)-ZZ(2))                       OUT 2130
                      T1=(Z(1)-Z(2))/Z(3)                                               OUT 2140
                      W=0.C                                                             OUT 2150
                      X=0.0                                                             OUT 2160
I-------------        DO 175 I=1,M                                                      OUT 2170 ------DO
I                     D1(I)=S(I)/CON(I)*G                                               OUT 2180
I                     W=W+D1(I)                                                         OUT 2190
I                     F1(I)=(3.1*SQRT(D/CON1(I)))*D1(I)*T1                              OUT 2200
I------------- 175   X=X+F1(I)                                                        OUT 2210
                      OUTGAS(NC,2)=X                                                    OUT 2220
                      J=3                                                               OUT 2230
I-------------        DO 180 I=1,M                                                      OUT 2240 ------DO
I                     OUTGAS(NC,J)=F1(I)                                                OUT 2250
I------------- 180   J=J+1                                                           OUT 2260
                      OUTGAS(NC,15)=F1(3)+F1(10)+F1(11)+F1(12)                          OUT 2270
                      H9=D1(3)+D1(10)+D1(11)+D1(12)                                     OUT 2280
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                C                                                                   OUT 2290
                C  FIND PERCENT OF TOTAL PRESSURE AND TOTAL OUTGASSING              OUT 2300
                C                                                                   OUT 2310
                      T2=Z(3)/W                                                     OUT 2320
                      T3=100./W                                                     OUT 2330
                      T4=100./OUTGAS(NC,2)                                          OUT 2340
                      WT=W*T3                                                       OUT 2350
                      GT=OUTGAS(NC,2)*T4                                            OUT 2360
                      H9T=H9*T3                                                     OUT 2370
                      PG10=OUTGAS(NC,15)*T4                                         OUT 2380
                      P9=0.0                                                        OUT 2390
I-------------         DO 185 I=1,M                                                OUT 2400 ------DO
I                     DT(I)=D1(I)*T3                                                OUT 2410
I                     PG(I)=F1(I)*T4                                                OUT 2420
I------------- 185   P9=D1(I)*T2/CONION(I)+P9                                      OUT 2430
                      P9=P9*G                                                       OUT 2440
                      PRINT 17                                                      OUT 2450 ----------,----------PRINT
                17    FORMAT(' GAS'16X,'PRESSURE',12X,'PERCENT',12X,'OUTGASSING RATE',OUT 2460
                     1   7X,'PERCENT OF TOTAL'/20X,'TORR'13X,'OF TOTAL PRESSURE',5X,  OUT 2461
                     2   'TORR LITERS/SEC',7X,'OUTGASSING RATE'/ )                   OUT 2462
                      PRINT 18,TITLE(1),TITLE(2),ZZ(1),OUTGAS(NC,1),TITLE(3),       OUT 2470 ----------PRINT
                     1  TITLE(4),W,WT,OUTGAS(NC,2),GT,                              OUT 2471
                     2 (TITLE(2*I+3),TITLE(2*I+4),D1(I),DT(I),F1(I),PG(I),I=1,M),   OUT 2472
                     3  TITLE(29),TITLE(30),H9,H9T,OUTGAS(NC,15),PG10               OUT 2473
                18    FORMAT (2A8,1PE13.5,26X,E18.5/(2A8,E13.5,5X,2PE16.5,5X,1PE18.5,OUT 2480
                     1   5X,2PE16.5,1P))                                            OUT 2481
                      TC=U/Z(3)                                                     OUT 2490
                      DIFF=(P9-W)/W*100.                                            OUT 2500
                      DIFFER=P9-W                                                   OUT 2510
                      PRINT 19,U,TC,W,P9,DIFFER,DIFF                                OUT 2520 ----------PRINT
                19    FORMAT ('0SUM OF CURRENTS = ',1PE12.5,' AMPS'/' SENSITIVITY (TOTALOUT 2530
                     1 CURRENT/RGA PRESSURE) = ',E12.5,' AMPS/TORR'/' SUMMATION PARTIAL OUT 2531
                     2PRESSURES = ',E12.5,' TORR'/                                  OUT 2532
                     3' RGA ADJUSTED PRESSURE = ',E12.5,                            OUT 2533
                     4 '  TORR'/' DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL OUT 2534
                     5 PRESSURES) = ',E12.5,' TORR'/' PERCENT DIFFERENCE = ',0PF9.3) OUT 2535
                      GO TO 135                                                     OUT 2540 ----------GOTO
                190   IF (NC.EQ.2) GO TO 215                                        OUT 2550 IF
                      NC=NC-1                                                       OUT 2560
                      ML=M+3                                                        OUT 2570
                C                                                                   OUT 2580
                C SUBROUTINE PRINT PRINTS EACH GAS AND THE OUTGASSING RATES (FUNCTION OUT 2590
                C    OF TIME AND TEMPERATURE), ACCUMULATED FROM ALL THE CASES.      OUT 2600
                C                                                                   OUT 2610
                      CALL PRINT(OUTGAS,HOURS,TEMP,ML,TITLE,NC,HEADING,1)           OUT 2620
I-------------         DO 195 I=1,ML                                               OUT 2630 ------DO
I                     IF(LSQFIT.EQ.0) GO TO 195                                     OUT 2640 IF
I                     IS=2*I-1                                                      OUT 2650
I                     PRINT 20,TITLE(IS),TITLE(IS+1)                                OUT 2660 ----------PRINT
I               20    FORMAT(1H1///  ' GAS IS ',2A8//)                              OUT 2670
I               C                                                                   OUT 2680
I               C  SUBROUTINE LSFIT FINDS A AND B (IN EQUATION Y=A*X**B) BY METHOD OF OUT 2690
I               C  LEAST SQUARES. (X=TIME, Y=OUTGASSING RATE)                       OUT 2700
I               C                                                                   OUT 2710
I-------------  195  CALL LSFIT(NC,HOURS,OUTGAS(1,I),AS(I),BS(I))                   OUT 2720
                C                                                                   OUT 2730
                C  PUNCH DATA FOR FUTURE USE BY SUBROUTINE COMPLOT.                 OUT 2740
                C                                                                   OUT 2750
                      PUNCH 21,(TITLE(IJ),IJ=1,20)                                  OUT 2760
                21    FORMAT (20A4)                                                 OUT 2770
                      PUNCH 22,Z3                                                   OUT 2780
                      PUNCH 22,(AS(I),BS(I),I=1,ML)                                 OUT 2790
                22    FORMAT (10E8.2)                                               OUT 2800
                      IF (INTEG.EQ.0) GO TO 205                                     OUT 2810 IF
I-------------         DO 200 I=1,ML                                               OUT 2820 ------DO
I                     IS=I*2-1                                                      OUT 2830
I                     PRINT 23,TITLE(IS) ,TITLE(IS+1)                               OUT 2840 ----------PRINT
I               23    FORMAT(1H1///  ' GAS IS ',2A8//)                              OUT 2850
I               C                                                                   OUT 2860
I               C  SUBROUTINE INTEGRAL INTEGRATES Y=A*X**B TO FIND TOTAL OUTGASSING. OUT 2870
I               C                                                                   OUT 2880
I-------------  200  CALL INTEGRAL(AS(I),BS(I))                                    OUT 2890
                C                                                                   OUT 2900
                C TEST TO SEE IF PLOTS ARE DESIRED . IF SO, SET UP LIMITS FOR PLOTTING OUT 2910
                C                                                                   OUT 2920
                205   READ (50,24,END=215) LINE                                     OUT 2930 ----------READ
                24    FORMAT (I5)                                                   OUT 2940
                      XAL(1)=1000.                                                  OUT 2950
                      XAL(2)=0.                                                     OUT 2960
                      YL(1)=.1                                                      OUT 2970
                      YL(2)=0.                                                      OUT 2980
J-------------         DO 210 J=1,NC                                               OUT 2990 ------DO
J                     IF (HOURS(J).LT.XAL(1)) XAL(1)=HOURS(J)                       OUT 3000 IF
J                     IF (HOURS(J).GT.XAL(2)) XAL(2)=HOURS(J)                       OUT 3010 IF
J  I----------        DO 210 I=1,ML                                               OUT 3020 ------DO
J  I                  IF (OUTGAS(J,I).LT.YL(1)) YL(1)=OUTGAS(J,I)                   OUT 3030 IF
J--I----------  210   IF (OUTGAS(J,I).GT.YL(2)) YL(2)=OUTGAS(J,I)                   OUT 3040 IF
                      CALL GRAPHS(OUTGAS,HOURS,XTIT(1),ML,TITLE,NC,BS)              OUT 3050
                      CALL GRAPHS(OUTGAS,TEMP,XTIT(2),ML,TITLE,NC,BS)               OUT 3060
                      CALL ADVANS                                                   OUT 3070
                215   STOP                                                          OUT 3080
                      END                                                           OUT 3090
**** STATEMENT  215 +    1 ERROR DAD2
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TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
A	(15,25)	375	REAL*4	LOCAL	930, 1060, 1220, 1330, 1490, 1930
ADVANS				SUBROUTINE	3070
AS	(20)	20	REAL*4	LOCAL	930, 2720, 2790, 2890
B	(15,15)	225	REAL*4	LOCAL	930, 1170* 1280, 1330
BLK1		204	BYTES	COMMON LABEL	900
BS	(20)	20	REAL*4	LOCAL	930, 2720, 2790, 2890, 3050, 3060
C	(25)	25	REAL*4	LOCAL	930, 1940* 2020, 2040, 2050
COEFF	(11)	11	REAL*4	LOCAL (DATA)	930, 950, 1690, 1710
CON	(15)	15	REAL*4	LOCAL	930, 1520* 1530, 2180
CONION	(15)	15	REAL*4	LOCAL	930, 1090, 1520, 1530, 2430
CONI	(15)	15	REAL*4	LOCAL (DATA)	930, 1010, 2200
D			REAL*4	LOCAL	1390, 1470, 1570* 1580, 2130, 2200
DATE	(2)	2	REAL*4	LOCAL	930, 1420, 1430, 1550
DAY			REAL*4	LOCAL	1640, 1660, 1750
DIFF			REAL*4	LOCAL	2500* 2520
DIFFER			REAL*4	LOCAL	2040* 2050, 2510* 2520
DT	(15)	15	REAL*4	LOCAL	930, 2410* 2470
DI	(15)	15	REAL*4	LOCAL	930, 2180* 2190, 2200, 2280, 2410, 2430, 2470
EATOGR		4	BYTES	COMMON LABEL	910
EMAX			REAL*4	LOCAL	1280
FI	(15)	15	REAL*4	LOCAL	930, 2200* 2210, 2250, 2270, 2420, 2470
G			REAL*4	LOCAL	1580* 1680, 2180, 2440
GASES	(50)	50	REAL*8	LOCAL (DATA)	990, 930, 990, 1490
GASLEG	(50)	50	REAL*8	COMMON/HILC / (DATA)	890, 920, 930, 980
GRAPHS				SUBROUTINE	3050, 3060
GT			REAL*4	LOCAL	2360* 2470
HEADING	(14)	14	REAL*8	LOCAL (DATA)	890, 930, 1000, 2620
HILC		576	BYTES	COMMON LABEL	920
HOURS	(50)	50	REAL*4	LOCAL	930, 1640, 1660, 1750, 2620, 2720, 3000, 3010, 3050
HPMINV				SUBROUTINE	1280
HQ			REAL*4	LOCAL	2280* 2370, 2470
HST			REAL*4	LOCAL	2370* 2470
I			INTEGER*4	LOCAL	1060* 1080* 1090* 1150* 1170, 1180* 1200, 1230, 1290* 1330, 1340, 1490* 1510* 1520, 1530* 1670* 1680, 1700* 1710, 1800* 1850* 1880, 1890, 1900* 1930, 1940, 2010* 2020, 2030, 2040, 2050, 2170* 2180, 2190, 2200, 2210, 2240* 2250, 2400* 2410, 2420, 2430, 2470* 2630* 2650, 2720, 2790* 2820* 2830, 2890, 3020* 3030, 3040

IDAY				SUBROUTINE		1420
IJ			INTEGER*4	LOCAL		1400* 1450* 1550* 1730* 2760*
INTEG			INTEGER*4	LOCAL		1030, 2810
INTEGRAL				SUBROUTINE		2890
IS			INTEGER*4	LOCAL		2650* 2660, 2830* 2840
ITER			INTEGER*4	LOCAL		1280
J			INTEGER*4	LOCAL		1050* 1060, 1160* 1170, 1190* 1220, 1230, 1300* 1330, 1340, 1490* 1870* 1880, 1920* 1930, 2230* 2250, 2260* 2990* 3000, 3010, 3030, 3040
K			INTEGER*4	LOCAL		1210* 1220, 1320* 1330
LINE			INTEGER*4	COMMON/EATOGR	/	910, 2930
LSFIT				SUBROUTINE		2720
LSQFIT			INTEGER*4	COMMON/BLK1	/	900, 1030, 2640
M			INTEGER*4	LOCAL (DATA)		1020, 1060, 1080, 1090, 1180, 1190, 1280, 1300, 1320, 1490, 1510, 1530, 1850, 1920, 2170, 2240, 2400, 2470, 2570
ME	(25)	25	INTEGER*4	LOCAL (DATA)		930, 960, 1490, 2050
ML			INTEGER*4	LOCAL		2570* 2620, 2630, 2790, 2820, 3020, 3050, 3060
N			INTEGER*4	LOCAL (DATA)		1020, 1050, 1210, 1290, 1490, 1800, 1870, 1900, 2010
NC			INTEGER*4	LOCAL		1110* 1590* 1640, 1660, 1720, 1750, 2130, 2220, 2250, 2270, 2340, 2360, 2380, 2470, 2550, 2560* 2620, 2720, 2990, 3050, 3060
OUTGAS	(50,20)	1000	REAL*4	ENTRY POINT		10, 930, 2130* 2220* 2250* 2270* 2340, 2360, 2380, 2470, 2620, 2720, 3030, 3040, 3050, 3060
PCNT			REAL*4	LOCAL		2020* 2050
PG	(15)	15	REAL*4	LOCAL		930, 2420* 2470
PG10			REAL*4	LOCAL		2380* 2470
PRINT				SUBROUTINE		2620
P9			REAL*4	LOCAL		2390* 2430* 2440* 2500, 2510, 2520
Q	(15,25)	375	REAL*4	LOCAL		930, 1240* 1880
RATIO			REAL*4	LOCAL		2070* 2080
RGA	(15)	15	REAL*4	LOCAL		930, 1080, 1520, 1530
S	(15)	15	REAL*4	LOCAL		920, 1890* 1930, 2180
SQRT			REAL*4	FUNCTION		1580, 2130, 2200
T	(15,15)	225	REAL*4	LOCAL		930, 1170* 1230* 1280
TC			REAL*4	LOCAL		2490* 2520
TEMP	(50)	50	REAL*4	COMMON/BLK1	/	900, 930, 1720* 1750, 2620, 3060
TETLE	(40)	40	REAL*4	COMMON/HILO	/	920, 930, 1400, 1450, 1550, 1730, 2760
TITLE	(50)	50	REAL*8	LOCAL (DATA)		890, 930, 970, 1530, 2470, 2620, 2660, 2840, 3050, 3060
T1			REAL*4	LOCAL		2140* 2200
T2			REAL*4	LOCAL		2320* 2430
T3			REAL*4	LOCAL		2330* 2350, 2370, 2410
T4			REAL*4	LOCAL		2340* 2360, 2380, 2420
U			REAL*4	LOCAL		2000* 2030* 2490, 2520
V	(25)	25	REAL*4	LOCAL		930, 1800, 1880, 2020, 2030, 2040, 2050
W			REAL*4	LOCAL		2150* 2190* 2220, 2330, 2350, 2470, 2500, 2510, 2520
WT			REAL*4	LOCAL		2350* 2470
X			REAL*4	LOCAL		1200* 1220* 1230, 1310* 1330* 1340, 1690* 1710* 1720, 1860* 1880* 1890, 1910* 1930* 1940, 2160* 2210* 2220

XAL	(2)	2	REAL*4	COMMON/HILO	/	920,	930,	2950*	2960*	3000*	3010*	
XMLVOL			REAL*4	LOCAL		1640,	1710,	1750				
XTIT	(4)	4	REAL*8	LOCAL (DATA)		890,	930,	940,	3050,	3060		
YL	(2)	2	REAL*4	COMMON/HILO	/	920,	930,	2970*	2980*	3030*	3040*	
Z	(3)	3	REAL*4	LOCAL		930,	1640,	1680,	1750,	2070,	2140,	2320,
						2490						
ZZ	(3)	3	REAL*4	LOCAL		930,	1680*	1750,	2130,	2470		
Z3			REAL*4	LOCAL		2780						

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST
1030	READ	50	BCD	1	LSQFIT,INTEG
1060	READ	50	BCD	2	(A(I,J),I=1,M)
1080	READ	50	BCD	2	(RGA(I),I=1,M)
1090	READ	50	BCD	2	(CONION(I),I=1,M)
1390	READ	50	BCD	10	D
1400	READ	50	BCD	3	(TETLE(IJ),IJ=1,40)
1640	READ	50	BCD	10	DAY,HOURS(NC),XMLVOL,Z(1),Z(2),Z(3)
1800	READ	50	BCD	13	(V(I),I=1,N)
2930	READ	50	BCD	24	LINE
1430	PRINT	51	BCD	4	DATE
1450	PRINT	51	BCD	5	(TETLE(IJ),IJ=1,40)
1470	PRINT	51	BCD	6	D
1490	PRINT	51	BCD	7	(GASES(I),I=1,12),((ME(J),(A(I,J),I=1,M)),J=1,N)
1530	PRINT	51	BCD	8	(TITLE(2*I+3),TITLE(2*I+4),CONION(I),PGA(I),CON(I),I=1,M)
1550	PRINT	51	BCD	9	DATE,(TETLE(IJ),IJ=1,40)
1730	PRINT	51	BCD	11	(TETLE(IJ),IJ=1,20)
1750	PRINT	51	BCD	12	DAY,HOURS(NC),TEMP(NC),XMLVOL,Z(1),ZZ(1),Z(2),ZZ(2),Z(3),...
1950	PRINT	51	BCD	14	
2050	PRINT	51	BCD	15	ME(I),V(I),C(I),DIFFER,PCNT
2080	PRINT	51	BCD	16	RATIO
2450	PRINT	51	BCD	17	
2470	PRINT	51	BCD	18	TITLE(1),TITLE(2),ZZ(1),OUTGAS(NC,1),TITLE(3),TITLE(4),W,...
2520	PRINT	51	BCD	19	U,TC,W,P9,DIFFER,DIFF
2660	PRINT	51	BCD	20	TITLE(IS),TITLE(IS+1)
2840	PRINT	51	BCD	23	TITLE(IS),TITLE(IS+1)
2760	PUNCH	52	BCD	21	(TETLE(IJ),IJ=1,20)
2780	PUNCH	52	BCD	22	Z3
2790	PUNCH	52	BCD	22	(AS(I),BS(I),I=1,ML)

```
                      SUBROUTINE PRINT(X,HOURS,TEMP,ML,TITLE,NC,HEADING,N)                PRINT 10
                C                                                                         PRINT 20
                C                                                                         PRINT 30
                      REAL*8 TITLE( 50),HEADING(14)                                       PRINT 40
                      DIMENSION X(  50,20),HOURS(  50),TEMP(  50)                         PRINT 50
                      NPAGES=NC/55                                                        PRINT 60
                      IREM=NC-NPAGES*55                                                   PRINT 70
I-------------         DO 150 I=1,ML,2                                                     PRINT 80 ------DO
I                     IS=2*I-1                                                            PRINT 90
I                     IK=IS+2                                                             PRIN 100
I                     IF(NPAGES.GE.1) GO TO 100                                           PRIN 110 IF
I                     IF(I.GT.1) GO TO 110                                                PRIN 120 IF
I                     IREM=0                                                              PRIN 130
I                     LINES=NC                                                            PRIN 140
I                     JJJ=0                                                               PRIN 150
I                     GO TO 110                                                           PRIN 160 ------------GOTO
I                100  L=0                                                                PRIN 170
I                     LINES=55                                                            PRIN 180
I                105  JJJ=55*L                                                           PRIN 190
I   J----------- 110  DO 140 J=1,LINES                                                   PRIN 200 ------DO
I   J                 JJ=JJJ+J                                                          PRIN 210
I   J                 IF(I.EQ.ML.AND.J.EQ.1) 115,120                                    PRIN 220 IF
I   J            115  PRINT 1,(HEADING(II),II=N,N+6),TITLE(IS),TITLE(IS+1),HOURS(JJ),  PRIN 230 ------------------------PRINT
I   J                1 TEMP(JJ),X(JJ,I)                                                PRIN 231
I   J            1    FORMAT(1H1///  1X,7A8//2A8,F7.2,3X,F9.2,5X,1PE13.5)               PRIN 240
I   J                 GO TO 140                                                         PRIN 250 ------------GOTO
I   J            120  IF(I.NE.ML) GO TO 125                                            PRIN 260 IF
I   J                 PRINT 2,HOURS(JJ),TEMP(JJ),X(JJ,I)                                PRIN 270 ------------------------PRINT
I   J            2    FORMAT(16X,F7.2,3X,F9.2,5X,1PE13.5)                               PRIN 280
I   J                 GO TO 140                                                         PRIN 290 ------------GOTO
I   J            125  IF(J.EQ.1) 130,135                                               PRIN 300 IF
I   J            130  PRINT 3,(HEADING(II),II=N,N+6),(HEADING(II),II=N,N+6),TITLE     PRIN 310 ------------------------PRINT
I   J                1(IS),TITLE(IS+1),HOURS(JJ),TEMP(JJ),X(JJ,I),TITLE(IK),TITLE     PRIN 311
I   J                2(IK+1),HOURS(JJ),TEMP(JJ),X(JJ,I+1)                             PRIN 312
I   J            3    FORMAT(1H1///  1X,7A8,7X,7A8//2(2A8,0PF7.2,3X,F9.2,5X,1PE13.5,  PRIN 320
I   J                1   10X))                                                         PRIN 321
I   J                 GO TO 140                                                         PRIN 330 ------------GOTO
I   J            135  PRINT 4,HOURS(JJ),TEMP(JJ),X(JJ,I),HOURS(JJ),TEMP(JJ),X(JJ,I+1) PRIN 340 ------------------------PRINT
I   J            4    FORMAT(16X,  0PF7.2,3X,F9.2,5X,1PE13.5,26X,0PF7.2,3X,F9.2,5X,    PRIN 350
I   J                1      1PE13.5)                                                   PRIN 351
I   J---------- 140  CONTINUE                                                          PRIN 360
I                     IF(NPAGES.EQ.0) GO TO 150                                         PRIN 370 IF
I                     L=L+1                                                             PRIN 380
I                     IF(L-NPAGES) 105,145,150                                          PRIN 390 IF
I                145  IF(IREM.EQ.0) GO TO 150                                          PRIN 400 IF
I                     LINES=IREM                                                        PRIN 410
I                     GO TO 110                                                         PRIN 420 ------------GOTO
I------------- 150  CONTINUE                                                          PRIN 430
                      RETURN                                                          PRIN 440
                      END                                                             PRIN 450
```

TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
HEADING	(14)	14	REAL*8	PARAMETER	10, 40, 230, 310
HOURS	(50)	50	REAL*4	PAPAMETER	10, 50, 230, 270, 310, 340
I			INTEGER*4	LOCAL	80* 90, 120, 220, 230, 260, 270, 310, 340
II			INTEGER*4	LOCAL	220* 310*
IK			INTEGER*4	LOCAL	100* 310
IREM			INTEGER*4	LOCAL	70* 130* 400, 410
IS			INTEGER*4	LOCAL	90* 100, 230, 310
J			INTEGER*4	LOCAL	200* 210, 220, 300
JJ			INTEGER*4	LOCAL	210* 230, 270, 310, 340
JJJ			INTEGER*4	LOCAL	150* 190* 210
L			INTEGER*4	LOCAL	170* 190, 380* 390
LINES			INTEGER*4	LOCAL	140* 180* 200, 410*
ML			INTEGER*4	PARAMETER	10, 80, 220, 260
N			INTEGER*4	PARAMETER	10, 230, 310
NC			INTEGER*4	PARAMETER	10, 60, 70, 140
NPAGES			INTEGER*4	LOCAL	60* 70, 110, 270, 390
PRINT			REAL*4	ENTRY POINT	10
TEMP	(50)	50	REAL*4	PAPAMETER	10, 50, 230, 270, 310, 340
TITLE	(50)	50	REAL*8	PARAMETER	10, 40, 230, 310
X	(50,20)	1000	REAL*4	PARAMETER	10, 50, 230, 270, 310, 340

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST
230	PRINT	51	BCD	1	(HEADING(II),II=N,N+6),TITLE(IS),TITLE(IS+1),HOURS(JJ),...
270	PRINT	51	BCD	2	HOURS(JJ),TEMP(JJ),X(JJ,I)
310	PRINT	51	BCD	3	(HEADING(II),II=N,N+6),(HEADING(II),II=N,N+6),TITLE(IS),...
340	PRINT	51	BCD	4	HOURS(JJ),TEMP(JJ),X(JJ,I),HOURS(JJ),TEMP(JJ),X(JJ,I+1)

```
      SUBROUTINE LSFIT(NC,X,Y,AS,BS)                                    LSFIT 10
C                                                                       LSFIT 20
C                                                                       LSFIT 30
C **** IT IS IMPORTANT TO NOTE HERE THAT ALTHOUGH THE USE OF THE CORRE- LSFIT 40
C       LATION COEFFICIENT IS NOT LEGITIMATE IN A STATISTICAL SENSE     LSFIT 50
C       BECAUSE THE X VALUES IN THIS PROGRAM ARE NOT RANDOM, IT DOES    LSFIT 60
C       GIVE SOME INDICATION OF THE GOODNESS OF THE LEAST SQUARES FIT.  LSFIT 70
C                                                                       LSFIT 80
C                                                                       LSFIT 90
      COMMON/BLK1/TEMP,LSQFIT                                           LSFI 100
      COMMON /FITTOGP/ OUTGSP(  50,20),NS(  50),HOURP(  50,20),CALCG    LSFI 110
     1    (  50,20),I1,TEMPP(  50,20)                                   LSFI 111
      DIMENSION X(  50),Y(  50),D1(  50),D2(  50),TEMP(  50),           LSFI 120
     1   YLOG(50),Y2(50),XXMEAN(50)                                     LSFI 121
      DATA  (II=0)                                                      LSFI 130
      I1=I1+1                                                           LSFI 140
      N = 0                                                             LSFI 150
      DO 100 I=1,NC                                                     LSFI 160 ------DO
      IF (Y(I).LE.0.0.OR.X(I).LE.1.0E-02) GO TO 100                     LSFI 170 IF
      N=N+1                                                             LSFI 180
      D1(N)=LOGF(X(I))                                                  LSFI 190
      D2(N)=LOGF(Y(I))                                                  LSFI 200
      TEMPP(N,I1)=TEMP(I)                                               LSFI 210
  100 CONTINUE                                                          LSFI 220
      NS(I1)=N                                                          LSFI 230
      IF (N.LT.2) GO TO 170                                             LSFI 240 IF
      Q3=Q4=Q5=Q6=Q7=0.0                                                LSFI 250
      DO 105 J=1,N                                                      LSFI 260 ------DO
      Q3=Q3+D1(J)                                                       LSFI 270
      Q4=Q4+D2(J)                                                       LSFI 280
      Q5=Q5+D1(J)*D2(J)                                                 LSFI 290
      Q6=Q6+D1(J)*D1(J)                                                 LSFI 300
  105 Q7=Q7+D2(J)*D2(J)                                                 LSFI 310
      Q9=(FLOAT(N)*Q5-Q3*Q4)/(FLOAT(N)*Q6-Q3*Q3)                        LSFI 320
      Q8=(Q4-Q3*Q9)/FLOAT(N)                                            LSFI 330
      T=2.306                                                           LSFI 340
      DO 110 J=1,N                                                      LSFI 350 ------DO
      YLOG(J)=Q8+Q9*D1(J)                                               LSFI 360
      Y1YC=D2(J)-YLOG(J)                                                LSFI 370
  110 Y2(J)=Y1YC*Y1YC                                                   LSFI 380
      SUMYYC=Y2(1)                                                      LSFI 390
      DO 115 J=2,N                                                      LSFI 400 ------DO
  115 SUMYYC=SUMYYC+Y2(J)                                               LSFI 410
      XBAR=Q3/N                                                         LSFI 420
      DO 120 J=1,N                                                      LSFI 430 ------DO
  120 XXMEAN(J)=(D1(J)-XBAR)*(D1(J)-XBAR)                               LSFI 440
      SUMXXB=XXMEAN(1)                                                  LSFI 450
      DO 125 J=2,N                                                      LSFI 460 ------DO
  125 SUMXXB=SUMXXB+XXMEAN(J)                                           LSFI 470
      S2=SUMYYC/(N-2)                                                   LSFI 480
      ALPHA=Q8+Q9*XBAR                                                  LSFI 490
      CONFB=T*SQRT(S2/SUMXXB)                                           LSFI 500
      CONFA=    T*SQRT(S2/N)                                            LSFI 510
      XXX=(FLOAT(N)*Q6-Q3*Q3)*(FLOAT(N)*Q7-Q4*Q4)                       LSFI 520
      IF (XXX.GT.0.0) GO TO 130                                         LSFI 530 IF
      Q0=0.0                                                            LSFI 540
      GO TO 135                                                         LSFI 550 ----------GOTO
  130 Q0=(FLOAT(N)*Q5-Q3*Q4)/SQRT(XXX)                                  LSFI 560
  135 IF(Q8.GT.174.) GO TO 170                                          LSFI 570 IF
      AS=EXP(Q8)                                                        LSFI 580
      Q02=Q0*Q0                                                         LSFI 590
      BS=Q9                                                             LSFI 600
      IF(LSQFIT.EQ.0) GO TO 145                                         LSFI 610 IF
      IF(XXX.GT.0.0) GO TO 140                                          LSFI 620 IF
      PRINT 1,AS,BS,ALPHA,CONFA,CONFB                                   LSFI 630 ----------PRINT
    1 FORMAT (' POWER  Y=A*X**B WITH A = 'E13.5,' AND B = ',E13.5,//    LSFI 640
     15X,'USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN',LSFI 641
     2     ' VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,'/         LSFI 642
     35X,'ALPHA = ',E13.5,5X,'CONFIDENCE LIMIT ON ALPHA = ',E13.5,5X,   LSFI 643
     4   'CONFIDENCE LIMIT ON B = ',E13.5                               LSFI 644
     5///' INDEXES    CORRELATION COEFFICIENT DOES NOT EXIST. ALL DEPENDELSFI 645
     6NT VALUES ARE THE SAME. BAD FIT.'  //3X,                          LSFI 646
     7'X',10X,'Y',12X,'Y CALC.'10X,'DIFFER.',8X,'PCT DIFF.',4X,'LOG OF  LSFI 647
     8Y',7X,'CONFIDENCE LIMIT ON LOG Y'/)                               LSFI 648
      GO TO 145                                                         LSFI 650 ----------GOTO
  140 PRINT 2,AS,BS,ALPHA,CONFA,CONFB,Q0,Q02                            LSFI 660 ----------PRINT
    2 FORMAT (' POWER  Y=A*X**B WITH A = 'E13.5,' AND B = ',E13.5,//    LSFI 670
     15X,'USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN',LSFI 671
     2     ' VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,'/         LSFI 672
     35X,'ALPHA = ',E13.5,5X,'CONFIDENCE LIMIT ON ALPHA = ',E13.5,5X,   LSFI 673
     4   'CONFIDENCE LIMIT ON B = ',E13.5                               LSFI 674
     5///' INDEXES    CORRELATION COEFFICIENT = ',E13.5,10X,'CORRELATION LSFI 675
     6 OF DETERMINATION = ',E13.5//3X,                                  LSFI 676
     7'X',10X,'Y',12X,'Y CALC.'10X,'DIFFER.',8X,'PCT DIFF.',4X,'LOG OF  LSFI 677
     8Y',7X,'CONFIDENCE LIMIT ON LOG Y'/)                               LSFI 678
```

```
J------------ 145  DO 165 J=1,N                                                LSFI 680 ------DO
J                   W7=EXP(D1(J))                                               LSFI 690
J                   W8=EXP(D2(J))                                               LSFI 700
J                   W9=AS*W7**Q9                                                LSFI 710
J                   Q4=W9/W8-1.                                                 LSFI 720
J                   Z7=W9-W8                                                    LSFI 730
J                   CONF=    T*SQRT(S2*(1/N+XXMEAN(J)/SUMXX8+1.0))              LSFI 740
J                   IF (Q4.LT.0.)GO TO 150                                      LSFI 750 IF
J                   Q4=IFIX(1000.*Q4+.5)/10.                                    LSFI 760
J                   GO TO 155                                                   LSFI 770 ----------GOTO
J             150   Q4=IFIX(1000.*Q4-.5)/10.                                    LSFI 780
J             155   IF(LSQFIT.EQ.0) GO TO 160                                   LSFI 790 IF
J                   PRINT 3,W7,W8,W9,Z7,Q4,YLOG(J),CONF                         LSFI 800 ----------------------PRINT
J             160   OUTGSP(J,I1)=W8                                             LSFI 810
J                   HOURP(J,I1)=W7                                              LSFI 820
J                   CALOG(J,I1)=W9                                              LSFI 830
J------------ 165   CONTINUE                                                    LSFI 840
              3     FORMAT (F7.2,1P6E15.4)                                      LSFI 850
                    RETURN                                                      LSFI 860
              170   PRINT 4,N                                                   LSFI 870 ----------------------PRINT
              4     FORMAT(1H1,'THE SUBROUTINE LSFIT WHICH PERFORMS A LEAST SQUARES FILSFI 880
                   1T WAS CALLED, BUT IT IS IMPOSSIBLE TO PERFORM SUCH A FIT BECAUSE'/LSFI 881
                   2' THERE ARE EITHER TOO FEW DATA POINTS (N=0 OR 1) OR THE OUTGASSINLSFI 882
                   3G RATES ARE SO SMALL THEY ARE'/' MEANINGLESS (N.GT.1). IN THIS PARLSFI 883
                   4TICULAR CASE N= ',I3)                                       LSFI 884
                    NS(I1)=0                                                    LSFI 890
                    AS=BS=0.0                                                   LSFI 900
                    CONTINUE                                                    LSFI 910
                    RETURN                                                      LSFI 920
                    END                                                         LSFI 930
```

TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
ALPHA			REAL*4	LOCAL	490* 630, 660
AS			REAL*4	PARAMETER	10, 580* 630, 660, 710, 900*
BLK1		204	BYTES	COMMON LABEL	100
BS			REAL*4	PARAMETER	10, 600* 630, 660, 900*
CALOG	(50,20)	1000	REAL*4	COMMON/FITTOGR /	110, 830*
CONF			REAL*4	LOCAL	740* 800
CONFA			REAL*4	LOCAL	510* 630, 660
CONFB			REAL*4	LOCAL	500* 630, 660
D1	(50)	50	REAL*4	LOCAL	120, 190* 270, 290, 300, 360, 440, 690
D2	(50)	50	REAL*4	LOCAL	120, 200* 280, 290, 310, 370, 700
EXP			REAL*4	FUNCTION	580, 690, 700
FITTOGR		16204	BYTES	COMMON LABEL	110
FLOAT			REAL*4	FUNCTION	320, 330, 520, 560
HOURP	(50,20)	1000	REAL*4	COMMON/FITTOGR /	110, 820*
I			INTEGER*4	LOCAL	160* 170, 190, 200, 210
IFIX			INTEGER*4	FUNCTION	760, 780
I1			INTEGER*4	COMMON/FITTOGR / (DATA)	110, 130, 140* 210, 230, 810, 820, 830, 890
J			INTEGER*4	LOCAL	260* 270, 280, 290, 300, 310, 350* 360, 370, 380, 400* 410, 420* 440, 460* 470, 680* 690, 700, 740, 800, 810, 820, 830
LOGF			REAL*4	FUNCTION	190, 200
LSFIT			INTEGER*4	ENTRY POINT	10
LSQFIT			INTEGER*4	COMMON/BLK1 /	100, 610, 790
N			INTEGER*4	LOCAL	150* 180* 190, 200, 210, 230, 240, 260, 320, 330, 350, 400, 420, 430, 460, 480, 510, 520, 560, 680, 740, 870
NC			INTEGER*4	PARAMETER	10, 160
NS	(50)	50	INTEGER*4	COMMON/FITTOGR /	110, 230* 890*
OUTOSP	(50,20)	1000	REAL*4	COMMON/FITTOGR /	110, 810*
Q0			REAL*4	LOCAL	540* 560* 590, 660
Q02			REAL*4	LOCAL	590* 660
Q3			REAL*4	LOCAL	250* 270* 320, 330, 420, 520, 560
Q4			REAL*4	LOCAL	250* 280* 320, 330, 520, 560, 720* 750, 760* 780* 800
Q5			REAL*4	LOCAL	250* 290* 320, 560
Q6			REAL*4	LOCAL	250* 300* 320, 520
Q7			REAL*4	LOCAL	250* 310* 520
Q8			REAL*4	LOCAL	330* 360, 490, 570, 580
Q9			REAL*4	LOCAL	320* 330, 360, 490, 600, 710
SQRT			REAL*4	FUNCTION	500, 510, 560, 740
SUMXXB			REAL*4	LOCAL	450* 470* 500, 740
SUMYYC			REAL*4	LOCAL	390* 410* 480
S2			REAL*4	LOCAL	480* 500, 510, 740

T			REAL*4	LOCAL	340*	500,	510,	740	
TEMP	(50)	50	REAL*4	COMMON/BLK1 /	100,	120,	210		
TEMPP	(50,20)	1000	REAL*4	COMMON/FITTOGR /	110,	210*			
W7			REAL*4	LOCAL	690*	710,	800,	820	
W8			REAL*4	LOCAL	700*	720,	730,	800,	810
W9			REAL*4	LOCAL	710*	720,	730,	800,	830
X	(50)	50	REAL*4	PARAMETER	10,	120,	170,	190	
XBAR			REAL*4	LOCAL	420*	440,	490		
XXMEAN	(50)	50	REAL*4	LOCAL	120,	440*	450,	470,	740
XXX			REAL*4	LOCAL	520*	530,	560,	620	
Y	(50)	50	REAL*4	PARAMETER	10,	120,	170,	200	
YIYC			REAL*4	LOCAL	370*	380			
YLOG	(50)	50	REAL*4	LOCAL	120,	360*	370,	800	
Y2	(50)	50	REAL*4	LOCAL	120,	380*	390,	410	
Z7			REAL*4	LOCAL	730*	800			

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST
630	PRINT	51	BCD	1	AS,BS,ALPHA,CONFA,CONFB
660	PRINT	51	BCD	2	AS,BS,ALPHA,CONFA,CONFB,CO,Q02
800	PRINT	51	BCD	3	W7,W8,W9,Z7,Q4,YLOG(J),CONF
870	PRINT	51	BCD	4	N

```
                      SUBROUTINE INTEGRAL(AS,BS)                                    INTEG 10
                C                                                                   INTEG 20
                C                                                                   INTEG 30
                      DATA (ICOUNT=0)                                               INTEG 40
                      DATA(T=.1,1.1,.1,.1,11.,2.,.1,110.,20.,.1,1100.,200.,.1,11000.,200INTEG 50
                     10.,1.,11000.,2000.,10.,11000.,2000.,100.,11000.,2000.)        INTEG 51
                      DATA (EXTRA=    1.,10.,100.,1000.,10000.)                     INTEG 60
                      DATA (TOTAL(I)=100(0.))                                       INTEG 70
                      DIMENSION T(2,20),T1(100),T2(100),TOTAL(100),EXTRA(6)         INTEG 80
                      ICOUNT=ICOUNT+1                                               INTEG 90
                      IF (AS.EQ.0..AND.BS.EQ.0.) GO TO 140                          INTE 100 IF
                      J=0                                                           INTE 110
                      PRINT 1,AS,BS                                                 INTE 120 ----------PRINT
                    1 FORMAT (' TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B'/' A = ', INTE 130
                     1E13.5,5X,'B =',E13.5//' INITIAL TIME',6X,'FINAL TIME',6X,'OUTGASSINTE 131
                     2NG(Q)',4X,'TOTAL Q (ALL',10X,'OUTGASSING RATE'/'    HOURS',12X,  INTE 132
                     3'HOURS',9X,'TORR-LITERS',5X,'PREVIOUS GASES)',8X, 'TORR-LITERS/SECINTE 133
                     4'//)                                                          INTE 134
I-------------       DO 130 I=1,8                                                  INTE 140 ------DO
I                    TT=T(1,I)                                                      INTE 150
I                 100 IF (TT.EQ.T(1,I)) GO TO 125                                  INTE 160 IF
I                 105 Q=(AS/(BS+1.))*(TT**(BS+1.)-T(1,I)**(BS+1.)))*3600.          INTE 170
I                     TTT=TT-T(1,I)                                                INTE 180
I                     Q=Q-(AS/(BS+1.)*(TT**(BS+1.)-TTT**(BS+1.)))*3600.            INTE 190
I                     J=J+1                                                        INTE 200
I                 110 IF (ICOUNT.GT.2.AND.ICOUNT.LT.15) TOTAL(J)=TOTAL(J)+Q        INTE 210 IF
I                     T1(J)=T(1,I)                                                 INTE 220
I                     T2(J)=TTT                                                    INTE 230
I  I----------       DO 120 I1=1,5                                                 INTE 240 ------DO
I  I                 IF (ABS(EXTRA(I1)-TTT).LT..01) 115,120                       INTE 250 IF
I  I              115 ORTLS=AS*EXTRA(I1)**BS                                      INTE 260
I  I                 PRINT 2,T(1,I),TTT,Q,TOTAL(J),ORTLS                          INTE 270 ----------PRINT
I  I              2  FORMAT (F9.1,F18.1,2P2E19.5,E22.5)                           INTE 280
I  I                 GO TO 125                                                    INTE 290 ----------GOTO
I  I----------    120 CONTINUE                                                    INTE 300
I                    PRINT 3,T(1,I),TTT,Q,TOTAL(J)                                INTE 310 ----------PRINT
I                 3  FORMAT (F9.1,F18.1,2P2E19.5)                                 INTE 320
I                 125 TT=TT+T(3,I)                                                INTE 330
I                     IF (TT.LE.T(2,I)) GO TO 100                                  INTE 340 IF
I-------------     130 CONTINUE                                                    INTE 350
                      IF (ICOUNT.LT.15) RETURN                                     INTE 360 IF
                      PRINT 4                                                      INTE 370 ----------PRINT
                    4 FORMAT (1H1//  1X,'TOTAL OUTGASSING'//' INITIAL TIME',6X,'FINAL ',INTE 380
                     1   'TIME',7X,'TOTAL Q'/'    HOURS',12X,'HOURS'//)          INTE 381
I-------------       DO 135 I=1,J                                                 INTE 390 ------DO
I-------------    135 PRINT 5, T1(I),T2(I),TOTAL(I)                               INTE 400 ----------PRINT
                    5 FORMAT (F9.1,F18.1,1PE19.5)                                  INTE 410
                      RETURN                                                       INTE 420
                    140 PRINT 6                                                    INTE 430 ----------PRINT
                    6 FORMAT ('0A AND B COULD NOT BE CALCULATED BECAUSE THERE WERE FEWERINTE 440
                     1 THAN 2 POSITIVE DATA POINTS '/' OR THE OUTGASSING RATES ARE SO SMINTE 441
                     2ALL THEY ARE MEANINGLESS.')                                  INTE 442
                      RETURN                                                       INTE 450
                      END                                                          INTE 460
**** STATEMENT     6 +     ? ERROR CA02
```

TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
ABS			REAL*4	FUNCTION	250
AS			REAL*4	PARAMETER	10, 100, 120, 170, 190, 260
BS			REAL*4	PARAMETER	10, 100, 120, 170, 190, 260
EXTRA	(6)	6	REAL*4	LOCAL (DATA)	60, 80, 250, 260
I			INTEGER*4	LOCAL	140* 150, 160, 170, 180, 220, 270, 310, 320, 340, 390* 400
ICOUNT			INTEGER*4	LOCAL (DATA)	40, 90* 210, 360
INTEGRAL			INTEGER*4	ENTRY POINT	10
I1			INTEGER*4	LOCAL	240* 250, 260
J			INTEGER*4	LOCAL	110* 200* 210, 220, 230, 270, 310, 290
CRTLS			REAL*4	LOCAL	260* 270
Q			REAL*4	LOCAL	170* 190* 210, 270, 310
T	(3,20)	60	REAL*4	LOCAL (DATA)	50, 80, 150, 160, 170, 180, 220, 270, 310, 330, 340
TOTAL	(100)	100	REAL*4	LOCAL (DATA)	70, 80, 210* 270, 310, 400
TT			REAL*4	LOCAL	150* 160, 170, 180, 190, 330* 340
TTT			REAL*4	LOCAL	180* 190, 230, 250, 270, 310
T1	(100)	100	REAL*4	LOCAL	80, 220* 400
T2	(100)	100	REAL*4	LOCAL	80, 230* 400

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST
120	PRINT	51	BCD	1	AS,BS
270	PRINT	51	BCD	2	T(1,I),TTT,Q,TOTAL(J),ORTLS
310	PRINT	51	BCD	3	T(1,I),TTT,Q,TOTAL(J)
370	PRINT	51	BCD	4	
400	PRINT	51	BCD	5	T1(I),T2(I),TOTAL(I)
430	PRINT	51	BCD	6	

```
                      SUBROUTINE HPMINV(A,N,B,M,ELEAST,ITER,EMAX)                    HPMIN 10
                C                                                                    HPMIN 20
                C                                                                    HPMIN 30
                C     THIS IS ORNL F04022 OF 2-68                                   HHPMIN 40
                C     F1 UCSD HPMINV                                                HPMIN 50
                C     HIGH PRECISION MATRIX INVERSION                               HPMIN 60
                C                                                                    HPMIN 70
                      DIMENSION A(15,15),B(15,15),E(15,15),IPIVOT(15),JPIVOT(15),PROW(15HPMIN 80
                     1),C(15)                                                        HPMIN 81
                      EQUIVALENCE (C,PROW)                                           HPMIN 90
                C                                                                    HPMI 100
                C     INITIALIZATION                                                 HPMI 110
                C                                                                    HPMI 120
                 100  L=N-1                                                         HPMI 130
J-------------- 105  DO 125 J=0,L                                                   HPMI 140 ------DO
J               110  I=15*J                                                        HPMI 150
J  K----------- 115  DO 125 K=1,N                                                   HPMI 160 ------DO
J  K            120  I=I+1                                                        HPMI 170
J--K----------- 125  B(I)=A(I)                                                     HPMI 180

J-------------- 130  DO 140 J=1,N                                                   HPMI 190 ------DO
J               135  IPIVOT(J)=0                                                   HPMI 200
J-------------- 140  JPIVOT(J)=0                                                   HPMI 210

I-------------- 145  DO 320 II=1,N                                                 HPMI 220 ------DO
I               C                                                                    HPMI 230
I               C     SEARCH FOR PIVOT ELEMENT                                       HPMI 240
I               C                                                                    HPMI 250
I                150  BMAX=0.0                                                      HPMI 260
I                155  L=N-1                                                         HPMI 270
I  J----------- 160  DO 220 J=0,L                                                   HPMI 280 ------DO
I  J            165  IF(JPIVOT(J+1)-1)170,220,220                                 HPMI 290 IF
I  J            170  I=15*J                                                        HPMI 300
I  J  K-------- 175  DO 215 K=1,N                                                   HPMI 310 ------DO
I  J  K         180  I=I+1                                                        HPMI 320
I  J  K         185  IF(IPIVOT(K)-1)190,215,215                                   HPMI 330 IF
I  J  K         190  X=ABSF(B(I))                                                  HPMI 340
I  J  K         195  IF (BMAX-X)200,215,215                                       HPMI 350 IF
I  J  K         200  BMAX=X                                                       HPMI 360
I  J  K         205  IROW=I-J*15                                                  HPMI 370
I  J  K         210  JCOL=J+1                                                     HPMI 380
I  J  K-------- 215  CONTINUE                                                     HPMI 390
I  J----------- 220  CONTINUE                                                     HPMI 400
I               225  IPIVOT(IROW)=JCOL                                           HPMI 410
I               230  JPIVOT(JCOL)=IROW                                           HPMI 420
I               235  PIVOT=B(IROW,JCOL)                                          HPMI 430
I               C                                                                    HPMI 440
I               C     REPLACE PIVOT COLUMN WITH ROW MULTIPLIERS                      HPMI 450
I               C                                                                    HPMI 460
I  K----------- 240  DO 265 K=1,N                                                   HPMI 470 ------DO
I  K            245  IF(IROW-K)250,260,250                                        HPMI 480 IF
I  K            250  B(K,JCOL)=-B(K,JCOL)/PIVOT                                   HPMI 490
I  K            255  GO TO 265                                                    HPMI 500 ------------GOTO
I  K            260  B(K,JCOL)=1.0/PIVOT                                         HPMI 510
I  K----------- 265  CONTINUE                                                     HPMI 520
I               C                                                                    HPMI 530
I               C     REDUCE NON PIVOT COLUMNS                                       HPMI 540
I               C                                                                    HPMI 550
I  I----------- 270  DO 275 I=1,N                                                   HPMI 560 ------DO
I  I----------- 275  PROW(I)=B(IROW,I)                                             HPMI 570
I
I  J----------- 280  DO 320 J=1,N                                                   HPMI 580 ------DO
I  J            285  IF(JCOL-J)290,320,290                                        HPMI 590 IF
I  J  K-------- 290  DO 315 K=1,N                                                   HPMI 600 ------DO
I  J  K         295  IF(IROW-K)300,310,300                                        HPMI 610 IF
I  J  K         300  B(K,J)=B(K,J)+B(K,JCOL)*PROW(J)                              HPMI 620
I  J  K         305  GO TO 315                                                    HPMI 630 ------------GOTO
I  J  K         310  B(K,J)=B(K,J)/PIVOT                                         HPMI 640
I  J  K-------- 315  CONTINUE                                                     HPMI 650
I--J----------- 320  CONTINUE                                                     HPMI 660
                C                                                                    HPMI 670
                C     INTERCHANGE ROWS AND COLUMNS                                   HPMI 680
                C                                                                    HPMI 690
I-------------- 325  DO 340 I=1,N                                                   HPMI 700 ------DO
I               330  J=JPIVOT(I)                                                   HPMI 710
I  K----------- 335  DO 340 K=1,N                                                   HPMI 720 ------DO
I--K----------- 340  E(I,K)=B(J,K)                                                 HPMI 730
                345  LL=N-1                                                        HPMI 740
J-------------- 350  DO 390 J=0,LL                                                 HPMI 750 ------DO
J               355  I=15*J                                                        HPMI 760
J               360  K=IPIVOT(J+1)                                                HPMI 770
J               365  L=15*(K-1)                                                   HPMI 780
J  J----------- 370  DO 390 JJ=1,N                                                HPMI 790 ------DO
J  J            375  I=I+1                                                        HPMI 800
J  J            380  L=L+1                                                        HPMI 810
J  J            385  B(I)=E(L)                                                    HPMI 820
J--J----------- 390  CONTINUE                                                     HPMI 830
                395  IF(M)570,570,400                                            HPMI 840 IF
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```
                C                                                                HPMI 850
                C     COMPUTE E=I-(A*B) AND FIND LARGEST ABSOLUTE VALUE          HPMI 860
                C                                                                HPMI 870
                 400  ITER=0                                                     HPMI 880
                 405  KK=0                                                      HPMI 890
                 410  EMAX=0.0                                                  HPMI 900
J-------------- 415  DO 475 J=1,N                                               HPMI 910 ------DO
J
J  I----------- 420  DO 475 I=1,N                                               HPMI 920 ------DO
J  I            425  E(I,J)=0.0                                                HPMI 930
J  I  K-------- 430  DO 435 K=1,N                                               HPMI 940 ------DO
J  I  K-------- 435  E(I,J)=E(I,J)+A(I,K)*B(K,J)                               HPMI 950
J  I            440  IF(I-J)455,445,455                                        HPMI 960 IF
J  I            445  E(I,J)=1.0-E(I,J)                                         HPMI 970
J  I            450  GO TO 460                                                 HPMI 980 ----------GOTO
J  I            455  E(I,J)=-E(I,J)                                           HPMI 990
J  I            460  Y=ABSF(E(I,J))                                           HPM 1000
J  I            465  IF(EMAX-Y)470,475,475                                    HPM 1010 IF
J  I            470  EMAX=Y                                                    HPM 1020
J--I----------- 475  CONTINUE                                                  HPM 1030
                480  IF(KK-1)485,570,570                                       HPM 1040 IF
                485  IF(EMAX-ELEAST)570,570,490                                HPM 1050 IF
                490  ITER=ITER+1                                               HPM 1060
                C                                                              HPM 1070
                C     COMPUTE I+E                                              HPM 1080
                C                                                              HPM 1090
I-------------- 495  DO 505 I=1,N                                              HPM 1100 ------DO
I               500  J=I                                                       HPM 1110
I-------------- 505  E(I,J)=E(I,J)+1.0                                        HPM 1120
                C                                                              HPM 1130
                C     COMPUTE ENRICHED INVERSE,B=B(I+E)                        HPM 1140
                C                                                              HPM 1150
I-------------- 510  DO 550 I=1,N                                              HPM 1160 ------DO
I
I  J----------- 515  DO 535 J=1,N                                              HPM 1170 ------DO
I  J            520  C(J)=0.0                                                 HPM 1180
I  J  K-------- 525  DO 530 K=1,N                                              HPM 1190 ------DO
I  J  K-------- 530  C(J)=C(J)+B(I,K)*E(K,J)                                   HPM 1200
I  J----------- 535  CONTINUE                                                  HPM 1210
I
I  L----------- 540  DO 545 L=1,N                                              HPM 1220 ------DO
I  L----------- 545  B(I,L)=C(L)                                               HPM 1230
I-------------- 550  CONTINUE                                                  HPM 1240
                555  IF(ITER-M)410,560,560                                     HPM 1250 IF
                560  KK=KK+1                                                   HPM 1260
                565  GO TO 410                                                 HPM 1270 ----------GOTO
                570  RETURN                                                    HPM 1280
                     END                                                       HPM 1290
```

TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
A	(15,15)	225	REAL*4	PARAMETER	10, 80, 180, 950
ABSF			REAL*4	FUNCTION	340, 1000
B	(15,15)	225	REAL*4	PARAMETER	10, 80, 180* 340, 430, 490* 510* 570, 620* 640* 730, 820* 950, 1200, 1230*
BMAX			REAL*4	LOCAL	260* 350, 360*
C	(15)	15	REAL*4	LOCAL (EQUIVALENCE)	80, 90, 1180* 1200* 1230
E	(15,15)	225	REAL*4	LOCAL	80, 730* 820, 930* 950* 970* 990* 1000, 1120* 1200
ELEAST			REAL*4	PARAMETER	10, 1050
EMAX			REAL*4	PARAMETER	10, 900* 1010, 1020* 1050
HPMINV			REAL*4	ENTRY POINT	10
I			INTEGER*4	LOCAL	150* 170* 180, 300* 320* 340, 370, 560* 570, 700* 710, 730, 760* 800* 820, 920* 930, 950, 960, 970, 990, 1000, 1100* 1110, 1130, 1160* 1200, 1230
II			INTEGER*4	LOCAL	220*
IPIVOT	(15)	15	INTEGER*4	LOCAL	80, 200* 330, 410* 770
IROW			INTEGER*4	LOCAL	370* 410, 420, 430, 480, 570, 610
ITER			INTEGER*4	PARAMETER	10, 880* 1060* 1250
J			INTEGER*4	LOCAL	140* 150, 190* 200, 210, 280* 290, 300, 370, 380, 580* 590, 620, 640, 710* 730, 750* 760, 770, 910* 930, 950, 960, 970, 990, 1000, 1110* 1120, 1170* 1180, 1200
JCOL			INTEGER*4	LOCAL	380* 410, 420, 430, 490, 510, 590, 620
JJ			INTEGER*4	LOCAL	790*
JPIVOT	(15)	15	INTEGER*4	LOCAL	80, 210* 290, 420* 710
K			INTEGER*4	LOCAL	160* 310* 330, 470* 480, 490, 510, 600* 610, 620, 640, 720* 730, 770* 780, 940* 950, 1140* 1200
KK			INTEGER*4	LOCAL	890* 1040, 1260*
L			INTEGER*4	LOCAL	130* 140, 270* 280, 780* 810* 820, 1220* 1230
LL			INTEGER*4	LOCAL	740* 750
M			INTEGER*4	PARAMETER	10, 840, 1250
N			INTEGER*4	PARAMETER	10, 130, 160, 190, 220, 270, 310, 470, 560, 580, 600, 700, 720, 740, 790, 910, 920, 940, 1100, 1160, 1170, 1190, 1220
PIVOT			REAL*4	LOCAL	420* 490, 510, 640
PROW	(15)	15	REAL*4	LOCAL (EQUIVALENCE)	80, 90, 570* 620
X			REAL*4	LOCAL	340* 350, 360
Y			REAL*4	LOCAL	1000* 1010, 1020

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST

```
      SUBROUTINE GRAPHS(OUTGAS,HOURS,XTIT,ML,TITLL,NC,BS)                    GRAPH 10
C                                                                            GRAPH 20
C                                                                            GRAPH 30
C *** PLOTTING OPTIONS ***                                                   GRAPH 40
C IF PLOTS ARE DESIRED, THEY ARE REQUESTED BY THE FOLLOWING DATA CARDS       GRAPH 50
C (PLACE AFTER  THE BLANK CARD IN THE MAIN PROGRAM). COLUMNS 1-5,            GRAPH 60
C RIGHT ADJUSTED.                                                            GRAPH 70
C    1. 1 CARD. FOR POINTS ONLY SET=-1                                       GRAPH 80
C       FOR POINTS CONNECTED BY A LINE, SET=1                                GRAPH 90
C THE NEXT 6 CARDS REPRESENT 6 PLOTTING OPTIONS OF OUTGASSING RATE VS.       GRAP 100
C TIME AND ARE REPRESENTED BY THE  INTEGERS P(1)-P(6) WHICH ARE              GRAP 110
C DESCRIBED BELOW. IF ANY OPTION IS OMITTED, PLACE A 0 IN COLUMN  5  OR      GRAP 120
C INCLUDE A BLANK CARD. IF THE SIGN OF P(1)-P(6) IS NEGATIVE, A FITTED       GRAP 130
C LINE TO THE EXPRESSION Y=A*X**B  WILL BE DRAWN.                            GRAP 140
C    CARD 1. P(1), LOG OUTGASSING RATE VS. LOG TIME                          GRAP 150
C            FOR PLOTS, SET=1  OR  -1 (FITTED)                               GRAP 160
C            FOR NO PLOTS, SET=0                                             GRAP 170
C    CARD 2. P(2), LOG OUTGASSING VS. LINEAR TIME                            GRAP 180
C            FOR PLOTS, SET=1 OR -1                                          GRAP 190
C            FOR NO PLOTS, SET=0                                             GRAP 200
C    CARD 3. P(3), LOG OUTGASSING RATE VS. LOG TIME OF SELECTED GASES.       GRAP 210
C            SET VALUE EQUAL TO THE NUMBER OF GASES TO BE PLOTTED.           GRAP 220
C            FOLLOW THIS NUMBER BY THE FIRST 4 LETTERS OF EACH GAS AND       GRAP 230
C            PRECEDE EACH BY A SPACE. EXAMPLE    3 C3H8 HYDR TOTA            GRAP 240
C            ***EXCEPTION*** USE WATR TO REPRESENT WATER VAPOR.              GRAP 250
C    CARD 4. P(4), SAME AS P(3) EXCEPT LOG-LINEAR.                           GRAP 260
C    CARD 5. P(5), LOG OUTGASSING RATE VS. LOG TIME. COMPOSITE GRAPH         GRAP 270
C            WHICH INCLUDES ALL GASES.                                       GRAP 280
C            FOR PLOT, SET=15 OR -15                                         GRAP 290
C            FOR NO PLOT, SET=0                                              GRAP 300
C    CARD 6. P(6), SAME AS P(5) EXCEPT LOG-LINEAR.                           GRAP 310
C THE NEXT 6 CARDS REPRESENT 6 PLOTTING OPTIONS OF OUTGASSING RATE VS.       GRAP 320
C TEMPERATURE AND VALUES ARE SET THE SAME AS P(1)-P(6). THERE IS NO          GRAP 330
C OPTION FOR ADDING FITTED LINES, THEREFORE ALL VALUES ARE POSITIVE.         GRAP 340
C                                                                            GRAP 350
C ****NOTE****THERE MUST BE 13 DATA CARDS IN ALL FOR PLOTTING.               GRAP 360
C                                                                            GRAP 370
C THE LAST 2 CARDS IN THE DECK ARE THE FOLLOWING CONTROL CARDS               GRAP 380
C   /*                                                                       GRAP 390
C   //                                                                       GRAP 400
C                                                                            GRAP 410
C                                                                            GRAP 420
      REAL *8 TTL,TITLL,XTIT,TTT,GASLEG                                      GRAP 430
      INTEGER P(6)                                                           GRAP 440
      COMMON /FITTCGR/ OUTGSP(  50,20),NS(  50),HOUPP(  50,20),CALOG         GRAP 450
     1    (  50,20),II,TEMPP(  50,20)                                        GRAP 451
      COMMON /HILO/ XAL,YL,TETLE,GASLEG                                      GRAP 460
      COMMON /EATOCR/ LINE                                                   GRAP 470
      DIMENSION XA(2),YA(2),XAL(2),TTL(6,20),ICPA(25),BUF(3000),YL(2),       GRAP 480
     1HOURS(  50),OUTGAS(  50,20),TITLL( 50),XTIT(4),TTT(20),TETLE(40),      GRAP 481
     2   GASLEG(50),BS(20)                                                   GRAP 482
      DATA (ITIME=1)                                                         GRAP 490
      DATA  (TTL=20(8H        ))                                            GRAP 500
      DATA  (XA=1.0E-02,1.0E+03),(YA=1.0E-10,1.0E-01)                        GRAP 510
C                                                                            GRAP 520
C     XA=LOG SCALE X, YA=LOG SCALE Y                                         GRAP 530
C     XAL=LINEAR SCALE X, YL=LINEAR SCALE Y                                  GRAP 540
C IF PLOTTING OUTGASSING VS. TEMPERATURE, CHANGE LIMITS ON X AXIS TO         GRAP 550
C       CORRESPOND TO TEMPERATURE, INSTEAD OF TIME.                          GRAP 560
C                                                                            GRAP 570
      IF (ITIME.EQ.1) GO TO 110                                              GRAP 580 IF
      XAL(1)=1000.                                                           GRAP 590
      XAL(2)=0.                                                              GRAP 600
J-----------      DO 100 J=1,NC                                              GRAP 610 ------DO
J                 IF (HOURS(J).LT.XAL(1)) XAL(1)=HOURS(J)                    GRAP 620 IF
J---------------  IF (HOURS(J).GT.XAL(2)) XAL(2)=HOURS(J)                    GRAP 630 IF
100
J-----------      DO 105 J=1,ML                                              GRAP 640 ------DO
J
J  I--------      DO 105 I=1,50                                              GRAP 650 ------DO
J--I--------- 105  HOUPP(I,J)=TEMPP(I,J)                                    GRAP 660
              110  CONTINUE                                                  GRAP 670
                   NBOTH=0                                                   GRAP 680
                   CALL QQOCPA(9,.08)                                        GRAP 690
                   CALL QQOCPA(10,LINE)                                      GRAP 700
C                                                                            GRAP 710
C READ PLOTTING OPTIONS                                                      GRAP 720
C                                                                            GRAP 730
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I--------------       DO 115 I=1,6                                                    GRAP 740 ------DO
I                     READ 1,P(I),(TTL(I,J),J=1,15)                                   GRAP 750 ------------------READ
I                1    FORMAT(I5,15A5)                                                 GRAP 760
I--------------- 115  CONTINUE                                                       GRAP 770

I--------------       DO 180 I=1,6                                                    GRAP 780 ------DO
I                     IF(P(I).EQ.0) GO TO 180                                         GRAP 790 IF
I                     NP=IABS(P(I))                                                   GRAP 800
I                     GO TO (165,165,135,130,120,120) I                               GRAP 810 ------------GOTO
I               C                                                                     GRAP 820
I               C THIS SECTION PLOTS OPTIONS 3,4,5,6. EACH OF THESE OPTIONS PRODUCES  GRAP 830
I               C       ONLY 1 GRAPH.                                                 GRAP 840
I               C SET UP LEGEND FOR PLOTTING ALL GASES ON 1 PLOT.                     GRAP 850
I               C                                                                     GRAP 860
I  J----------- 120  DO 125 J=1,ML                                                    GRAP 870 ------DO
I  J                 DECODE(5,2,GASLEG(J))    TTL(I,J)                             GRAP 880
I  J              2  FORMAT(A5)                                                      GRAP 890
I  J----------- 125  CONTINUE                                                       GRAP 900
I                    IF(I.EQ.5) GO TO 135                                           GRAP 910 IF
I                 130 CALL OOOCPA(5,5.)                                             GRAP 920
I                     CALL SETPLT(XAL,YA,2,'YLOG','MECH',0.,0.,BUF,3000)           GRAP 930
I                     GO TO 140                                                     GRAP 940 ------------GOTO
I                 135 CALL OOOCPA(5,6.25)                                           GRAP 950
I                     CALL SETPLT(XA,YA,2,'LOG','MECH',0.,0.,BUF,3000)             GRAP 960
I                 140 NSYM=0                                                        GRAP 970
I                     CALL TITLE(.2,'SELECTED GASES$',XTIT          ,'OUTGASSING RATE (GRAP 980
I                    1TORR-LITERS/SEC)$')                                           GRAP 981
I                     CALL SYMBOL(.1,10.03,.1 ,TETLE(1),0.,80)                      GRAP 990
I               C                                                                   GPA 1000
I               C TEST TO SEE IF NAMES OF GASES ON DATA CARDS ARE CORRECT. IF NOT, THAT GPA 1010
I               C       GAS IS NOT PLOTTED.                                         GPA 1020
I               C                                                                   GPA 1030
I  K-----------       DO 160 K=1,NP                                                 GPA 1040 ------DO
I  K
I  K  J--------       DO  145 J=1,ML                                                GPA 1050 ------DO
I  K  J               IF(ICOMPARE(TTL(I,K),GASLEG(J),5    ).EQ.0) 150,145           GPA 1060 IF
I  K  J-------- 145  CONTINUE                                                       GPA 1070
I  K                  PRINT 3,I                                                     GPA 1080 ----------------------PRINT
I  K              3   FORMAT('1 THE INPUT CARD WITH P',I1,',ETC. IS WRONG. CHECK THE NAMGPA 1090
I  K                 1ES. LINES WITH UNRECOGNIZED NAMES WILL BE OMITTED FROM THE PLOT.')GPA 1091
I  K                  GO TO 160                                                     GPA 1100 ------------GOTO
I  K              150  IF (NS(J).LT.2) GO TO 160                                    GPA 1110 IF
I  K                   CALL PAYPLT(HOURP(1,J),OUTGSP(1,J),NS(J))                   GPA 1120
I  K               C                                                               GPA 1130
I  K               C TEST TO SEE IF A FITTED LINE IS DESIRED.                      GPA 1140
I  K               C                                                               GPA 1150
I  K                   IF(P(I).GT.0) GO TO 155                                     GPA 1160 IF
I  K                   CALL OOOCPA(10,5)                                           GPA 1170
I  K                   CALL LINPLT(HOURP(1,J),CALOG(1,J),NS(J),0,0)                GPA 1180
I  K                   CALL OOOCPA(10,LINE)                                        GPA 1190
I  K              155  NSYM=NSYM+1                                                 GPA 1200
I  K                   TTT(NSYM)=TTL(I,K)                                          GPA 1210
I  K---------- 160  CONTINUE                                                       GPA 1220
I                      YBOX=.2+.2*NSYM                                             GPA 1230
I                      CALL LEGEND('LEGEND$',0 ,-NSYM,TTT(1),-2,1.,YBOX     ,6.75,10.)  GPA 1240
I                      GO TO 180                                                   GPA 1250 ------------GOTO
I               C                                                                  GPA 1260
I               C THIS SECTION PLOTS OPTIONS 1 AND 2, 1 PLOT PER GAS.              GPA 1270
I               C                                                                  GPA 1280
I                165  IF(NBOTH.EQ.1) GO TO 180                                     GPA 1290 IF
I  J-----------       DO 175 J=1,ML                                                GPA 1300 ------DO
I  J                  IF(P(1).EQ.0) GO TO 170                                      GPA 1310 IF
I  J                  IF(NS(J).LT.2) GO TO 170                                     GPA 1320 IF
I  J                  CALL OOOCPA(5,6.25)                                          GPA 1330
I  J                  CALL SETPLT(XA,YA,2,'LOG','MECH',0.,0.,BUF,2000)             GPA 1340
I  J                  CALL TITLE(.2,'$',XTIT          ,'OUTGASSING RATE (TORR-LITERS/SEGPA 1350
I  J                 1C)$')                                                        GPA 1351
I  J                  CALL SYMBOL(.5,10.25,.21,TITLE(2*J-1),0.,16)                 GPA 1360
I  J                  CALL SYMBOL(.1,10.03,.1 ,TETLE(1),0.,80)                     GPA 1370
I  J                  CALL PAYPLT(HOURP(1,J),OUTGSP(1,J),NS(J))                    GPA 1380
I  J                  IF(P(1).GT.0) GO TO 170                                      GPA 1390 IF
I  J                  CALL SYMBOL(4.,10.25,.14,'SLOPE = ',0.,8)                    GPA 1400
I  J                  CALL NUMBER(5.,10.25,.14,BS(J),0.,7H(E10.3))                 GPA 1410
I  J                  CALL OOOCPA(10,0)                                            GPA 1420
I  J                  CALL LINPLT(HOURP(1,J),CALOG(1,J),NS(J),0,0)                 GPA 1430
I  J                  CALL OOOCPA(10,LINE)                                         GPA 1440
I  J              170  IF(P(2).EQ.0) GO TO 175                                     GPA 1450 IF
I  J                   IF(NS(J).LT.2) GO TO 175                                    GPA 1460 IF
I  J                   CALL OOOCPA(5,5.)                                           GPA 1470
I  J                   CALL SETPLT(XAL,YA,2,'YLOG','MECH',0.,0.,BUF,3000)          GPA 1480
I  J                   CALL TITLE(.2,'$',XTIT          ,'OUTGASSING RATE (TORR-LITERS/SEGPA 1490
I  J                  1C)$')                                                       GPA 1491
I  J                   CALL SYMBOL(.5,10.25,.21,TITLE(2*J-1),0.,16)                GPA 1500
I  J                   CALL SYMBOL(.1,10.03,.1 ,TETLE(1),0.,80)                    GPA 1510
I  J                   CALL PAYPLT(HOURP(1,J),OUTGSP(1,J),NS(J))                   GPA 1520
I  J                   NBOTH=1                                                     GPA 1530
I  J                   IF(P(2).GT.0) GO TO 175                                     GPA 1540 IF
I  J                   CALL OOOCPA(10,0)                                           GPA 1550
I  J                   CALL LINPLT(HOURP(1,J),CALOG(1,J),NS(J),0,0)                GPA 1560
I  J                   CALL OOOCPA(10,LINE)                                        GPA 1570
I  J---------- 175  CONTINUE                                                       GPA 1580
I--------------- 180  CONTINUE                                                     GPA 1590
                 185  ITIME=2                                                     GPA 1600
                      RETURN                                                      GPA 1610
                      END                                                         GPA 1620
```

TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
BS	(20)	20	REAL*4	PARAMETER	10. 440. 1410
BUF	(3000)	3000	REAL*4	LOCAL	480. 910. 940. 1740. 1480
CALOG	(50,20)	1000	REAL*4	COMMON/FITTOGR /	450. 1180. 1410. 1460
EATOGR		4	BYTES	COMMON LABEL	470
FITTOGR		16204	BYTES	COMMON LABEL	450
GASLEG	(50)	50	REAL*8	COMMON/HILO /	430. 460. 480. 880. 1060
GRAPHS			REAL*4	ENTRY POINT	10
HILO		576	BYTES	COMMON LABEL	460
HOURP	(50,20)	1000	REAL*4	COMMON/FITTOGR /	450. 660* 1120. 1140. 1380. 1430. 1510. 1560
HOURS	(50)	50	REAL*4	PARAMETER	10. 480. 620. 670
I			INTEGER*4	LOCAL	650* 660. 740* 750. 780* 790. 850. 910. 980. 910. 1060. 1080. 1140. 1110
IABS			INTEGER*4	FUNCTION	800
ICOMPARE			INTEGER*4	FUNCTION	1960
ICPA	(20)	20	INTEGER*4	LOCAL	690
ITIME			INTEGER*4	LOCAL (DATA)	490. 500. 1400*
II			INTEGER*4	COMMON/FITTOGR /	450
J			INTEGER*4	LOCAL	810* 820. 830. 840* 860. 950* 970* 980. 1050* 1060. 1110. 1120. 1140. 1200* 1320. 1360. 1390. 1400. 1420. 1440. 1460. 1520. 1560
K			INTEGER*4	LOCAL	1040* 1060. 1210
LEGEND				SUBROUTINE	1240
LINE			INTEGER*4	COMMON/EATOGR /	470. 700. 1160. 1440. 1470
LINPLT				SUBROUTINE	1100. 1430. 1560
ML			INTEGER*4	PARAMETER	10. 640. 670. 1050. 1700
NBOTH			INTEGER*4	LOCAL	880* 1290. 1520*
NC			INTEGER*4	PARAMETER	10. 630
NP			INTEGER*4	LOCAL	800* 1040
NS	(50)	50	INTEGER*4	COMMON/FITTOGR /	450. 1110. 1120. 1140. 1320. 1340. 1430. 1460. 1570. 1580
NSYM			INTEGER*4	LOCAL	970* 1200* 1210. 1230. 1240
NUMBER				SUBROUTINE	1410
OUTGAS	(50,20)	1000	REAL*4	PARAMETER	10. 480
OUTGSP	(50,20)	1000	REAL*4	COMMON/FITTOGR /	450. 1120. 1280. 1420
P	(6)	6	INTEGER*4	LOCAL	440. 750. 790. 800. 1040. 1210. 1290. 1450. 1560
POOLPA				SUBROUTINE	690. 700. 920. 940. 1170. 1190. 1330. 1420. 1440. 1470. 1500. 1570
RAYPLT				SUBROUTINE	1120. 1380. 1520
SETPLT				SUBROUTINE	920. 960. 1140. 1480
SYMBOL				SUBROUTINE	990. 1260. 1270. 1400. 1500. 1510
TEMPP	(50,20)	1000	REAL*4	COMMON/FITTOGR /	450. 660

TCTLE	(4C)	40	REAL*4	COMMON/HILO	/	440.	480.	990.	1170.	1310		
TITLE				SUBROUTINE		990.	1350.	1490				
TITLL	(5C)	50	REAL*8	PARAMETER		10.	470.	480.	1340.	1500		
TTL	(6,20)	120	REAL*8	LOCAL (DATA)		430.	480.	500.	750.	880.	1060.	1210
TTT	(20)	20	REAL*8	LOCAL		430.	480.	1210*	1240			
VA	(3)	3	REAL*4	LOCAL (DATA)		480.	510.	980.	1140			
VAL	(2)	3	REAL*4	COMMON/HILO	/	440. 1490	440.	190*	870*	820*	830*	930.
VIII	(4)	4	REAL*8	PARAMETER		10.	470.	480.	940.	1350.	1490	
VA	(2)	3	REAL*4	LOCAL (DATA)		480.	510.	930.	940.	1140.	1480	
VBCS			REAL*4	LOCAL		1270*	1240					
VL	(2)	3	REAL*4	COMMON/HILO	/	440.	460					

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST
690	DECODE	4		2	TTL(I,J)
740	READ	10	BCD	1	((((I,(TTL(I,J),J=1,15)
1040	PRINT	11	BCD	2	I

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IEF285I   A5.G3.P31177.C10155.DURFEE.PLI                  PASSED
IEF285I   VOL SER NOS= ZZZZZZ.
IEF285I   SYS1.LINKLIB                                    PASSED
IEF285I   VOL SER NOS= MVT17P.
IEF285I   SYS70287.T181233.RV000.CLAD.FJOBLIB             PASSED
IEF285I   VOL SER NOS= YYYYYY.
IEF285I   SYS70287.T181233.SV000.CLAD.PGM00045            SYSOUT
IEF285I   VOL SER NOS= XXXXXX.
IEF285I   SYS70287.T181233.RV000.CLAD.FJOBLIB             DELETED
IEF285I   VOL SER NOS= YYYYYY.
IEF285I   SYS70287.T181233.RV000.CLAD.FTSYSIN             PASSED
IEF285I   VOL SER NOS= 222222.

CLAD     GO                    22.07.24 10-14-70
      CPU SEC.= 149.18//     I/O REQUESTS=   185//     REGION ALLOC.=1536K//     MACH. USE SEC.=   156.58//     REGION USED=1526K

IEF285I   A5.G3.P31177.C10155.DURFEE.PLI                  KEPT
IEF285I   VOL SER NOS= ZZZZZZ.
IEF285I   SYS1.LINKLIB                                    KEPT
IEF285I   VOL SER NOS= MVT17P.
IEF285I   SYS70287.T181233.RV000.CLAD.FTSYSIN             DELETED
IEF285I   VOL SER NOS= 222222.

CLAD     MODEL=75 12723        22.07.25 10-14-70
TOTAL CPU SEC.= 319.71//TOTAL I/O REQUESTS=  2483//MAX. REGION ALLOC.=1536K//TOTAL MACH. USE SEC.=   418.03//MAX. REGION USED=1526K
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**********************************************************************************************************************
* * NOTICE * * THE MAXIMUM REGION YOU REQUESTED DURING THIS JOB WAS   1536K. BUT YOU COULD RUN IN LESS SINCE MAX. REGION USED=1526K
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*** CURRENT DATE IS 10-22-70 ***

NERVA XE-II FUEL ELEMENT OUTGASSING PROGRAM

DEWEY EASTON

RUN NO. 101, 600-C, 350 HR AT 50 DEG

APPARATUS TEMPERATURE (D) = 60.

*** CRACKING PATTERN ***

M/E	H	HELIUM	METHANE	WATER VAPOR	NITROGEN	CO	OXYGEN	ARGON	CO2	C2H4	C2H6	C3H8
2	1.0000	0.0	0.0070	0.0	0.0	0.0	0.0	0.0	0.0	0.0290	0.0040	0.0040
4	0.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0210	0.0	0.0	0.0200	0.0	0.0	0.0250	0.0120	0.0030	0.0050
13	0.0	0.0	0.0590	0.0	0.0	0.0	0.0	0.0	0.0	0.0160	0.0060	0.0050
14	0.0	0.0	0.1450	0.0	0.0500	0.0060	0.0	0.0	0.0	0.0400	0.0200	0.0250
15	0.0	0.0	0.8000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0270	0.2500
16	0.0	0.0	1.0000	0.0280	0.0	0.0080	0.0700	0.0	0.0564	0.0	0.0030	0.0130
17	0.0	0.0	0.0120	0.2660	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	1.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0100	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5060	0.1930	0.0850
27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5440	0.2840	0.2900
28	0.0	0.0	0.0	0.0	1.0000	1.0000	0.0	0.0	0.1640	1.0000	1.0000	0.7180
29	0.0	0.0	0.0	0.0	0.0100	0.0100	0.0	0.0	0.0	0.0290	0.2000	1.0000
30	0.0	0.0	0.0	0.0	0.0	0.0020	0.0	0.0	0.0	0.0	0.2440	0.0220
32	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.0	0.0
44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	0.0	0.0	0.4400

*** CORRECTION CONSTANTS ***

	IONIZATION CONSTANT	* RGA SENSITIVITY = MASTER AMPS/TORR	
H	0.4600	0.4848	0.2230
HELIUM	0.1630	0.2577	0.0420
METHANE	1.4000	0.4400	0.6160
WATER VAPOR	1.0000	0.7000	0.7000
NITROGEN	1.0000	1.1000	1.1000
CO	1.0100	1.1580	1.2100
OXYGEN	1.0700	0.8252	0.8830
ARGON	1.1400	0.8333	0.9500
CO2	1.4000	1.0000	1.4000
C2H4	1.8000	0.4900	0.8820
C2H6	2.6900	0.5613	1.5099
C3H8	3.5800	0.3352	1.2000

*** CURRENT DATE IS 10-22-70 ***

RUN NO. 101, 600-C, 350 HR AT 50 DEG

RUN NO. 101, 600-C, 350 HR AT 50 DEG
DATE = 2.13
HOURS = 2.00
TEMPERATURE (DEGREES C.) = 40.25 MILLIVOLTS (CR/AL) = 2.00
CHAMBER PRESSURE = 1.69000E-05 THERMAL CORRECTION = 1.78052E-05
MANIFOLD PRESSURE = 2.59000E-06 THERMAL CORRECTION = 2.72873E-06
RGA PRESSURE = 3.35000E-06 THERMAL CORRECTION = 3.52944E-06

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	5.90000E-08	5.85508E-08	-2.34479E-13	-39.74221E-05
4	1.00000E-13	1.00000E-13	0.0	0.0
12	1.25000E-08	6.10352E-09	-6.39648E-09	-51.17183E 00
13	8.00000E-10	-7.68406E-10	-1.56841E-09	-19.85747E 01
14	4.70000E-09	2.56036E-09	-2.13964E-09	-45.52614E 00
15	7.00000E-09	1.58629E-09	-5.41371E-09	-77.19102E 01
16	6.90000E-08	6.36319E-08	-6.36807E-09	-89.67119E-01
17	4.95000E-07	5.04640E-07	9.64047E-09	19.47707E-01
18	1.90000E-06	1.69767E-06	-2.32871E-07	-12.25424E-02
22	3.50000E-09	-3.9145CE-10	-3.89145E-09	-11.11841E 01
26	3.40000E-09	-1.05078E-08	-1.41078E-08	-30.17429E 01
27	5.60000E-09	1.85157E-08	1.33157E-08	23.77821E 01
28	4.05000E-07	4.05252E-07	2.52398E-10	62.31721E-03
29	1.10000E-07	1.03702E-07	-6.29768E-09	-57.25166E-01
30	4.30000E-08	3.51787E-08	-7.82125E-10	-18.28207E 00
32	1.35000E-08	1.35551E-08	4.98149E-10	36.67743E-01
40	2.00000E-09	2.00000E-09	0.0	0.0
44	4.60000E-09	5.05509E-09	4.55095E-10	10.84092E 00

RATIO OF GAGE P1 TO GAGE P2 = 4.77500E 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	1.78052E-05		1.61178E-04	
TOTAL	3.48012E-06	99.99999E 00	2.79862E-04	99.99998E 00
H	2.82457E-07	81.14300E-01	4.82637E-05	23.35047E 00
HELIUM	2.50181E-12	72.07168E-06	3.03245E-10	17.43111E-03
METHANE	-1.55465E-08	-77.37320E-01	-1.21870E-04	-43.45578E-02
WATER VAPOR	2.86617E-07	82.37555E 00	1.62477E-04	72.09976E 00
NITROGEN	1.11742E-08	32.10888E-02	8.10287E-07	72.41610E-02
CO	2.14647E-07	61.67346E-01	1.44730E-05	66.14503E-01
OXYGEN	1.84552E-08	47.55485E-02	7.13344E-07	33.41527E-02
ARGON	2.21812E-06	63.72656E-01	8.47488E-06	37.96108E-02
CO2	-2.56884E-08	-84.46764E-02	-1.07315E-04	-47.96242E-02
C2H4	-6.86425E-08	-13.73012E-01	-2.10241E-04	-93.18854E-02
C2H6	1.44087E-07	47.13575E-02	7.23746E-06	32.07780E-03
C3H8	8.02892E-08	25.26772E-01	3.21629E-05	14.24387E-01
HYDROCARBONS	2.39145E-07	68.71736E-02	-2.07461E-06	-90.15948E-04

SUM OF CURRENTS = 3.10185E-06 AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = 5.25620E-01 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 3.48012E-06 TORR
RGA ADJUSTED PRESSURE = 3.82676E-06 TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 3.46539E-07 TORR
PERCENT DIFFERENCE = 10.077

RUN NO. 101, ACO-C, 350 MF AT 90 CEG
CA*C = 2.14
HOURS = 70.5C
TEMPERATURE (CORRECTED C.) = 49.2F MILLIVOL*S (CO*AL) = 2.00
CHAMBER PRESSURE = 9.100000E-07 THERMAL CORRECTION = 4.*87448-07
*ANIFOLD PRESSURE = 1.400000E-07 *HERMAL CORRECTION = 1.674998-07
ACA PRESSURE = 1.900000E-0* THERMAL CORRECTION = 1.*94428-07

M/S	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	8.800000E-0*	8.7***0E-0*	-4.2*3248E-14	-48.444108E-**
4	1.*00000E-13	1.000000E-13	0.0	0.0
12	1.100000E-0*	1.718*0E-0*	8.174*5E-1*	9*.181*8E 00
13	4.000000E-11	-2.14*47E-11	-7.14347E-*1	-14.281*3E 01
14	3.250000E-10	9.*17*2E-10	2.0172*E-10	62.*33100 00
15	4.*00000E-10	-9.27*74*-10	-7.*7*-4*-10	-**.110308 01
16	3.*00000E-0*	4.**8*8E-0*	*.*8782*-10	10.534*2* 00
17	1.*00000E-0*	1.*67*8E-0*	1.07264*-0*	*.688**E-01
18	5.700000E-**	5.*** **-0*	-*.07*41E-10	-93.*54**-02
22	1.*00000E-10	2.*7*4*-10	*.7*4*E-*1	1*.*13*2E 00
24	2.700000E-10	3.1*2*3E-10	*.*23275-11	20.*03*** 00
27	5.*00000E-10	*.*82*3E-10	-*.1**43E-11	-21.*** ***
28	5.*00000E-0*	*.***8*E-0*	-2.**0*0E-11	-41.*4011*-**
25	7.*00000E-10	*.*4*14E-10	2.*4*14E-10	32.5*52** 00
30	2.*00000E-10	2.**0***	-*.0*8*2E-11	-11.*4*** 00
32	2.*00000E-0*	2.*54*2E-0*	-4.*72**E-11	-1*.*****-**
42	8.*00000E-11	8.*02***E-11	*.*	0.*
44	3.*30000E-**	3.****7E-0*	-4.*73*E*-11	-12.*14**E-02

*****T** ** ***** *1 ** F*C* *2 = *.*****E 00

***	********* ****	******** ** **C** **********	********** **** **********	********** ** **** **********
T*C* P1	*.**7**E-**		*.*7***E-0*	
****	1.*****E-**	**.****** **	1.***8**E-**	**.****** **
*	*.****E-**	**.****** **	*.*****E-**	**.****** **
******	*.****V-**	**.****** **	*.***8**E-**	**.****** **
*********	-*.*****E-**	-**.****** **	-*.****E-**	-**.****** **
**********	*.***E-**	**.****** **	*.****E-**	**.****** **
**********	*.***E-**	**.****** **	*.****E-**	**.****** **
******	*.***E-**	**.****** **	*.****E-**	**.****** **
******	*.***E-**	**.****** **	*.****E-**	**.****** **
******	*.***E-**	**.****** **	*.****E-**	**.****** **
**********	*.***E-**	**.****** **	-*.****E-**	-**.****** **

*** ** ********** = *.*****E-** ****
********** ********** ********** ********** = *.**E-** ********
********** ********** ********** = *.***E-** ****
********** ********** ********** = ********** ********** = *.*****E-** ****
********** ********** = **.**

RUN NO. 101, [illegible] AT 50 DEG
DATE = [illegible]
HOURS = 31.00
TEMPERATURE (DEGREES C.) = [illegible] MILLIVOLTS (SCALE) = 2.00
CHAMBER PRESSURE = [illegible] THERMAL CORRECTION = [illegible]
PARTICLE PRESSURE = [illegible] THERMAL CORRECTION = [illegible]
GAS PRESSURE = [illegible] THERMAL CORRECTION = [illegible]

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	0.0	0.0
12	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	0.0	0.0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
[illegible]	[illegible]		[illegible]	
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

RUN NO. 101, ECO-C, 350 MB AT 90 DEG
DATE = 2.19
HOURS = 46.00
TEMPERATURE (DEGREES C.) = 48.2° MILLIVOLTS (COAL) = 2.00
CHAMBER PRESSURE = 7.980000E-07 THERMAL CONDUCTION = 3.013208E-07
MOLECULE PRESSURE = 4.400000E-09 THERMAL CONDUCTION = 4.435698E-09
OCA PRESSURE = 6.000000E-09 THERMAL CONDUCTION = 6.048178E-09

M/E	MEASURED MOLECULAR WEIGHT (AMU)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	4.250000E-09	4.245907E-09	-3.167446E-14	-74.233968E-05
4	1.000000E-13	1.000000E-13	0.0	0.0
12	8.750000E-10	7.991139E-10	8.911275E-11	13.300418E 00
13	7.000000E-11	3.747655E-11	-7.523076E-12	-30.992778E 00
14	1.400000E-10	1.785593E-10	2.155706E-11	17.905198E 00
15	7.250000E-10	7.141719E-10	-8.782778E-12	-36.812778E-01
16	1.900000E-09	1.902324E-09	9.241196E-12	18.026586E-02
17	3.700000E-09	3.201768E-09	-9.821437E-11	-29.761928E-01
18	1.200000E-09	1.202405E-08	2.996988E-11	21.665638E-02
22	1.400000E-10	1.497668E-10	-1.023612E-11	-87.173328E-01
28	1.000000E-10	1.025769E-10	2.576988E-12	29.760418E-02
32	1.100000E-10	1.271988E-10	-2.802446E-12	-17.515248E-01
34	2.000000E-09	1.999768E-09	-2.437618E-12	-12.184804E-02
36	3.000000E-10	3.040156E-10	4.015648E-12	13.388128E-01
40	1.200000E-10	1.237156E-10	3.715628E-12	30.968078E-01
42	6.000000E-10	9.572428E-11	-2.427728E-11	-42.978818E-01
46	1.000000E-11	1.000000E-11	0.0	0.0
64	1.000000E-09	1.000000E-09	-7.010948E-12	-71.078446E-02

RATIO OF MASS 81 TO MASS 82 = 8.000000 00

GAS	PRESSURE MOLE	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE MOLE LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
H2O	3.013208E-07		3.725728E-04	
TOTAL	4.435698E-09	99.999999 00	4.619718E-06	99.999928 00
N	2.000000E-09	29.000448 00	2.684718E-06	60.812308 00
HELIUM	3.999178E-12	27.400078E-04	2.841288E-10	93.519498E-04
METHANE	6.052048E-10	81.613288E-02	3.194668E-08	41.693178E-02
WATER VAPOR	1.810328E-09	29.586468 00	6.698328E-07	10.204718 00
AMMONIA	9.441368E-10	21.077178E-02	1.327878E-08	27.810218E-02
CO	1.432668E-09	31.278918 00	5.678768E-07	11.407468 00
OXYGEN	2.192218E-10	10.675788E-02	7.694388E-08	69.088138E-02
ARGON	1.855618E-12	24.787188E-04	6.847888E-10	19.448648E-02
CO2	1.277148E-08	14.642678 00	6.058058E-07	82.187468E-01
C2H6	1.215618E-11	44.476758E-03	3.526048E-09	91.779088E-03
C3H8	1.271848E-10	14.078668E-03	6.658288E-09	15.688188E-02
C3H6	1.018268E-11	82.488618E-03	1.717128E-09	36.763548E-02
UNIDENTIFIED	7.815128E-10	11.478528E-01	3.986028E-03	72.208778E-01

TOTAL PRESSURE = 1.279238E-08 AMPS
IONIZATION EFFICIENCY (CORRECTED FOR MIXTURE) = 5.726448E-01 AMPS/TORR
SUMMATION OF PARTIAL PRESSURES = 8.700428E-08 TORR
OCA ION GAUGE PRESSURE = 9.000218E-08 TORR
CORRECTED ION GAUGE PRESSURE = SUMMATION PARTIAL PRESSURES = 2.110088E-08 TORR
MOLECULAR CONDUCTANCE = 31.010

RUN NO. 101, 600-C, 350 HR AT 50 DEG
DATE = 2.1E
HOURS = 46.75
TEMPERATURE (DEGREES C.) = 49.25 MILLIVOLTS (CR/AL) = 2.00
CHAMBER PRESSURE = 2.90000E-07 THERMAL CORRECTION = 3.05534E-07
MANIFOLD PRESSURE = 4.50000E-08 THERMAL CORRECTION = 4.74104E-08
RGA PRESSURE = 6.50000E-08 THERMAL CORRECTION = 6.84817E-08

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	4.40000E-09	4.39996E-09	-3.90799E-14	-88.81791E-05
4	1.00000E-13	1.00000E-13	0.0	0.0
12	7.00000E-09	1.19072E-09	-5.80927E-09	-82.98944E 00
13	2.80000E-11	1.67586E-11	-1.12414E-11	-40.14784E 00
14	1.60000E-10	-1.19721E-09	-1.35721E-09	-84.82546E 01
15	2.30000E-10	1.95708E-10	-3.42920E-11	-14.90956E 00
16	1.70000E-09	2.04157E-09	3.41568E-10	20.09225E 00
17	2.85000E-09	3.29269E-09	4.42693E-10	15.53307E 00
18	1.25000E-08	1.23693E-08	-1.30743E-10	-10.45947E-01
22	1.80000E-10	1.90075E-10	1.00745E-11	55.97189E-01
26	9.00000E-11	1.26340E-10	3.63403E-11	40.37810E 00
27	1.40000E-10	1.31580E-10	-2.84197E-11	-17.76231E 00
28	2.20000E-08	2.21224E-08	1.22412E-10	55.64194E-02
29	3.00000E-10	2.46142E-10	-5.38576E-11	-17.95253E 00
30	1.20000E-10	-1.51914E-10	-2.71914E-10	-22.65950E 01
32	6.00000E-10	5.73014E-10	-2.69857E-11	-44.97625E-01
40	2.00000E-11	2.00000E-11	0.0	0.0
44	1.90000E-08	1.91063E-08	1.06326E-10	55.96082E-02

RATIO OF GAGE P1 TO GAGE P2 = 6.44444E 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	3.05534E-07		2.75951E-06	
TOTAL	7.02461E-08	99.99998E 00	5.15018E-06	99.99997E 00
H	2.07157E-08	29.49026E 00	3.12235E-06	60.17815E 00
HELIUM	2.60818E-12	35.70563E-04	2.67402E-10	51.52080E-04
METHANE	3.52169E-10	50.13366E-02	1.87727E-08	36.16962E-02
WATER VAPOR	1.86165E-08	26.50233E 00	6.35635E-07	12.02702E 00
NITROGEN	-1.54157E-09	-21.94522E 00	-6.21182E-07	-11.96843E 00
CO	3.07400E-08	43.76041E 00	1.23869E-06	23.86594E 00
OXYGEN	4.83728E-10	97.33323E-02	2.57718E-08	49.65490E-02
ARGON	2.21812E-11	31.57638E-02	7.47609E-10	14.40856E-03
CO2	1.43040E-08	20.36272E 00	4.59790E-07	88.59014E-01
C2H4	6.77920E-10	96.50676E-02	2.73172E-08	52.63237E-02
C2H6	-4.50482E-10	-92.60035E-02	-2.53227E-08	-48.78967E-02
C3H8	1.07155E-10	26.07258E-02	6.33891E-09	12.21327E-02
HYDROCARBONS	5.76206E-10	82.11218E-02	2.71061E-08	52.22565E-02

SUM OF CURRENTS = 7.13380E-08 AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = 1.09751E 00 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 7.02461E-08 TORR
RGA ADJUSTED PRESSURE = 8.77425E-08 TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 1.74964E-08 TORR
PERCENT DIFFERENCE = 24.907

RUN NO. 101, 600-C, 350 HR AT 50 DEG
DATE = 2.15
HOURS = 63.25
TEMPERATURE (DEGREES C.) = 40.25 MILLIVOLTS (CP/AL) = 2.00
CHAMBER PRESSURE = 2.21000E-07 THERMAL CORRECTION = 2.32838E-07
MANIFOLD PRESSURE = 2.40000E-08 THERMAL CORRECTION = 3.58212E-08
RGA PRESSURE = 5.00000E-08 THERMAL CORRECTION = 5.26782E-08

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	3.85000E-09	3.84996E-09	-4.26326E-14	-11.07340E-04
4	1.00000E-13	1.00000E-13	0.0	0.0
12	6.00000E-10	6.43034E-10	4.30346E-11	71.72334E-01
13	2.00000E-11	8.70471E-12	-1.12953E-11	-56.46640E 00
14	1.20000E-10	1.46305E-10	1.63049E-11	12.54221E 00
15	1.85000E-10	1.09684E-10	-8.5315EE-11	-43.75174E 00
16	1.25000E-09	1.21531E-09	6.53142E-11	52.25136E-01
17	1.60000E-09	1.62724E-09	2.72393E-11	14.33648E-01
18	7.25000E-09	7.24026E-09	-9.73444E-12	-13.42680E-02
22	1.45000E-10	1.44695E-10	-3.04756E-13	-21.01756E-02
26	6.00000E-11	6.50376E-11	5.03762E-12	83.96035E-01
27	1.10000E-10	1.05272E-10	-4.72848E-12	-42.98619E-01
28	1.70000E-08	1.69790E-08	-2.09610E-12	-12.33000E-03
29	2.25000E-10	2.49484E-10	2.44842E-11	10.88187E 00
30	9.00000E-11	8.53395E-11	-4.66049E-12	-51.78327E-01
32	3.45000E-10	3.38839E-10	-5.16120E-12	-14.96001E-01
40	1.10000E-11	1.10000E-11	0.0	0.0
44	1.45000E-08	1.44956E-08	-4.38405E-12	-30.23480E-03

RATIO OF GAGE P1 TO GAGE P2 = 6.50000E 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	2.32838E-07		2.10624E-06	
TOTAL	5.33288E-08	99.99998E 00	4.14510E-06	99.99992E 00
H	1.81752E-08	34.08134E 00	2.71906E-06	65.59694E 00
HELIUM	2.50818E-12	47.03239E-04	2.45322E-10	64.01010E-04
METHANE	1.88436E-10	35.33298E-02	1.09228E-08	24.17983E-02
WATER VAPOR	1.08373E-08	20.43410E 00	5.43421E-07	13.10994E 00
NITROGEN	4.21817E-10	79.09728E-02	1.68465E-08	40.68780E-02
CO	1.20826E-08	22.66375E 00	4.83240E-07	11.65820E 00
OXYGEN	4.05500E-10	76.03768E-02	1.51660E-08	36.58770E-02
ARGON	1.21667E-11	22.82631E-03	4.08106E-10	98.45491E-04
CO2	1.08890E-08	20.41656E 00	3.47309E-07	83.78775E-01
C2H4	3.65598E-11	68.55345E-03	1.46173E-09	35.26402E-03
C2H6	1.60928E-10	30.17645E-02	6.21619E-09	14.99647E-02
C3H8	5.20545E-11	97.61041E-03	1.66030E-09	40.05451E-03
HYDROCARBON	4.36034E-10	82.32576E-02	1.93610E-08	46.70835E-02

SUM OF CURRENTS = 4.76811E-08 AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = 8.93621E-01 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 5.33288E-08 TORR
RGA ADJUSTED PRESSURE = 7.03411E-08 TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 1.70122E-08 TORR
PERCENT DIFFERENCE = 31.901

RUN NO. 101, 600-C, 350 HR AT 50 DEG
DATE = 2.16
HOURS = 75.00
TEMPERATURE (DEGREES C.) = 49.25 MILLIVOLTS (CP/AL) = 2.00
CHAMBER PRESSURE = 1.630000E-07 THERMAL CORRECTION = 1.71731E-07
MANIFOLD PRESSURE = 2.500000E-08 THERMAL CORRECTION = 2.63391E-08
RGA PRESSURE = 4.000000E-08 THERMAL CORRECTION = 4.21426E-08

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	3.050000E-08	3.050000E-08	-4.440892E-15	-14.56030E-06
4	1.000000E-13	1.000000E-13	0.0	0.0
12	5.000000E-10	4.217566E-10	-7.824341E-11	-15.64982E 00
13	1.500000E-11	7.700995E-12	-7.299004E-12	-48.66029E 00
14	1.100000E-10	9.726066E-11	-1.273934E-11	-11.58126E 00
15	1.600000E-10	8.468679E-11	-7.513211E-11	-46.95755E 00
16	9.500000E-10	1.015900E-09	6.659000E-11	69.36836E-01
17	1.100000E-09	9.431479E-10	-1.568521E-10	-14.25936E 00
18	3.500000E-09	3.539222E-09	3.922139E-11	11.20607E-01
22	1.250000E-10	1.219321E-10	-3.067905E-12	-24.55269E-01
26	5.500000E-11	1.915785E-11	-3.584215E-11	-65.16747E 00
27	8.500000E-11	1.187416E-10	3.374160E-11	39.69530E 00
28	1.000000E-08	1.000076E-08	6.608056E-13	66.08047E-04
29	1.850000E-10	1.938116E-10	8.810766E-12	47.62571E-01
30	7.500000E-10	7.270926E-10	-1.290736E-11	-17.21023E-01
32	2.800000E-10	2.747036E-10	-5.296717E-12	-18.59704E-01
40	1.300000E-11	1.300000E-11	0.0	0.0
44	1.200000E-08	1.199820E-08	-1.811688E-12	-15.09903E-03

RATIO OF GAGE P1 TO GAGE P2 = 6.52000E 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	1.717317E-07		1.554346E-06	
TOTAL	3.561698E-08	99.999988E 00	2.762037E-06	99.999988E 00
H	1.445790E-08	40.701788E 00	2.000758E-06	72.428888E 00
HELIUM	2.502188E-12	70.411614E-04	2.447588E-10	88.602764E-04
METHANE	2.443446E-10	68.657405E-02	1.192196E-08	43.158115E-02
WATER VAPOR	9.326888E-09	26.196476E 00	2.450408E-07	88.706256E-01
NITROGEN	3.509728E-10	98.592486E-02	1.294488E-08	46.861236E-02
CO	5.204616E-09	14.611515E 00	1.015606E-07	36.791146E-01
OXYGEN	3.278866E-10	92.094146E-02	1.191226E-08	43.135416E-02
ARGON	1.441786E-11	40.476756E-03	4.448096E-10	16.106056E-03
CO2	9.175876E-09	25.760486E 00	2.660756E-07	96.332936E-01
C2H4	-1.238176E-09	-34.785246E-01	-4.586566E-08	-16.621216E-01
C2H6	2.101566E-09	59.029456E-01	7.488226E-09	27.108826E-01
C3H6	-3.889086E-10	-10.918286E-01	-1.146256E-08	-41.522896E-02
HYDROCARBONS	7.158756E-10	20.101946E-01	2.568726E-08	10.750626E-01

SUM OF CURRENTS = 3.287816E-08 AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = 8.219526E-01 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 3.561698E-08 TORR
RGA ADJUSTED PRESSURE = 5.944156E-08 TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 2.382156E-08 TORR
PERCENT DIFFERENCE = 66.870

RUN NO. 101, 600-C, 2ND HP AT 50 DEG
DATE = 2.10
HOURS = 137.00
TEMPERATURE (DEGREES C.) = 49.25 MILLIVOLTS (CR/AL) = 2.00
CHAMBER PRESSURE = 7.25000E-08 THERMAL CORRECTION = 7.63834E-08
MANIFOLD PRESSURE = 1.10000E-08 THERMAL CORRECTION = 1.15892E-08
RGA PRESSURE = 2.10000E-08 THERMAL CORRECTION = 2.21249E-08

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	2.500000E-09	2.500000E-09	-3.774748E-15	-15.09903E-05
4	1.000000E-13	1.000000E-13	0.0	0.0
12	3.200000E-10	3.406646E-10	2.066466E-11	65.20200E-01
13	1.100000E-11	2.992818E-11	1.892818E-11	17.20467E 01
14	6.200000E-11	1.020788E-10	4.007776E-11	64.60916E 00
15	5.200000E-10	4.372312E-10	-4.826876E-10	-92.46603E 00
16	6.800000E-10	1.058823E-09	3.788276E-10	55.70985E 00
17	4.050000E-10	4.013823E-10	-3.761444E-12	-99.29483E-02
18	1.500000E-09	1.486576E-09	-1.342266E-11	-89.551076E-02
22	5.000000E-11	8.203226E-11	3.203226E-11	64.06551E 00
26	2.900000E-11	7.180246E-12	-2.181975E-11	-75.24014E 00
27	3.200000E-11	5.085506E-11	1.885506E-11	58.92200E 00
28	7.500000E-09	7.459407E-09	-5.059296E-12	-67.027876E-03
29	9.000000E-11	2.124886E-10	1.224886E-10	13.609806E 01
30	3.000000E-11	-1.062426E-11	-4.062426E-11	-13.54140E 01
32	1.100000E-10	8.007226E-11	-2.992776E-11	-27.20705E 00
40	5.000000E-12	5.000000E-12	0.0	0.0
44	8.200000E-09	8.279325E-09	-2.079146E-11	-25.001696E-02

RATIO OF GAGE P1 TO GAGE P2 = 6.556516 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITER/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	7.639246-09		6.524626-07	
TOTAL	2.656866-08	00.000000 00	1.620626-06	00.000076 00
H	1.178666-08	44.377766 00	1.381086-06	85.486226 00
HELIUM	2.508186-12	00.010256-02	7.077636-10	11.355476-03
METHANE	8.400086-10	31.654646-01	3.516366-08	19.218866-01
WATER VAPOR	2.237626-09	84.218046-01	8.736776-08	47.751866-01
NITROGEN	-1.112406-10	-41.642706-02	-2.686006-09	-19.046426-02
CO	5.622646-09	20.400766 00	1.656696-07	62.750466-01
OXYGEN	5.656336-11	35.646296-02	2.759116-09	15.262216-02
ARGON	5.656706-12	20.871406-03	1.452546-10	79.391006-04
CO2	6.173246-09	23.225716 00	1.641826-07	84.246636-01
C2H4	3.268236-11	12.225486-02	1.016676-08	55.688246-03
C2H6	-7.684866-11	-28.624666-02	-2.224436-09	-12.706476-02
C3H8	1.515986-10	57.057966-02	3.786196-09	20.665886-02
HYDROCARBONS	6.662766-10	35.696266-01	7.764216-08	20.572616-01

SUM OF CURRENTS = 2.764616-08 AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = 1.077536 00 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 2.656866-08 TORR
RGA ADJUSTED PRESSURE = 2.186756-08 TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 5.307566-09 TORR
PERCENT DIFFERENCE = 19.977

RUN NO. 101, 500-C, 350 MA AT 50 DEG
DATE = 2.1C
HOURS = 141.25
TEMPERATURE (DEGREES C.) = 49.25 MILLIVOLTS (CP/AL) = 2.00
CHAMBER PRESSURE = 5.099995E-08 THERMAL CORRECTION = 9.58743E-08
MANIFOLD PRESSURE = 1.4C000E-08 THERMAL CORRECTION = 1.47409E-08
BGA PRESSURE = 2.1C000E-08 THERMAL CORRECTION = 2.21249E-08

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	2.55000E-08	2.55C00E-08	-3.7747EE-15	-14.802C7E-02
4	1.00000E-12	1.00C00E-12	0.0	0.0
12	2.70000E-10	2.69734E-10	1.97342E-11	73.98971E-01
13	1.00000E-11	6.07619E-12	-3.C2381E-12	-30.23811E 00
14	5.40000E-11	6.04301E-11	4.43C14E-12	79.109545E-01
15	8.15000E-11	8.41694E-11	2.66842E-12	32.74136E-01
16	5.00000E-10	5.87C69E-10	-2.69171E-12	-40.68155E-03
17	3.15000E-10	3.07678E-10	-7.3217CE-12	-23.2434CE-01
18	1.15000E-09	1.15206E-09	2.05924E-12	17.90645E-02
22	5.00000E-11	7.14878E-11	2.14878E-11	42.97568E 00
26	2.60000E-11	5.54496E-11	3.34496E-12	12.85085E 00
27	4.00000E-11	3.68848E-11	-3.11523E-12	-77.88074E-01
28	6.80000E-09	6.79941E-09	-5.85785E-12	-86.72804E-04
29	7.00000E-11	7.05401E-11	5.40151E-12	77.16447E-02
30	2.70000E-11	2.83282E-11	1.32815E-12	43.12753E-01
32	8.70000E-11	8.92310E-11	2.21C37E-12	26.55602E-02
40	6.50000E-12	6.50000E-12	0.0	0.0
44	7.15000E-08	7.14950E-08	-4.97388E-12	-69.56261E-04

RATIO OF GAGE P1 TO GAGE P2 = 6.50000E 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	9.58743E-08		8.67273E-07	
TOTAL	2.49508E-08	00.00000E 00	2.22438E-06	99.99998E 00
H	1.20378E-08	48.43507E 00	1.76558E-06	79.37300E 00
HELIUM	2.50915E-12	10.00022E-03	2.4C126E-10	11.69470E-02
METHANE	1.75412E-10	72.02566E-02	9.09410E-08	40.89206E-02
WATER VAPOR	1.73396E-08	71.20739E-01	8.47728E-08	38.11069E-01
NITROGEN	1.11004E-10	45.58812E-02	4.25124E-09	19.56158E-02
CO	4.7132RE-09	19.28576E 00	1.64756E-07	83.05540E-01
OXYGEN	1.04085E-10	42.74414E-02	3.81653E-09	17.15771E-02
ARGON	7.20889E-12	29.60476E-03	2.3642RE-10	10.62870E-03
CO2	5.37970E-08	22.09208E 00	1.68226E-07	75.62823E-01
C2H4	4.00628E-11	16.45225E-02	1.57064E-09	70.60224E-03
C2H6	4.42201E-11	18.16331E-02	1.67469E-09	75.29968E-03
C3H8	1.49R1CE-12	00.61320E-04	4.4878RE-11	20.17873E-04
HYDROCARBONS	2.81140E-10	10.72411E-01	1.23964E-08	55.68461E-02

SUM OF CURRENTS = 1.627715E-09 AMPS
SENSITIVITY (TOTAL CURRENT/BGA PRESSURE) = 6.17656E-01 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 2.43508E-08 TORR
BGA ADJUSTED PRESSURE = 2.36422E-08 TORR
DIFFERENCE (BGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 6.09152E-09 TORR
PERCENT DIFFERENCE = 37.77E

RUN NO. 101, 6CO-C, 350 MB AT 90 DEG
DATE = 2.22
HOURS = 210.50
TEMPERATURE (DEGREES C.) = 49.2? MILLIVOLTS (CR/AL) = 2.00
CHAMBER PRESSURE = 6.11000E-CA THERMAL CORRECTION = 6.43728E-08
MANIFOLD PRESSURE = 9.40000E-CC THERMAL CORRECTION = 9.90351E-09
RGA PRESSURE = 2.10000E-08 THERMAL CORRECTION = 2.21249E-08

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	2.550000E-09	2.55C00E-0?	-3.?66?CE-15	-15.673?3E-0?
4	1.000000E-13	1.00C00F-13	0.C	0.0
12	3.200000E-10	3.2?76CF-1C	9.76C64F-12	?0.50200E-01
13	9.?00000E-12	4.486?0E-12	-?.01302E-12	-?1.71602E 00
14	5.400000E-11	5.?54C3E-11	1.54022F-12	?8.557295-01
15	6.?06000E-11	?.614F?E-11	1.014?4E-?1	14.70?78E 00
16	5.?00000E-10	?.71701E-1C	-8.29514E-?2	-14.30885F-0?
17	1.700005-10	1.62?38E-1C	-6.C720CF-12	-35.?17475-01
18	6.100005-10	6.113?0E-10	1.?3022E-?2	31.54318F-02
22	2.000005-11	7.1C104F-11	5.101C4E-11	25.505?2E 01
26	2.250005-11	?.615635-11	3.?0627E-12	1?.42704F 00
27	3.900005-11	3.5?633E-11	-2.4267CE-12	-?9.12034E-01
28	8.750005-09	8.74?47?-0?	-3.?695CE-13	-37.35424E-04
29	?.?00005-11	9.?4596F-11	-1.?4C39E-12	-14.10933E-01
30	4.000005-11	4.14CA5F-11	1.40687?-12	?5.17187E-01
32	5.400005-11	?.44??1F-11	6.?5101F-13	12.1314?E-01
40	5.000005-12	?.0?C?0F-12	0.C	0.0
44	7.100005-09	?.0??7?E-0?	-2.?487?E-13	-41.531705-04

RATIO OF GAGE P1 TO GAGE P2 = 6.?CCCCF CC

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	4.437?8E-0?		5.82212E-07	
TOTAL	?.?12?8E-0?	??.???68E CC	?.?CC?8E-06	99.999?7E 00
H	1.?04?4E-0?	47.?1272E CC	?.?8571E-06	78.57205F CC
HELIUM	2.50?18E-12	??.80?C6E-C4	1.?46?6E-10	11.57?71F-02
METHANE	1.?45?4F-1C	6?.4E5?6E-C?	?.?2?6?E-09	27.968035-02
WATER VAPOR	?.210?1E-10	?6.65C1?E-C1	?.C2231E-08	20.03420E-01
NITROGEN	-1.?C?71F-11	-?C.??625E-C?	-?.?4731E-10	-?4.77170F-03
CO	?.?2?6?E-0?	?C.?47A?F CC	1.?141?E-07	11.?72?8F 00
OXYGEN	?.?21?2F-11	?C.?51?6E-C?	?.?0?57F-09	10.63?41E-02
ARGON	?.?45?0F-12	22.0?6635-C?	?.??110F-10	?0.91677E-04
CO?	?.?3?8?F-0?	21.?6?C?F CC	1.?2?9?E-07	74.34?52E-01
C2H4	1.?97?6E-11	51.?34?4F-C?	?.41?1?F-10	22.630?6E-02
C2H6	?.?77?7E-11	?C.1?251?-C2	1.?2?A7F-09	12.76?1?F-02
C?H8	-?.6?0?9E-12	-?C.625?5E-C?	-?.?06?2F-11	-?7.15001E-04
HYDROCARBONS	?.?06?2E-10	??.?3?91E-?2	?.?41??E-09	?2.62?7?F-02

SUM OF CURRENTS = ?.?492?E-0? AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = ?.?6?13F-C? AMPS/TORR
SUMMATION PARTIAL PRESSURES = ?.?12?8F-CB TORR
RGA ADJUSTED PRESSURE = ?.?0?83F-?? TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = ?.?5847F-09 TORR
PERCENT DIFFERENCE = ?1.66?

RUN NO. 101, 600-C, 350 HR AT 50 DEG
DATE = 2.25
HOURS = 283.25
TEMPERATURE (DEGREES C.) = 49.25 MILLIVOLTS (CR/AL) = 2.00
CHAMBER PRESSURE = 4.55000E-08 THERMAL CORRECTION = 4.79372E-08
MANIFOLD PRESSURE = 7.00000E-08 THERMAL CORRECTION = 7.37495E-08
RGA PRESSURE = 1.05000E-08 THERMAL CORRECTION = 1.10624E-08

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	2.10000E-09	2.10000E-09	-2.88658E-15	-13.74561E-05
4	1.00000E-13	1.00000E-13	0.0	0.0
12	1.20000E-10	1.29161E-10	1.91914E-11	15.99948E 00
13	7.00000E-12	4.41365E-12	-2.88635E-12	-38.48468E 00
14	3.55000E-11	4.01035E-11	4.60351E-12	12.96764E 00
15	5.00000E-11	5.44110E-11	-1.58902E-12	-27.39690E-01
16	2.35000E-10	2.35289E-10	2.89244E-13	16.56359E-02
17	6.10000E-11	5.94186E-11	-1.58136E-12	-25.92393E-01
18	2.20000E-10	2.20406E-10	4.05995E-13	18.45430E-02
22	2.35000E-11	2.34533E-11	-4.66571E-14	-19.85410E-02
26	2.20000E-11	2.24183E-11	4.18304E-13	19.01382E-01
27	3.10000E-11	3.06443E-11	-3.55646E-13	-11.47244E-01
28	4.45000E-09	4.44949E-09	-5.11591E-13	-11.49642E-03
29	5.90000E-11	5.97513E-11	7.5133CE-13	12.73439E-01
30	1.80000E-11	1.87839E-11	7.83928E-13	41.29939E-01
32	1.70000E-11	1.69690E-11	-3.09728E-14	-18.22072E-02
40	1.15000E-11	1.15000E-11	0.0	0.0
44	2.35000E-09	2.34957E-09	-4.34219E-13	-18.48167E-03

RATIO OF GAGE P1 TO GAGE P2 = 6.50000E 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	4.79372E-09		4.73637E-07	
TOTAL	1.57054E-08	99.999975 00	1.67171E-06	99.99997E 00
H	9.91446E-09	63.12776E 00	1.45415E-06	86.98576E 00
HELIUM	2.50818E-12	15.97017E-03	2.60126E-10	15.56048E-03
METHANE	1.12693E-10	71.75392E-02	5.84373E-09	34.95653E-02
WATER VAPOR	3.31773E-10	21.12208E-01	1.62183E-08	97.01559E-02
NITROGEN	5.08559E-11	32.38367E-02	1.99366E-09	11.92586E-02
CO	3.42413E-09	21.80222E 00	1.34223E-07	80.29057E-01
OXYGEN	2.02477E-11	12.89214E-02	7.42429E-10	44.41126E-03
ARGON	1.27542E-11	81.20883E-03	4.18291E-10	25.02168E-03
CO2	1.76497E-09	11.23759E 00	5.51908E-08	33.01481E-01
C2H4	2.91324E-11	18.54528E-02	1.14196E-09	68.31098E-03
C2H6	3.24900E-11	21.31746E-02	1.26788E-09	75.84333E-03
C3H8	8.44281E-12	53.75729E-03	2.64007E-10	15.79260E-03
HYDROCARBONS	1.83748E-10	11.69964E-01	8.51758E-09	50.95120E-02

SUM OF CURRENTS = 9.82C09E-09 AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = 9.35247E-01 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 1.57054E-08 TORR
RGA ADJUSTED PRESSURE = 1.68375E-08 TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 3.13204E-09 TORR
PERCENT DIFFERENCE = 19.942

RUN NO. 101, 300-C, 350 HR AT 50 DEG
DATE = 2.28
HOURS = 350.25
TEMPERATURE (DEGREES C.) = 49.25 MILLIVOLTS (CR/AL) = 2.00
CHAMBER PRESSURE = 3.12000E-08 THERMAL CORRECTION = 3.28712E-08
MANIFOLD PRESSURE = 4.80000E-09 THERMAL CORRECTION = 5.05711E-09
RGA PRESSURE = 7.40000E-09 THERMAL CORRECTION = 7.79638E-09

M/E	MEASURED PEAK HEIGHT (AMPS)	CALCULATED M/E	DIFFERENCE	PERCENT DIFF
2	1.66000E-09	1.66000E-09	-2.88658E-15	-17.38903E-05
4	1.00000E-13	1.00000E-13	0.0	0.0
12	9.20000E-11	9.75137E-11	5.51367E-12	64.27901E-01
13	4.40000E-12	2.76632E-12	-1.60367E-12	-36.44714E 00
14	2.50000E-11	2.63918E-11	1.39184E-12	55.67382E-01
15	3.50000E-11	3.50768E-11	7.68274E-14	21.95070E-02
16	1.68000E-10	1.67733E-10	-2.66606E-13	-15.86941E-02
17	4.15000E-11	3.92284E-11	-2.27156E-12	-54.73701E-01
18	1.45000E-10	1.45614E-10	6.14453E-13	42.37603E-02
22	1.70000E-10	1.81501E-11	-1.51810E-10	-89.29996E 00
26	1.18000E-11	1.11569E-11	-6.43085E-13	-54.49876E-01
27	1.50000E-11	1.56820E-11	6.82048E-13	43.46989E-01
28	2.95000E-09	2.94983E-09	-1.70530E-13	-57.80686E-04
29	3.80000E-11	3.71630E-11	-8.37025E-13	-22.02697E-01
30	1.10000E-11	1.17341E-11	7.34142E-13	66.74015E-01
32	1.20000E-11	1.20209E-11	2.09199E-14	17.43324E-02
40	4.50000E-12	4.50000E-12	0.0	0.0
44	1.92000E-09	1.92140E-09	1.40110E-12	76.98357E-03

RATIO OF GAGE P1 TO GAGE P2 = 6.50000E 00

GAS	PRESSURE TORR	PERCENT OF TOTAL PRESSURE	OUTGASSING RATE TORR LITERS/SEC	PERCENT OF TOTAL OUTGASSING RATE
GAGE P1	3.28712E-08		2.97351E-07	
TOTAL	1.18222E-08	00.00007E 00	1.24336E-04	00.00008E 00
H	7.83891E-09	66.25066E 00	1.11866E-06	88.56619E 00
HELIUM	2.50918E-12	21.19764E-02	2.53096E-10	20.03357E-02
METHANE	7.05494E-11	59.62495E-02	3.55550E-09	28.17491E-02
WATER VAPOR	2.19163E-10	18.52261E-01	1.04258E-08	82.52031E-02
NITROGEN	4.15396E-11	35.10724E-02	1.58431E-09	12.54043E-02
CO	2.23498E-09	18.89085E 00	8.52374E-08	67.46889E-01
OXYGEN	1.43435E-11	12.12246E-02	5.11724E-10	40.50518E-03
ARGON	4.66077E-12	42.17568E-02	1.66255E-10	13.60570E-03
CO2	4.36895E-09	11.56617E 00	4.16483E-08	32.96632E-01
C2H4	1.21442E-11	11.10985E-02	5.01316E-10	39.68119E-03
C2H6	1.85341E-11	15.66411E-02	6.82915E-10	54.05552E-03
C3H8	4.77799E-12	40.38125E-02	1.45270E-10	11.50664E-03
HYDROCARBONS	1.07006E-10	90.43567E-02	4.88610E-09	38.69923E-02

SUM OF CURRENTS = 7.20329E-09 AMPS
SENSITIVITY (TOTAL CURRENT/RGA PRESSURE) = 9.73418E-01 AMPS/TORR
SUMMATION PARTIAL PRESSURES = 1.19322E-08 TORR
RGA ADJUSTED PRESSURE = 1.35670E-08 TORR
DIFFERENCE (RGA ADJUSTED PRESSURE - SUMMATION PARTIAL PRESSURES) = 1.73571E-09 TORR
PERCENT DIFFERENCE = 14.46

GAS	HOURS	TEMP	OUTGASSING RATE
GAGE P1	2.00	49.25	1.61178E-04
	20.50	49.25	8.67274E-06
	31.00	49.25	4.76438E-06
	46.00	49.25	2.72572E-06
	46.75	49.25	2.75061E-06
	63.25	49.25	2.10424E-06
	75.00	49.25	1.55434E-06
	137.00	49.25	6.92603E-07
	141.25	49.25	8.67273E-07
	210.50	49.25	5.92313E-07
	282.25	49.25	4.33637E-07
	350.25	49.25	2.67251E-07

GAS	HOURS	TEMP	OUTGASSING RATE
TOTAL	2.00	49.25	2.25629E-04
	20.50	49.25	1.48687E-05
	31.00	49.25	6.65044E-06
	46.00	49.25	4.09571E-06
	46.75	49.25	3.19018E-06
	63.25	49.25	4.14510E-06
	75.00	49.25	2.76227E-06
	137.00	49.25	1.82963E-06
	141.25	49.25	2.22438E-06
	210.50	49.25	1.50908E-06
	282.25	49.25	1.67171E-06
	350.25	49.25	1.26336E-06

GAS	HOURS	TEMP	OUTGASSING RATE
H	7.00	49.25	4.826125-05
	20.50	49.25	7.1C635E-06
	31.00	49.25	3.726625-06
	46.00	49.25	2.686715-06
	66.75	49.25	1.12335E-06
	43.25	49.25	2.715C6E-06
	75.00	49.25	2.000755-06
	137.00	49.25	1.751CE5-06
	141.25	49.25	1.745555E-06
	210.50	49.25	1.1857 5-06
	283.25	49.25	1.4941E5-06
	350.25	49.25	1.118665-06

GAS	HOURS	TEMP	OUTGASSING RATE
HELIUM	2.00	49.25	3.027455-10
	20.50	49.25	3.034815-10
	31.00	49.25	2.900745-10
	46.00	49.25	2.641205-10
	66.75	49.25	2.674025-10
	83.25	49.25	2.653255-10
	75.00	49.25	2.447555E-10
	137.00	49.25	2.077635-10
	141.25	49.25	2.60126E-10
	210.50	49.25	1.744965-10
	283.25	49.25	2.60124E-10
	350.25	49.25	2.530065E-10

GAS	HOURS	TEMP	OUTGASSING RATE
METHANE	2.00	49.25	-1.2062CE-06
	20.50	49.25	-5.64452E-08
	31.00	49.25	1.89125E-08
	46.00	49.25	2.13459E-08
	46.75	49.25	1.97727E-08
	63.25	49.25	1.00278E-08
	75.00	49.25	1.14215E-08
	137.00	49.25	3.51634E-08
	141.25	49.25	9.0581CE-09
	210.50	49.25	5.72566E-09
	283.25	49.25	5.84372E-09
	350.25	49.25	3.3569CE-09

GAS	HOURS	TEMP	OUTGASSING RATE
WATER VAPOR	2.00	49.25	1.62677E-04
	20.50	49.25	4.86492E-06
	31.00	49.25	1.76923E-06
	46.00	49.25	8.98532E-07
	46.75	49.25	9.75635E-07
	63.25	49.25	5.63421E-07
	75.00	49.25	7.45040E-07
	137.00	49.25	8.73477E-08
	141.25	49.25	8.47728E-08
	210.50	49.25	3.02331E-08
	283.25	49.25	1.62183E-08
	350.25	49.25	1.04253E-08

GAS	HOURS	TEMP	OUTGASSING RATE
NITROGEN	2.00	49.25	9.10287E-07
	20.50	49.25	1.[illegible]02E-07
	31.00	49.25	[illegible]34CE-08
	46.00	49.25	[illegible]7757E-08
	46.75	49.25	-6.21182E-07
	63.25	49.25	1.686[illegible]5E-08
	75.00	49.25	1.25448E-08
	137.00	49.25	-3.48900E-09
	141.25	49.25	4.25124E-09
	210.50	49.25	-5.24731E-10
	283.25	49.25	1.99366E-09
	350.25	49.25	1.[illegible]8431E-09

GAS	HOURS	TEMP	OUTGASSING RATE
CC	2.00	49.25	1.44739E-05
	20.50	49.25	1.64668E-06
	31.00	49.25	9.62183E-07
	46.00	49.25	5.67974E-07
	46.75	49.25	1.23869E-06
	63.25	49.25	4.83249E-07
	75.00	49.25	1.91960E-07
	137.00	49.25	1.69699E-07
	141.25	49.25	1.84756E-07
	210.50	49.25	1.71618E-07
	283.25	49.25	1.34223E-07
	350.25	49.25	9.52374E-08

GAS	HOURS	TEMP	OUTGASSING RATE
OXYGEN	2.00	49.25	7.13244E-07
	20.50	49.25	1.15067E-07
	31.00	49.25	5.45142E-08
	46.00	49.25	2.66426E-08
	46.75	49.25	2.57718E-08
	63.25	49.25	1.51666E-08
	75.00	49.25	1.13123E-08
	137.00	49.25	2.79811E-09
	141.25	49.25	3.81653E-09
	210.50	49.25	1.60567E-09
	283.25	49.25	7.42429E-10
	350.25	49.25	5.11726E-10

GAS	HOURS	TEMP	OUTGASSING RATE
ARGON	2.00	49.25	8.47488E-08
	20.50	49.25	3.60700E-09
	31.00	49.25	1.22387E-09
	46.00	49.25	6.64788E-10
	46.75	49.25	7.47809E-10
	63.25	49.25	4.08106E-10
	75.00	49.25	4.44909E-10
	137.00	49.25	1.45256E-10
	141.25	49.25	2.36425E-10
	210.50	49.25	1.22110E-10
	283.25	49.25	4.18291E-10
	350.25	49.25	1.59255E-10

GAS	HOURS	TEMP	OUTGASSING RATE
CO2	2.00	49.25	-1.07315E-06
	20.50	49.25	9.82696E-07
	21.00	49.25	5.64232E-07
	46.00	49.25	4.05505E-07
	46.75	49.25	4.55799E-07
	63.25	49.25	3.47309E-07
	75.00	49.25	2.69975E-07
	137.00	49.25	1.54182E-07
	141.25	49.25	1.68226E-07
	210.50	49.25	1.12198E-07
	283.25	49.25	5.51508E-08
	350.25	49.25	4.16483E-08

GAS	HOURS	TEMP	OUTGASSING RATE
C2H4	2.00	49.25	-2.10261E-06
	20.50	49.25	1.71498E-08
	21.00	49.25	2.71479E-09
	46.00	49.25	2.52605E-09
	46.75	49.25	2.73172E-09
	63.25	49.25	1.46173E-09
	75.00	49.25	-4.56654E-08
	137.00	49.25	1.01697E-09
	141.25	49.25	1.57046E-09
	210.50	49.25	3.41511E-10
	283.25	49.25	1.14196E-09
	350.25	49.25	5.01316E-10

GAS	HOURS	TEMP	OUTGASSING RATE
C2H6	2.00	49.25	7.23769E-08
	20.50	49.25	1.99923E-08
	31.00	49.25	1.47132E-08
	46.00	49.25	9.85088E-09
	46.75	49.25	-2.53227E-08
	63.25	49.25	6.21619E-09
	75.00	49.25	7.48832E-08
	137.00	49.25	-2.32442E-09
	141.25	49.25	1.67405E-09
	210.50	49.25	1.92667E-09
	283.25	49.25	1.26788E-09
	350.25	49.25	6.82915E-10

GAS	HOURS	TEMP	OUTGASSING RATE
C3H8	2.00	49.25	3.21609E-06
	20.50	49.25	1.17645E-08
	31.00	49.25	3.33914E-09
	46.00	49.25	1.71731E-09
	46.75	49.25	6.33891E-09
	63.25	49.25	1.66030E-09
	75.00	49.25	-1.14425E-08
	137.00	49.25	3.78615E-09
	141.25	49.25	4.48785E-11
	210.50	49.25	-5.60622E-11
	283.25	49.25	2.64007E-10
	350.25	49.25	1.45370E-10

GAS	HOURS	TEMP	OUTGASSING RATE
HYDROCARBONS	2.00	49.25	-2.03418E-08
	20.50	49.25	-7.53860E-09
	31.00	49.25	3.96796E-08
	46.00	49.25	3.56402E-08
	46.75	49.25	2.71061E-08
	63.25	49.25	1.93610E-08
	75.00	49.25	2.96972E-08
	137.00	49.25	3.76421E-08
	141.25	49.25	1.23864E-08
	210.50	49.25	7.64177E-09
	283.25	49.25	8.51758E-09
	350.25	49.25	4.88910E-09

GAS IS GAGE P1

POWER Y=A*X**B WITH A = 0.21595E-03 AND B = -0.1202?E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.13073E 02 CONFIDENCE LIMIT ON ALPHA = C.92332E-01 CONFIDENCE LIMIT ON B = 0.68519E-01

INDEXES CORRELATION COEFFICIENT = -C.99694E CO CORRELATION OF DETERMINATION = 0.99390F 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	1.4118E-04	1.3725E-C4	-2.?92?E-05	-1.4800E 01	-8.8937E 00	3.9872E-01
20.50	8.6727E-06	8.3502E-C6	-3.2249E-07	-3.7000E 00	-1.1693E 01	3.2936E-01
31.00	4.7444E-06	5.C77?E-06	3.1310E-07	6.6000E 00	-1.2191E 01	3.2377E-01
46.00	2.725?E-06	3.1585E-06	4.3273E-07	1.5900E 01	-1.2665E 01	3.2069E-01
46.75	2.759?E-06	3.0976E-C6	3.3809E-07	1.2300E 01	-1.2685E 01	3.2061E-01
69.25	2.1062E-06	2.1533E-C6	4.7083E-08	2.2000E CO	-1.3049E 01	3.1985E-01
75.00	1.9543E-06	1.7542E-06	-1.9992E-07	1.2900E 01	-1.3253E 01	3.2001E-01
137.00	6.9269E-07	8.4985E-C7	1.5715E-07	2.2700E 01	-1.3978E 01	3.2397E-01
141.25	8.6727E-07	8.1C18E-07	-4.8091E-08	-5.5000E 00	-1.4015E 01	3.2431E-01
210.50	5.8231E-07	5.0694E-C7	-7.5369E-08	-1.2900E 01	-1.4495E 01	3.2994E-01
283.25	4.3364E-07	3.5472E-C7	-7.8919E-08	-1.8200E 01	-1.4852E 01	3.3551E-01
350.25	2.9725E-07	2.7477E-C7	-2.2584E-08	-7.6000E 00	-1.5107E 01	3.4019E-01

GAS IS TOTAL

POWER Y=A*X**B WITH A = 0.28180E-02 AND B = -0.98854E 00

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR.
ALPHA = -0.12294E 02 CONFIDENCE LIMIT ON ALPHA = 0.20808E 00 CONFIDENCE LIMIT ON B = 0.15441E 00

INDEXES CORRELATION COEFFICIENT = -0.99779E 00 CORRELATION OF DETERMINATION = 0.99606E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	2.2563E-04	1.4202E-04	-8.3606E-05	-3.7100E 01	-8.8595E 00	8.9855E-01
20.50	1.4869E-05	1.4230E-05	-6.3824E-07	-4.3000E 00	-1.1160E 01	7.4225E-01
31.00	6.5505E-06	9.4551E-06	2.8047E-06	4.2200E 01	-1.1569E 01	7.2965E-01
46.00	4.9357E-06	6.4008E-06	1.4651E-06	2.9700E 01	-1.1959E 01	7.2270E-01
46.75	5.1902E-06	6.2993E-06	1.1091E-06	2.1400E 01	-1.1975E 01	7.2252E-01
63.25	4.1451E-06	4.6722E-06	5.2707E-07	1.2700E 01	-1.2274E 01	7.2081E-01
75.00	2.7624E-06	3.9479E-06	1.1855E-06	4.2900E 01	-1.2442E 01	7.2118E-01
137.00	1.8296E-06	2.1762E-06	3.4660E-07	1.8900E 01	-1.3038E 01	7.3011E-01
141.25	2.2244E-06	2.1115E-06	-1.1289E-07	-5.1000E 00	-1.3068E 01	7.3088E-01
210.50	1.5091E-06	1.4233E-06	-8.5729E-08	-5.7000E 00	-1.3463E 01	7.4355E-01
282.25	1.6717E-06	1.0614E-06	-6.1034E-07	-3.6500E 01	-1.3756E 01	7.5611E-01
350.25	1.2634E-06	8.6043E-07	-4.0292E-07	-3.1900E 01	-1.3966E 01	7.6645E-01

GAS IS H

POWER Y=A*X**B WITH A = 0.56309E-04 AND B = -0.71696E 00

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.12773E 02 CONFIDENCE LIMIT ON ALPHA = 0.16994E 00 CONFIDENCE LIMIT ON B = 0.12611E 00

INDEXES CORRELATION COEFFICIENT = -0.97268E 00 CORRELATION OF DETERMINATION = 0.94493E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	4.8263E-05	3.4257E-05	-1.4006E-05	-2.9000E 01	-1.0282E 01	7.3385E-01
20.50	7.1063E-06	6.4581E-06	-6.4821E-07	-9.1000E 00	-1.1950E 01	6.0620E-01
31.00	3.3266E-06	4.8010E-06	1.4744E-06	4.4300E 01	-1.2247E 01	5.9591E-01
46.00	2.9867E-06	3.6179E-06	6.3115E-07	2.1100E 01	-1.2520E 01	5.9024E-01
46.75	3.1234E-06	3.5762E-06	4.5280E-07	1.4500E 01	-1.2541E 01	5.9009E-01
63.25	2.7191E-06	2.8794E-06	1.6029E-07	5.9000E 00	-1.2758E 01	5.8869E-01
75.00	2.0009E-06	2.5482E-06	5.4748E-07	2.7400E 01	-1.2880E 01	5.8379E-01
137.00	1.3811E-06	1.6544E-06	2.7332E-07	1.9800E 01	-1.3312E 01	5.9629E-01
141.25	1.7456E-06	1.6186E-06	-1.4703E-07	-8.4000E 00	-1.3334E 01	5.9691E-01
210.50	1.1857E-06	1.2159E-06	3.0206E-08	2.5000E 00	-1.3620E 01	6.0727E-01
283.25	1.4542E-06	9.8282E-07	-4.7139E-07	-3.2400E 01	-1.3833E 01	6.1752E-01
350.25	1.1187E-06	8.4405E-07	-2.7461E-07	-2.4500E 01	-1.3985E 01	6.2613E-01

GAS IS HELIUM

POWER Y=A*X**B WITH A = 0.22867E-09 AND B = -0.63743E-01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.22102E 02 CONFIDENCE LIMIT ON ALPHA = 0.85016E-01 CONFIDENCE LIMIT ON B = 0.63090E-01

INDEXES CORRELATION COEFFICIENT = -0.60141E 00 CORRELATION OF DETERMINATION = 0.36169E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	3.0305E-10	3.1447E-10	1.1421E-11	3.8000E 00	-2.1880E 01	3.6713E-01
20.50	2.0348E-10	2.7111E-10	-3.2369E-11	-1.0700E 01	-2.2028E 01	3.0327E-01
31.00	2.5008E-10	2.6406E-10	1.3983E-11	5.6000E 00	-2.2055E 01	2.9812E-01
46.00	2.6413E-10	2.5750E-10	-6.6296E-12	-2.5000E 00	-2.2080E 01	2.9528E-01
46.75	2.6740E-10	2.5723E-10	-1.0167E-11	-3.8000E 00	-2.2081E 01	2.9521E-01
62.25	2.6533E-10	2.5233E-10	-1.3004E-11	-4.9000E 00	-2.2106E 01	2.9451E-01
75.00	2.4476E-10	2.4960E-10	4.8426E-12	2.0000E 00	-2.2111E 01	2.9466E-01
137.00	2.0776E-10	2.4020E-10	3.2432E-11	1.5600E 01	-2.2150E 01	2.9831E-01
141.25	2.4013E-10	2.3973E-10	-2.0397E-11	-7.8000E 00	-2.2152E 01	2.9862E-01
210.50	1.7466E-10	2.2371E-10	5.0052E-11	3.8000E 01	-2.2177E 01	3.0380E-01
283.25	2.6013E-10	2.2933E-10	-3.0797E-11	-1.1800E 01	-2.2196E 01	3.0893E-01
350.25	2.5210E-10	2.2625E-10	-2.6852E-11	-1.0600E 01	-2.2209E 01	3.1323E-01

GAS IS METHANE

POWER Y=A*X**B WITH A = 0.18888E-06 AND B = -0.66775E 00

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.18296E 02 CONFIDENCE LIMIT ON ALPHA = 0.28308E 00 CONFIDENCE LIMIT ON B = 0.48391E 00

INDEXES CORRELATION COEFFICIENT = -0.7155CE CO CORRELATION OF DETERMINATION = 0.511C4E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
31.00	1.8913E-08	2.3432E-08	4.5196E-09	2.39CCE C1	-1.7569E 01	1.3425E 00
46.00	2.1546E-08	1.8435E-08	-3.1108E-09	-1.4400E 01	-1.7809E 01	1.2719E 00
46.75	1.8773E-08	1.8255E-08	-5.1805E-10	-2.80C0E C0	-1.7813E 01	1.2696E 00
63.25	1.0023E-08	1.5191E-08	5.1684E-09	5.16CCE C1	-1.8003E 01	1.2337E 00
75.00	1.1922E-08	1.3697E-08	1.7750E-09	1.490CE 01	-1.8106E 01	1.2208E 00
127.00	3.5164E-09	9.4972E-09	-2.5666E-08	-7.3CCCE 01	-1.8472E 01	1.2195E 00
141.25	9.0962E-09	9.3225E-09	2.2636E-10	2.50CCE C0	-1.8491E 01	1.2213E 00
210.50	5.7297E-09	7.3153E-09	1.5856E-09	2.7700E 01	-1.8723E 01	1.2605E 00
283.25	5.8438E-09	6.1078E-09	2.6398E-10	4.50C0E 00	-1.8914E 01	1.3075E 00
350.25	3.5504E-09	5.3684E-09	1.8080E-09	5.0900E 01	-1.9043E 01	1.3405E 00

GAS IS WATER VAPOR

POWER Y=A*X**B WITH A = 0.10832E-02 AND B = -0.19173E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.14818E 02 CONFIDENCE LIMIT ON ALPHA = 0.21406E 00 CONFIDENCE LIMIT ON B = 0.15885E 00

INDEXES CORRELATION COEFFICIENT = -0.99361E 00 CORRELATION OF DETERMINATION = 0.98726E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	1.6268E-04	2.8678E-04	1.2410E-04	7.6300E 01	-8.1568E 00	9.2437E-01
20.50	4.8669E-06	3.3087E-06	-1.5582E-06	-3.2000E 01	-1.2619E 01	7.6258E-01
31.00	1.7692E-06	1.4972E-06	-2.7200E-07	-1.5400E 01	-1.3412E 01	7.5062E-01
46.00	8.9853E-07	7.0253E-07	-1.9600E-07	-2.1800E 01	-1.4169E 01	7.4247E-01
46.75	9.3563E-07	6.8108E-07	-2.5456E-07	-2.7200E 01	-1.4200E 01	7.4329E-01
53.25	5.4242E-07	3.8150E-07	-1.6192E-07	-2.9800E 01	-1.4779E 01	7.4153E-01
75.00	2.4504E-07	2.7517E-07	3.0135E-08	1.2300E 01	-1.5106E 01	7.4191E-01
137.00	8.7269E-08	8.6681E-08	-6.5820E-10	-8.0000E-01	-1.6261E 01	7.5109E-01
141.25	8.4774E-08	8.1749E-08	-3.0247E-09	-3.6000E 00	-1.6320E 01	7.5188E-01
210.50	3.0233E-08	3.8043E-08	7.8100E-09	2.5800E 01	-1.7085E 01	7.6492E-01
283.25	1.6218E-08	2.1533E-08	5.3145E-09	3.2800E 01	-1.7654E 01	7.7784E-01
350.25	1.0425E-08	1.4332E-08	3.9047E-09	3.7500E 01	-1.8061E 01	7.8868E-01

GAS IS NITROGEN

POWER Y=A*X**B WITH A = 0.19097E-05 AND B = -0.11869E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.17902E 02 CONFIDENCE LIMIT ON ALPHA = 0.37753E 00 CONFIDENCE LIMIT ON B = 0.25691E 00

INDEXES CORRELATION COEFFICIENT = -0.97052E 00 CORRELATION OF DETERMINATION = 0.94193E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	5.1029E-07	8.3884E-07	3.2856E-07	6.4400E 01	-1.3991E 01	1.4140E 00
20.50	1.5460E-07	5.2975E-08	-1.0163E-07	-6.5700E 01	-1.6753E 01	1.1596E 00
31.00	3.2534E-08	3.2426E-08	-1.0841E-10	-3.0000E-01	-1.7244E 01	1.1415E 00
46.00	1.3776E-08	2.0299E-08	6.5229E-09	4.7400E 01	-1.7713E 01	1.1333E 00
62.25	1.6866E-08	1.3910E-08	-2.9559E-09	-1.7500E 01	-1.8091E 01	1.1334E 00
75.00	1.2645E-08	1.1363E-08	-1.5820E-09	-1.2200E 01	-1.8293E 01	1.1357E 00
141.25	4.3513E-09	5.2602E-09	1.0089E-09	2.3200E 01	-1.9044E 01	1.1592E 00
283.25	1.9937E-09	2.3471E-09	3.5337E-10	1.7700E 01	-1.9870E 01	1.2100E 00
350.25	1.5843E-09	1.8242E-09	2.3992E-10	1.5100E 01	-2.0122E 01	1.2303E 00

GAS IS CO

POWER Y=A*X**B WITH A = 0.29162E-04 AND B = -0.99733E 00

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.14509E 02 CONFIDENCE LIMIT ON ALPHA = 0.22473E 00 CONFIDENCE LIMIT ON B = 0.17048E 00

INDEXES CORRELATION COEFFICIENT = -0.47261E 00 CORRELATION OF DETERMINATION = 0.94792E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	1.4474E-05	1.4409E-05	1.2463E-07	8.6000E-01	-1.1134E 01	9.9203E-01
20.50	1.6467E-06	1.6341E-06	-2.1256E-07	-1.2900E 01	-1.3455E 01	8.1947E-01
31.00	8.6218E-07	8.4942E-07	8.7238E-08	1.0100E 01	-1.3867E 01	8.0556E-01
46.00	5.6797E-07	6.4050E-07	7.2529E-08	1.2800E 01	-1.4261E 01	7.9789E-01
46.75	1.2387E-06	6.3025E-07	-6.0843E-07	-4.9100E 01	-1.4277E 01	7.9770E-01
63.25	4.8325E-07	4.6622E-07	-1.7030E-08	-3.5000E 00	-1.4579E 01	7.9580E-01
75.00	1.9196E-07	3.9736E-07	2.0140E-07	1.0490E 02	-1.4749E 01	7.9621E-01
137.00	1.6970E-07	2.1564E-07	4.5980E-08	2.7100E 01	-1.5349E 01	8.0607E-01
141.25	1.8476E-07	2.0922E-07	2.4440E-08	1.3200E 01	-1.5390E 01	8.0691E-01
210.50	1.7162E-07	1.4054E-07	-3.1080E-08	-1.8100E 01	-1.5778E 01	8.2091E-01
283.25	1.3422E-07	1.0453E-07	-2.9698E-08	-2.2100E 01	-1.6074E 01	8.3477E-01
350.25	8.5238E-08	8.4578E-08	-6.6600E-10	-8.0000E-01	-1.6786E 01	8.4641E-01

GAS IS OXYGEN

POWER Y=A*X**B WITH A = 0.52863E-05 AND B = -0.14799E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.19318E 02 CONFIDENCE LIMIT ON ALPHA = 0.24868E 00 CONFIDENCE LIMIT ON B = 0.25876E 00

INDEXES CORRELATION COEFFICIENT = -0.97244E 00 CORRELATION OF DETERMINATION = 0.94565E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	7.1334E-07	1.8952E-06	1.1819E-06	1.6570E 02	-1.3176E 01	1.5057E 00
20.50	1.1507E-07	6.0521E-08	-5.4546E-08	-4.7400E 01	-1.6620E 01	1.2438E 00
31.00	5.4515E-08	3.2818E-08	-2.1697E-08	-3.9800E 01	-1.7232E 01	1.2227E 00
46.00	2.6644E-08	1.8901E-08	-8.3434E-09	-3.1300E 01	-1.7816E 01	1.2111E 00
46.75	2.5772E-08	1.7868E-08	-7.9041E-09	-3.0700E 01	-1.7840E 01	1.2108E 00
63.25	1.5166E-08	1.1423E-08	-3.7427E-09	-2.4700E 01	-1.8288E 01	1.2079E 00
75.00	1.1312E-08	8.8773E-09	-2.4352E-09	-2.1500E 01	-1.8540E 01	1.2085E 00
137.00	2.7981E-09	3.6396E-09	8.4149E-10	3.0100E 01	-1.9431E 01	1.2235E 00
141.25	3.8166E-09	3.4787E-09	-3.3784E-10	-8.9000E 00	-1.9477E 01	1.2248E 00
210.50	1.6056E-09	1.9276E-09	3.2190E-10	2.0100E 01	-2.0067E 01	1.2460E 00
283.25	7.4243E-10	1.2423E-09	4.9986E-10	6.7300E 01	-2.0506E 01	1.2670E 00
350.25	5.1172E-10	9.0734E-10	3.9561E-10	7.7300E 01	-2.0870E 01	1.2847E 00

GAS IS ARGON

POWER Y=A*X**B WITH A = 0.10525E-06 AND B = -0.12105E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.21112E 02 CONFIDENCE LIMIT ON ALPHA = 0.40614E 00 CONFIDENCE LIMIT ON B = 0.30139E 00

INDEXES CORRELATION COEFFICIENT = -0.94647E 00 CORRELATION OF DETERMINATION = 0.89581E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	8.4749E-08	4.5478E-08	-3.9271E-08	-4.6300E 01	-1.0906E 01	1.7528E 00
20.50	3.6070E-09	2.7183E-09	-8.8873E-10	-2.4600E 01	-1.9723E 01	1.4488E 00
31.00	1.2239E-09	1.6477E-09	4.2381E-10	3.4600E 01	-2.0224E 01	1.4242E 00
46.00	6.6479E-10	1.0219E-09	3.5708E-10	5.3700E 01	-2.0702E 01	1.4106E 00
46.75	7.4781E-10	1.0021E-09	2.5425E-10	3.4000E 01	-2.0721E 01	1.4103E 00
62.25	4.0811E-10	6.9499E-10	2.8688E-10	7.0300E 01	-2.1027E 01	1.4069E 00
75.00	4.4491E-10	5.6545E-10	1.2054E-10	2.7100E 01	-2.1293E 01	1.4076E 00
137.00	1.4526E-10	2.7268E-10	1.2742E-10	8.7700E 01	-2.2023E 01	1.4251E 00
141.25	2.3643E-10	2.6278E-10	2.6354E-11	1.1100E 01	-2.2060E 01	1.4265E 00
210.50	1.2211E-10	1.6212E-10	4.0014E-11	3.2800E 01	-2.2543E 01	1.4513E 00
283.25	4.1830E-10	1.1311E-10	-3.0511E-10	-7.2900E 01	-2.2902E 01	1.4759E 00
350.25	1.5926E-10	8.7533E-11	-7.1724E-11	-4.5000E 01	-2.3159E 01	1.4964E 00

GAS IS CO2

POWER Y=A*X**B WITH A = 0.23905E-04 AND B = -0.10436E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.15320E 02 CONFIDENCE LIMIT ON ALPHA = 0.11308E 00 CONFIDENCE LIMIT ON B = 0.12772E 00

INDEXES CORRELATION COEFFICIENT = -0.98751E 00 CORRELATION OF DETERMINATION = 0.97518E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
20.50	9.8270E-07	1.0223E-06	9.9598E-08	4.0000E 00	-1.3793E 01	4.1902E-01
31.00	5.6423E-07	6.6396E-07	9.9731E-08	1.7700E 01	-1.4225E 01	3.9829E-01
46.00	4.0550E-07	4.3982E-07	3.4320E-08	8.5000E 00	-1.4637E 01	3.8425E-01
46.75	4.5980E-07	4.3246E-07	-2.7335E-08	-5.9000E 00	-1.4654E 01	3.8381E-01
63.25	3.4731E-07	3.1546E-07	-3.1844E-08	-9.2000E 00	-1.4969E 01	3.7749E-01
75.00	2.6997E-07	2.4407E-07	-5.8999E-09	-2.2000E 00	-1.5147E 01	3.7564E-01
137.00	1.5418E-07	1.4082E-07	-1.3361E-08	-8.7000E 00	-1.5776E 01	3.7917E-01
141.25	1.6823E-07	1.3640E-07	-3.1824E-08	-1.8900E 01	-1.5808E 01	3.7976E-01
210.50	1.1220E-07	8.9951E-08	-2.2246E-08	-1.9800E 01	-1.6224E 01	3.9102E-01
283.25	5.5191E-08	6.5989E-08	1.0758E-08	1.9600E 01	-1.6534E 01	4.0339E-01
350.25	4.1648E-08	5.2875E-08	1.1226E-08	2.7000E 01	-1.6755E 01	4.1414E-01

GAS IS C2H4

POWER Y=A*X**B WITH A = 0.33025E-06 AND B = -0.11268E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR.
ALPHA = -0.19994E 02 CONFIDENCE LIMIT ON ALPHA = 0.66462E 00 CONFIDENCE LIMIT ON B = 0.71705E 00

INDEXES CORRELATION COEFFICIENT = -0.78935E 00 CORRELATION OF DETERMINATION = 0.62150E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
20.50	1.7150E-08	1.0982E-08	-6.1675E-09	-3.6000E 01	-1.8327E 01	2.3543E 00
31.00	2.7148E-08	6.8814E-09	4.1766E-09	1.5380E 02	-1.8743E 01	2.2364E 00
46.00	2.5261E-08	4.6174E-09	1.8914E-09	7.4900E 01	-1.9238E 01	2.1501E 00
46.75	2.7317E-08	4.3377E-09	-2.2980E-08	-8.4100E 01	-1.9256E 01	2.1536E 00
63.25	1.4617E-08	3.0855E-09	1.6238E-08	1.1110E 02	-1.9597E 01	2.1169E 00
137.00	1.0170E-08	1.2915E-09	2.7451E-10	2.7000E 01	-2.0447E 01	2.1232E 00
141.25	1.5705E-08	1.2478E-09	-3.2268E-10	-2.0500E 01	-2.0502E 01	2.1264E 00
210.50	3.4151E-10	7.9597E-10	4.5446E-10	1.3310E 02	-2.0951E 01	2.1882E 00
283.25	1.1220E-09	5.6568E-10	-5.6629E-10	-5.0100E 01	-2.1284E 01	2.2567E 00
350.25	5.0132E-10	4.4846E-10	-5.2842E-11	-1.0500E 01	-2.1525E 01	2.3165E 00

GAS IS C2H6

POWER Y=A*X**B WITH A = 0.27142E-06 AND B = -0.88767E 00

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.18781E 02 CONFIDENCE LIMIT ON ALPHA = 0.74167E 00 CONFIDENCE LIMIT ON B = 0.51057E 00

INDEXES CORRELATION COEFFICIENT = -0.81714E 00 CORRELATION OF DETERMINATION = 0.66773E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	7.2377E-08	1.4670E-07	7.4323E-08	1.0270E 02	-1.5735E 01	2.9275E 00
20.50	1.0002E-08	1.8588E-08	-1.4036E-09	-7.0000E 00	-1.7801E 01	2.4122E 00
31.00	1.4713E-08	1.2877E-08	-1.8364E-09	-1.2500E 01	-1.8168E 01	2.3717E 00
46.00	9.8500E-09	9.0713E-09	-7.7968E-10	-7.9000E 00	-1.8518E 01	2.3502E 00
68.25	6.2162E-09	6.8375E-09	6.2132E-10	1.0000E 01	-1.8801E 01	2.3434E 00
75.00	7.4983E-09	5.8778E-09	-6.9006E-08	-9.2200E 01	-1.8952E 01	2.3474E 00
141.25	1.6750E-09	3.3509E-09	1.6760E-09	1.0010E 02	-1.9514E 01	2.3830E 00
210.50	1.9257E-09	2.3516E-09	4.2495E-10	2.2100E 01	-1.9868E 01	2.4273E 00
283.25	1.2679E-09	1.8069E-09	5.3900E-10	4.2500E 01	-2.0132E 01	2.4707E 00
350.25	6.9292E-10	1.4965E-09	8.1259E-10	1.1910E 02	-2.0320E 01	2.5069E 00

GAS IS C3H8

POWER Y=A*X**B WITH A = 0.51192E-05 AND B = -0.18788E 01

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.19762E 02 CONFIDENCE LIMIT ON ALPHA = 0.93290E 00 CONFIDENCE LIMIT ON B = 0.65650E 00

INDEXES CORRELATION COEFFICIENT = -0.91915E 00 CORRELATION OF DETERMINATION = 0.84484E 00

X	Y	Y CALC.	DIFFER.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
2.00	3.2161E-06	1.3919E-06	-1.8242E-06	-5.6700E 01	-1.3485E 01	3.6762E 00
20.50	1.1765E-08	1.7564E-08	5.7994E-09	4.9300E 01	-1.7857E 01	3.0242E 00
31.00	3.3392E-09	8.0756E-09	4.7365E-09	1.4180E 02	-1.8634E 01	2.9762E 00
46.00	1.7173E-09	3.8473E-09	2.1299E-09	1.2400E 02	-1.9376E 01	2.9532E 00
46.75	6.9399E-09	3.7321E-09	-2.6068E-09	-4.1100E 01	-1.9406E 01	2.9527E 00
63.25	1.6603E-09	2.1150E-09	4.5465E-10	2.7400E 01	-1.9974E 01	2.9510E 00
137.00	3.7862E-09	4.0506E-10	-3.2911E-09	-8.6900E 01	-2.1426E 01	3.0068E 00
141.25	4.4879E-11	4.6744E-10	4.2256E-10	9.4160E 02	-2.1484E 01	3.0108E 00
283.25	2.6401E-10	1.2647E-10	-1.3754E-10	-5.2100E 01	-2.2791E 01	3.1342E 00
350.25	1.4537E-10	8.4865E-11	-6.0506E-11	-4.1600E 01	-2.3190E 01	3.1839E 00

GAS IS HYDROCARBONS

POWER Y=A*X**B WITH A = 0.65026E-06 AND B = -0.77585E 00

USING THE MODEL LOG(Y)=ALPHA+B*(LOG(X)-XBAR) WHERE XBAR=MEAN VALUE OF LOG(X(I)) AND ALPHA = LOG A + B * XBAR,
ALPHA = -0.17828E 02 CONFIDENCE LIMIT ON ALPHA = 0.30004E 00 CONFIDENCE LIMIT ON B = 0.37901E 00

INDEXES CORRELATION COEFFICIENT = -0.85795E 00 CORRELATION OF DETERMINATION = 0.73509E 00

X	Y.	Y CALC.	DIFFE.	PCT DIFF.	LOG OF Y	CONFIDENCE LIMIT ON LOG Y
31.00	3.9680E-08	4.5292E-08	5.612CE-09	1.41C0E 01	-1.6910E 01	1.0515E 00
46.00	3.5641E-08	3.3346E-08	-2.2945E-09	-6.4000E 00	-1.7216E 01	9.9621E-01
46.75	2.7106E-08	3.2930E-08	5.8242E-09	2.1500E C1	-1.722°E 01	9.9434E-01
63.25	1.9361E-08	2.6046E-08	6.6845E-09	3.45C0E C1	-1.7463E 01	9.6629E-01
75.00	2.9698E-08	2.2821E-08	-6.9769E-09	-2.3200E C1	-1.7596E 01	9.5617E-01
127.00	3.7642E-08	1.4300E-08	-2.3343E-08	-6.2000E C1	-1.8063E 01	9.5518E-01
141.25	1.2386E-08	1.3565E-08	1.5782E-09	1.27C0E 01	-1.8087E 01	9.5658E-01
210.50	7.0418E-09	1.0247E-08	2.3052E-09	2.90C0E 01	-1.8396E 01	9.8726E-01
283.25	8.5176E-09	8.7392E-09	2.7828E-10	4.4CC0E 00	-1.8627E 01	1.0241E 00
350.25	4.8892E-09	6.9031E-09	2.0139E-09	4.12C0E C1	-1.8791E 01	1.0570E 00

GAS IS GAGE P1

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.31595E-03 B = -0.12029E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	C.C	0.0	
0.1	0.2	11.73473E-01	0.0	
0.1	0.3	17.87178E-01	0.0	
0.1	0.4	21.92980E-01	0.0	
0.1	0.5	24.91832E-01	0.0	
0.1	0.6	27.26165E-01	0.0	
0.1	0.7	29.17639E-01	0.0	
0.1	0.8	30.78728E-01	0.0	
0.1	0.9	32.17239E-01	0.0	
0.1	1.0	33.38366E-01	0.0	31.59505E-05
0.1	2.0	40.73835E-01	0.0	
0.1	4.0	47.12809E-01	0.0	
0.1	6.0	50.46980E-01	0.0	
0.1	8.0	52.67947E-01	0.0	
0.1	10.0	54.30676E-01	0.0	19.80207E-06
0.1	20.0	58.91623E-01	0.0	
0.1	40.0	62.92096E-01	0.0	
0.1	60.0	65.01539E-01	0.0	
0.1	80.0	66.40020E-01	0.0	
0.1	100.0	67.42023E-01	0.0	12.41086E-07
0.1	200.0	70.30917E-01	0.0	
0.1	400.0	72.81514E-01	0.0	
0.1	600.0	74.13177E-01	0.0	
0.1	800.0	74.99078E-01	0.0	
0.1	1000.0	75.62899E-01	0.0	77.78453E-09
0.1	2000.0	77.44966E-01	0.0	
0.1	4000.0	79.02290E-01	0.0	
0.1	6000.0	79.84550E-01	0.0	
0.1	8000.0	80.36945E-01	0.0	
0.1	10000.0	80.79014E-01	0.0	48.75112E-10
1.0	2000.0	44.06601E-01	0.0	
1.0	4000.0	45.62911E-01	0.0	
1.0	6000.0	46.46182E-01	0.0	
1.0	8000.0	47.00582E-01	0.0	
1.0	10000.0	47.40645E-01	0.0	48.75112E-10
10.0	2000.0	23.14252E-01	0.0	
10.0	4000.0	24.71602E-01	0.0	
10.0	6000.0	25.53873E-01	0.0	
10.0	8000.0	26.08274E-01	0.0	
10.0	10000.0	26.48336E-01	0.0	48.75112E-10
100.0	2000.0	10.02546E-01	0.0	
100.0	4000.0	11.60256E-01	0.0	
100.0	6000.0	12.42527E-01	0.0	
100.0	8000.0	12.96526E-01	0.0	
100.0	10000.0	13.36950E-01	0.0	48.75112E-10

GAS IS TOTAL

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.28180E-02 B = -0.98854E 00

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	68.75967E-02	0.0	
0.1	0.3	10.92255E-01	0.0	
0.1	0.4	13.80682E-01	0.0	
0.1	0.5	16.04974E-01	0.0	
0.1	0.6	17.88665E-01	0.0	
0.1	0.7	19.44271E-01	0.0	
0.1	0.8	20.79288E-01	0.0	
0.1	0.9	21.98851E-01	0.0	
0.1	1.0	23.05372E-01	0.0	28.17996E-05
0.1	2.0	30.11387E-01	0.0	
0.1	4.0	37.22973E-01	0.0	
0.1	6.0	41.41836E-01	0.0	
0.1	8.0	44.40217E-01	0.0	
0.1	10.0	46.72403E-01	0.0	28.93340E-06
0.1	20.0	52.97246E-01	0.0	
0.1	40.0	61.27913E-01	0.0	
0.1	60.0	65.58006E-01	0.0	
0.1	80.0	68.64323E-01	0.0	
0.1	100.0	71.02673E-01	0.0	29.70696E-07
0.1	200.0	78.46933E-01	0.0	
0.1	400.0	85.97106E-01	0.0	
0.1	600.0	90.28680E-01	0.0	
0.1	800.0	93.53272E-01	0.0	
0.1	1000.0	95.97953E-01	0.0	30.50118E-08
0.1	2000.0	10.36206E 00	0.0	
0.1	4000.0	11.13232E 00	0.0	
0.1	6000.0	11.58572E 00	0.0	
0.1	8000.0	11.90867E 00	0.0	
0.1	10000.0	12.15994E 00	0.0	31.31669E-09
1.0	2000.0	80.56682E-01	0.0	
1.0	4000.0	88.26948E-01	0.0	
1.0	6000.0	92.80343E-01	0.0	
1.0	8000.0	96.03293E-01	0.0	
1.0	10000.0	98.54561E-01	0.0	31.31669E-09
10.0	2000.0	56.89651E-01	0.0	
10.0	4000.0	64.59919E-01	0.0	
10.0	6000.0	69.13214E-01	0.0	
10.0	8000.0	72.36244E-01	0.0	
10.0	10000.0	74.87532E-01	0.0	31.31669E-09
100.0	2000.0	32.59293E-01	0.0	
100.0	4000.0	40.29650E-01	0.0	
100.0	6000.0	44.83045E-01	0.0	
100.0	8000.0	48.05994E-01	0.0	
100.0	10000.0	50.57262E-01	0.0	31.31669E-09

GAS IS H

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.56309E-04 B = -0.71696E 00

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	80.9C323E-03	8C.9C323E-03	
0.1	0.3	13.61311E-02	13.61311E-02	
0.1	0.4	17.93426E-02	17.93426E-02	
0.1	0.5	21.52691E-02	21.52691E-02	
0.1	0.6	24.65416E-02	24.65416E-02	
0.1	0.7	27.41820E-02	27.41820E-02	
0.1	0.8	29.91197E-02	29.91197E-02	
0.1	0.9	32.19122E-02	32.19122E-02	
0.1	1.0	34.29549E-02	34.29549E-02	56.30936E-06
0.1	2.0	49.81961E-02	49.81961E-02	
0.1	4.0	68.70868E-02	68.70868E-02	
0.1	6.0	81.60306E-02	81.60306E-02	
0.1	8.0	91.69196E-02	91.69196E-02	
0.1	10.0	10.01034E-01	10.01034E-01	10.80494E-06
0.1	20.0	12.98917E-01	12.98917E-01	
0.1	40.0	16.61369E-01	16.61369E-01	
0.1	60.0	19.08795E-01	19.08795E-01	
0.1	80.0	21.02386E-01	21.02386E-01	
0.1	100.0	22.63787E-01	22.63787E-01	20.73502E-07
0.1	200.0	28.35382E-01	28.35382E-01	
0.1	400.0	35.30874E-01	35.30874E-01	
0.1	600.0	40.05646E-01	40.05646E-01	
0.1	800.0	43.77119E-01	43.77119E-01	
0.1	1000.0	46.86824E-01	46.86824E-01	39.78354E-08
0.1	2000.0	57.83628E-01	57.83628E-01	
0.1	4000.0	71.19178E-01	71.19178E-01	
0.1	6000.0	80.29186E-01	80.29186E-01	
0.1	8000.0	87.41996E-01	87.41996E-01	
0.1	10000.0	93.36266E-01	93.36266E-01	76.33867E-09
1.0	2000.0	54.40673E-01	54.40673E-01	
1.0	4000.0	67.75224E-01	67.75224E-01	
1.0	6000.0	76.86241E-01	76.86241E-01	
1.0	8000.0	83.99041E-01	83.99041E-01	
1.0	10000.0	89.93311E-01	89.93311E-01	76.33867E-09
10.0	2000.0	47.82594E-01	47.82594E-01	
10.0	4000.0	61.17145E-01	61.17145E-01	
10.0	6000.0	70.28161E-01	70.28161E-01	
10.0	8000.0	77.40961E-01	77.40961E-01	
10.0	10000.0	83.35231E-01	83.35231E-01	76.33867E-09
100.0	2000.0	35.19839E-01	35.19839E-01	
100.0	4000.0	48.54390E-01	48.54390E-01	
100.0	6000.0	57.65407E-01	57.65407E-01	
100.0	8000.0	64.78209E-01	64.78209E-01	
100.0	10000.0	70.72477E-01	70.72477E-01	76.33867E-09

GAS IS HELIUM

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.32867E-09 B = -0.63743E-01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	13.27067E-08	80.90335E-03	
0.1	0.3	26.30204E-08	13.61313E-02	
0.1	0.4	38.95609E-08	17.93430E-02	
0.1	0.5	51.40796E-08	21.52656E-02	
0.1	0.6	63.70099E-08	24.65422E-02	
0.1	0.7	75.86249E-08	27.41827E-02	
0.1	0.8	87.91529E-08	29.91205E-02	
0.1	0.9	99.87116E-08	32.19132E-02	
0.1	1.0	11.17425E-07	34.29559E-02	32.86746E-11
0.1	2.0	22.71564E-07	49.81982E-02	
0.1	4.0	44.81239E-07	68.70912E-02	
0.1	6.0	66.17933E-07	81.66272E-02	
0.1	8.0	87.08825E-07	91.69284E-02	
0.1	10.0	10.76629E-06	10.01044E-01	28.38072E-11
0.1	20.0	20.73559E-06	12.98937E-01	
0.1	40.0	39.81250E-06	16.61408E-01	
0.1	60.0	58.26268E-06	19.08854E-01	
0.1	80.0	76.31726E-06	21.02462E-01	
0.1	100.0	94.08337E-06	22.63881E-01	24.50646E-11
0.1	200.0	18.01674E-05	28.35561E-01	
0.1	400.0	34.48637E-05	35.21219E-01	
0.1	600.0	50.42004E-05	40.06149E-01	
0.1	800.0	66.01089E-05	43.77778E-01	
0.1	1000.0	81.35170E-05	46.87637E-01	21.16110E-11
0.1	2000.0	15.56847E-04	57.85185E-01	
0.1	4000.0	29.79249E-04	71.21157E-01	
0.1	6000.0	43.5492CE-04	80.33541E-01	
0.1	8000.0	57.01091E-04	87.47697E-01	
0.1	10000.0	70.25760E-04	93.43291E-01	18.27240E-11
1.0	2000.0	15.55729E-04	54.42226E-01	
1.0	4000.0	29.78132E-04	67.78201E-01	
1.0	6000.0	43.53802E-04	76.95655E-01	
1.0	8000.0	56.99977E-04	84.04740E-01	
1.0	10000.0	70.24646E-04	90.00335E-01	18.27240E-11
10.0	2000.0	15.46080E-04	47.84140E-01	
10.0	4000.0	29.68483E-04	61.20112E-01	
10.0	6000.0	43.44154E-04	70.32505E-01	
10.0	8000.0	56.90325E-04	77.46651E-01	
10.0	10000.0	70.14994E-04	83.42245E-01	18.27240E-11
100.0	2000.0	14.62763E-04	35.21301E-01	
100.0	4000.0	28.85166E-04	48.57275E-01	
100.0	6000.0	42.60838E-04	57.69667E-01	
100.0	8000.0	56.07009E-04	64.83814E-01	
100.0	10000.0	69.31677E-04	70.79409E-01	18.27240E-11

GAS IS METHANE

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.18888E-06 B = -0.60775E 00

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	21.95041E-05	P1.12282E-C3	
0.1	0.3	37.84562E-05	13.68098E-C2	
0.1	0.4	50.75890E-05	17.98505E-C2	
0.1	0.5	61.82843E-05	21.59879E-C2	
0.1	0.6	71.62C43E-05	24.72583E-C2	
0.1	0.7	80.46371E-05	27.49873E-C2	
0.1	0.8	88.56844E-05	30.00062E-C2	
0.1	0.9	96.07822E-05	32.28740E-C2	
0.1	1.0	10.30664E-04	34.36869E-C2	18.88811E-08
0.1	2.0	15.72582E-C4	49.97709E-C2	
0.1	4.0	22.83421E-C4	68.93746E-C2	
0.1	6.0	27.98170E-C4	81.88354E-C2	
0.1	8.0	32.16354E-C4	92.01447E-C2	
0.1	10.0	35.74827E-04	10.046J9E-01	46.60573E-09
0.1	20.0	49.11240E-C4	13.03847E-C1	
0.1	40.0	66.65218E-C4	16.69072E-C1	
0.1	60.0	79.35334E-04	19.16788E-C1	
0.1	80.0	89.67196E-04	21.11428E-C1	
0.1	100.0	98.51709E-04	22.73732E-C1	11.49978E-09
0.1	200.0	13.14C28E-03	28.48710E-C1	
0.1	400.0	17.47713E-03	35.48696E-C1	
0.1	600.0	20.41112E-03	40.2676CE-01	
0.1	800.0	23.15719E-03	44.00935E-C1	
0.1	1000.0	25.33971E-03	47.12C76E-C1	28.37526E-10
0.1	2000.0	33.47629E-03	58.18661E-C1	
0.1	4000.0	44.15512E-03	71.68311E-C1	
0.1	6000.0	51.88809E-03	80.85428E-C1	
0.1	8000.0	58.17037E-03	88.05867E-01	
0.1	10000.0	63.55560E-03	94.06846E-C1	70.01486E-11
1.0	2000.0	32.44526E-03	54.74673E-C1	
1.0	4000.0	43.12418E-03	68.21324E-C1	
1.0	6000.0	50.85720E-03	77.41451E-C1	
1.0	8000.0	57.13943E-03	84.61880E-C1	
1.0	10000.0	62.52468E-03	90.62856E-C1	70.01486E-11
10.0	2000.0	25.90147E-03	48.14C40E-C1	
10.0	4000.0	40.58C20E-03	61.6C692E-C1	
10.0	6000.0	48.31332E-03	7C.8C818E-C1	
10.0	8000.0	54.59554E-03	78.01246E-C1	
10.0	10000.0	59.98C86E-03	84.02225E-C1	70.01486E-11
100.0	2000.0	23.62460E-03	35.44924E-C1	
100.0	4000.0	34.30343E-03	48.91576E-C1	
100.0	6000.0	42.03664E-03	58.11703E-C1	
100.0	8000.0	48.21866E-03	65.32132E-C1	
100.0	10000.0	53.70999E-03	71.32112E-C1	70.01486E-11

GAS IS WATER VAPOR

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.10832E-02 B = -0.19172E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	16.53447E CC	16.61559E CO	
0.1	0.3	22.31395E OC	22.45045E OC	
0.1	0.4	25.2892CE OC	25.46913E CC	
0.1	0.5	27.11259E OC	27.32896E OC	
0.1	0.6	28.34C47E OC	28.59673E CC	
0.1	0.7	29.2451CE OC	29.5200RE CC	
0.1	0.8	29.92488E OC	30.22488E CC	
0.1	0.9	30.45514E CO	30.7820CE OC	
0.1	1.0	30.89C49E OC	31.23447E CC	10.83217E-04
0.1	2.0	32.8CC66E OC	33.39041E CC	
0.1	4.0	33.94671E OC	34.63907E CC	
0.1	6.0	34.31CCOE OC	35.12872E CC	
0.1	8.0	34.51C47E OC	35.4206CE OC	
0.1	10.0	34.62727E OC	35.6218RE CC	13.10353E-06
0.1	20.0	34.86922E OC	36.17307E CC	
0.1	40.0	34.99734E OC	36.66541E OC	
0.1	60.0	35.04213E OC	36.95891E OC	
0.1	80.0	35.06519E OC	37.17661E OC	
0.1	100.0	35.07932E OC	37.35304E CC	15.85111E-08
0.1	200.0	35.1086CE OC	37.95721E CO	
0.1	400.0	35.124C9E OC	38.67278E CC	
0.1	600.0	35.12949E CC	39.15623E CC	
0.1	800.0	35.13228E CC	39.5222CE OC	
0.1	1000.0	35.1340CE OC	39.84697E CC	19.17482E-10
0.1	2000.0	35.13754E CC	40.95619E CC	
0.1	4000.0	35.13940E CO	42.30470E CC	
0.1	6000.0	35.14CC8E OC	43.22549E CC	
0.1	8000.0	35.14041E CO	43.94627E OC	
0.1	10000.0	35.14063E CO	44.54747E CC	23.19554E-12
1.0	2000.0	42.47037E-01	67.21710E-01	
1.0	4000.0	42.48911E-01	11.07024E CC	
1.0	6000.0	42.49566E-01	11.89102E CC	
1.0	8000.0	42.49904E-01	12.71178E CC	
1.0	10000.0	42.50111E-01	13.31297E CO	23.19554E-12
10.0	2000.0	51.02854E-02	53.24295E-01	
10.0	4000.0	51.21301E-02	66.72822E-01	
10.0	6000.0	51.27854E-02	75.92603E-01	
10.0	8000.0	51.31229E-02	83.14368E-01	
10.0	10000.0	51.33296E-02	89.15855E-01	23.19554E-12
100.0	2000.0	58.22232E-03	36.03148E-01	
100.0	4000.0	60.09699E-03	46.51674E-01	
100.0	6000.0	60.75231E-03	58.72456E-01	
100.0	8000.0	61.08962E-03	65.93222E-01	
100.0	10000.0	61.29644E-03	71.94407E-01	23.19554E-12

GAS IS NITROGEN

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A**X**B
A = 0.19097E-05 B = -0.11869E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	68.73190E-04	16.62245E CC	
0.1	0.3	10.49981E-03	22.46095E CC	
0.1	0.4	12.91127E-03	25.48204E CC	
0.1	0.5	14.69446E-03	27.24366E CC	
0.1	0.6	16.09726E-03	28.61287E CC	
0.1	0.7	17.24652E-03	29.53732E CC	
0.1	0.8	18.21570E-03	30.24309E CC	
0.1	0.9	19.05074E-03	30.90104E CC	
0.1	1.0	19.78226E-03	31.25424E CC	19.09718E-07
0.1	2.0	24.25188E-03	33.41466E CC	
0.1	4.0	28.17845E-03	34.66724E CC	
0.1	6.0	30.25030E-03	35.16998E CC	
0.1	8.0	31.62795E-03	35.46222E CC	
0.1	10.0	32.66667E-03	35.66459E CC	12.41892E-08
0.1	20.0	35.55327E-03	36.20862E CC	
0.1	40.0	38.10675E-03	36.70351E CC	
0.1	60.0	39.48405E-03	36.99825E CC	
0.1	80.0	40.34992E-03	37.21695E CC	
0.1	100.0	41.01240E-03	37.39404E CC	80.76029E-10
0.1	200.0	42.90257E-03	38.00020E CC	
0.1	400.0	44.56306E-03	38.71732E CC	
0.1	600.0	45.43021E-03	39.20166E CC	
0.1	800.0	46.02184E-03	39.57922E CC	
0.1	1000.0	46.45265E-03	39.89342E CC	52.5183°E-11
0.1	2000.0	47.68181E-03	41.00286E CC	
0.1	4000.0	48.76164E-03	42.25345E CC	
0.1	6000.0	49.33143E-03	43.27481E CC	
0.1	8000.0	49.71027E-03	43.99597E CC	
0.1	10000.0	49.99044E-03	44.56744E CC	34.15278E-12
1.0	2000.0	27.89957E-03	97.49605E-01	
1.0	4000.0	28.97641E-03	11.09921E CC	
1.0	6000.0	29.54917E-03	12.02057E CC	
1.0	8000.0	29.92804E-03	12.74171E CC	
1.0	10000.0	30.20820E-03	13.24318E CC	34.15278E-12
10.0	2000.0	15.05516E-03	53.39330E-01	
10.0	4000.0	16.11495E-03	64.88936E-01	
10.0	6000.0	16.68476E-03	76.10288E-01	
10.0	8000.0	17.06362E-03	82.21431E-01	
10.0	10000.0	17.34378E-03	89.22895E-01	34.15278E-12
100.0	2000.0	66.69413E-04	36.09817E-01	
100.0	4000.0	77.49248E-04	48.56423E-01	
100.0	6000.0	83.19017E-04	58.80774E-01	
100.0	8000.0	86.97875E-04	66.01515E-01	
100.0	10000.0	89.78029E-04	72.03385E-01	34.15278E-12

GAS IS CO

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.29163E-04 B = -0.99733E 00

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	72.3918E-03	16.69484E CC	
0.1	0.3	11.48000E-02	22.57574E CC	
0.1	0.4	14.49172E-02	25.62695E CC	
0.1	0.5	16.82949E-02	27.91108E CC	
0.1	0.6	18.74050E-02	28.80020E 00	
0.1	0.7	20.35699E-02	29.74099E CC	
0.1	0.8	21.75781E-02	30.46066E CC	
0.1	0.9	22.99271E-02	31.03098E CC	
0.1	1.0	24.09577E-02	31.49524E CC	2°.16291E-06
0.1	2.0	31.38365E-02	33.72849E CC	
0.1	4.0	38.68250E-02	35.05405E CC	
0.1	6.0	42.95700E-02	35.59854E CC	
0.1	8.0	45.99258E-02	35.92213E CC	
0.1	10.0	48.34692E-02	36.14798E CC	2°.34312E-07
0.1	20.0	55.67572E-02	36.76527E CC	
0.1	40.0	63.01548E-02	37.33369E CC	
0.1	60.0	67.32019E-02	37.67154E CC	
0.1	80.0	70.37448E-02	37.92068E CC	
0.1	100.0	72.74754E-02	38.12151E CC	29.52437E-08
0.1	200.0	80.12125E-02	38.80141E 00	
0.1	400.0	87.50993E-02	39.59242E CC	
0.1	600.0	91.83682E-02	40.12003E CC	
0.1	800.0	94.90976E-02	40.52832E CC	
0.1	1000.0	97.29780E-02	40.86639E CC	29.70679E-09
0.1	2000.0	10.47144E-01	42.05101E CC	
0.1	4000.0	11.21500E-01	43.47495E CC	
0.1	6000.0	11.65031E-01	44.43982E CC	
0.1	8000.0	11.95949E-01	45.19191E CC	
0.1	10000.0	12.19976E-01	45.81743E 00	29.89032E-10
1.0	2000.0	80.61673E-02	10.55578E CC	
1.0	4000.0	88.05030E-02	11.57972E CC	
1.0	6000.0	92.40338E-02	12.24460E CC	
1.0	8000.0	95.48513E-02	13.69666E CC	
1.0	10000.0	97.89316E-02	14.32216E 00	29.89032E-10
10.0	2000.0	56.36957E-02	56.03025E-01	
10.0	4000.0	63.80317E-02	73.26967E-01	
10.0	6000.0	68.15628E-02	82.91850E-01	
10.0	8000.0	71.24800E-02	90.43911E-01	
10.0	10000.0	73.65101E-02	96.69408E-01	29.89032E-10
100.0	2000.0	31.96856E-02	30.29509E-01	
100.0	4000.0	36.40256E-02	53.53448E-01	
100.0	6000.0	43.75566E-02	63.19330E-01	
100.0	8000.0	44.84736E-02	70.70393E-01	
100.0	10000.0	46.25036E-02	76.95889E-01	29.89032E-10

GAS IS OXYGEN

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.52863E-05 B = -0.14799E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	33.87902E-03	16.72871E 00	
0.1	0.3	46.05873E-03	22.62486E 00	
0.1	0.4	58.17152E-03	25.68512E 00	
0.1	0.5	64.42261E-03	27.57637E 00	
0.1	0.6	69.05866E-03	28.86925E 00	
0.1	0.7	72.66915E-03	29.81355E 00	
0.1	0.8	75.59007E-03	30.53624E 00	
0.1	0.9	78.01566E-03	31.10998E 00	
0.1	1.0	80.07234E-03	31.57530E 00	52.86282E-07
0.1	2.0	91.29369E-03	33.87478E 00	
0.1	4.0	99.33956E-03	35.15938E 00	
0.1	6.0	10.29451E-02	35.70148E 00	
0.1	8.0	10.51093E-02	36.02724E 00	
0.1	10.0	10.65940E-02	36.25456E 00	17.50926E-08
0.1	20.0	11.03107E-02	36.87667E 00	
0.1	40.0	11.29758E-02	37.44666E 00	
0.1	60.0	11.41658E-02	37.78571E 00	
0.1	80.0	11.48868E-02	38.03557E 00	
0.1	100.0	11.53785E-02	38.22688E 00	57.99411E-10
0.1	200.0	11.66095E-02	38.91901E 00	
0.1	400.0	11.74923E-02	39.70995E 00	
0.1	600.0	11.78878E-02	40.23790E 00	
0.1	800.0	11.81252E-02	40.64644E 00	
0.1	1000.0	11.82988E-02	40.98468E 00	19.20881E-11
0.1	2000.0	11.86559E-02	42.16965E 00	
0.1	4000.0	11.89829E-02	43.59393E 00	
0.1	6000.0	11.91192E-02	44.55894E 00	
0.1	8000.0	11.91978E-02	45.21110E 00	
0.1	10000.0	11.92518E-02	45.69668E 00	63.62347E-13
1.0	2000.0	35.62358E-03	10.59440E 00	
1.0	4000.0	39.91588E-03	12.01863E 00	
1.0	6000.0	39.04688E-03	12.98365E 00	
1.0	8000.0	39.12552E-03	13.73757E 00	
1.0	10000.0	39.17947E-03	14.36134E 00	63.62347E-13
10.0	2000.0	12.10187E-03	59.15126E-01	
10.0	4000.0	12.35425E-03	73.35361E-01	
10.0	6000.0	12.52526E-03	83.04375E-01	
10.0	8000.0	12.60388E-03	90.56515E-01	
10.0	10000.0	12.65794E-03	96.82065E-01	63.62347E-13
100.0	2000.0	33.17256E-04	26.32922E-01	
100.0	4000.0	36.09734E-04	53.57658E-01	
100.0	6000.0	37.40733E-04	63.22070E-01	
100.0	8000.0	38.15376E-04	70.74211E-01	
100.0	10000.0	38.72222E-04	76.66741E-01	63.62347E-13

GAS IS ARGON

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.10525E-06 B = -0.12105E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	25.67502E-05	16.72011E CC	
0.1	0.3	60.34211E-05	22.62540E 00	
0.1	0.4	73.97065E-05	25.68585E 00	
0.1	0.5	81.98707E-05	27.57721E 00	
0.1	0.6	91.82887E-05	28.87016E CC	
0.1	0.7	98.23825E-05	29.81453E CC	
0.1	0.8	10.36062E-04	30.53726E 00	
0.1	0.9	10.82259E-04	31.11005E CC	
0.1	1.0	11.22626E-04	31.57642E CC	10.52470E-08
0.1	2.0	13.66989E-04	33.82114E 00	
0.1	4.0	15.78172E-04	35.71549E CC	
0.1	6.0	16.89152E-04	35.70216E 00	
0.1	8.0	17.60682E-04	36.02899E CC	
0.1	10.0	18.13991E-04	36.25636E CC	64.81410E-10
0.1	20.0	19.64482E-04	36.87762E CC	
0.1	40.0	20.94529E-04	37.44875E CC	
0.1	60.0	21.62268E-04	37.76786E CC	
0.1	80.0	22.06934E-04	38.02777E CC	
0.1	100.0	22.39767E-04	38.23611E CC	39.91674E-11
0.1	200.0	23.32445E-04	38.62033E CC	
0.1	400.0	24.12541E-04	39.71221E CC	
0.1	600.0	24.54252E-04	40.24024E CC	
0.1	800.0	24.81761E-04	40.64861E CC	
0.1	1000.0	25.01979E-04	40.96717E CC	24.58257E-12
0.1	2000.0	25.55056E-04	42.17224E CC	
0.1	4000.0	26.08295E-04	43.59683E CC	
0.1	6000.0	26.34069E-04	44.66167E CC	
0.1	8000.0	26.51010E-04	45.21374E CC	
0.1	10000.0	26.63462E-04	45.59233E CC	15.13911E-13
1.0	2000.0	14.34403E-04	10.55583E CC	
1.0	4000.0	14.85756E-04	12.02012E CC	
1.0	6000.0	15.11444E-04	12.98516E CC	
1.0	8000.0	15.29285E-04	13.72732E CC	
1.0	10000.0	15.40834E-04	14.26288E CC	15.13911E-13
10.0	2000.0	74.50434E-05	59.13871E-01	
10.0	4000.0	79.43900E-05	73.40155E-01	
10.0	6000.0	82.00780E-05	83.05104E-01	
10.0	8000.0	83.70187E-05	90.57251E-01	
10.0	10000.0	84.94705E-05	96.82614E-01	15.13911E-13
100.0	2000.0	31.62879E-05	36.33141E-01	
100.0	4000.0	36.88142E-05	53.57426E-01	
100.0	6000.0	39.63022E-05	63.22444E-01	
100.0	8000.0	41.12432E-05	70.74622E-01	
100.0	10000.0	42.36947E-05	77.00185E-01	15.13911E-13

GAS IS CO2

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.23905E-04 B = -0.10436E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	64.958995E-03	16.794075 CC	
0.1	0.3	10.2056[illegible]E-02	22.72745E CC	
0.1	0.4	12.79836E-02	25.81383E CC	
0.1	0.5	14.78735E-02	27.72508E CC	
0.1	0.6	16.39795E-02	29.034135 CC	
0.1	0.7	17.74583E-02	29.99202E CC	
0.1	0.8	18.91257E-02	30.726795 CC	
0.1	0.9	19.93453E-02	31.30929E CC	
0.1	1.0	20.84323E-02	31.784P4E CC	23.90458E-06
0.1	2.0	26.71503E-02	34.08832E CC	
0.1	4.0	32.42004E-02	35.47914E CC	
0.1	6.0	35.67597E-02	36.05991E CC	
0.1	8.0	37.95146E-02	36.4084[illegible]E CC	
0.1	10.0	39.69694E-02	36.65332E CC	21.62284E-07
0.1	20.0	45.01188E-02	37.32773E CC	
0.1	40.0	50.16872E-02	37.95042E CC	
0.1	60.0	53.11397E-02	38.31898E CC	
0.1	80.0	55.17216E-02	38.58948E CC	
0.1	100.0	56.75101E-02	38.80661E CC	19.55889E-08
0.1	200.0	61.55863E-02	39.53592E CC	
0.1	400.0	66.22324E-02	40.27454E CC	
0.1	600.0	68.88729E-02	40.92920E CC	
0.1	800.0	70.74[illegible]8E-02	41.35640E CC	
0.1	1000.0	72.17724E-02	41.70894E CC	17.69193E-09
0.1	2000.0	76.52596E-02	42.93750E CC	
0.1	4000.0	80.74523E-02	44.40398E CC	
0.1	6000.0	83.15607E-02	45.29311E CC	
0.1	8000.0	84.83617E-02	46.16212E CC	
0.1	10000.0	86.13100E-02	46.80069E CC	16.00310E-10
1.0	2000.0	55.68272E-02	11.15266E CC	
1.0	4000.0	59.90209E-02	12.61914E CC	
1.0	6000.0	62.31183E-02	13.60827E CC	
1.0	8000.0	63.99663E-02	14.37727E CC	
1.0	10000.0	65.28774E-02	15.01575E CC	16.00310E-10
10.0	2000.0	34.82902E-02	62.84161E-01	
10.0	4000.0	41.04839E-02	77.50688E-01	
10.0	6000.0	43.45813E-02	87.39775E-01	
10.0	8000.0	45.14223E-02	95.08772E-01	
10.0	10000.0	46.43406E-02	10.14725 CC	16.00319E-10
100.0	2000.0	19.77464E-02	41.30896E-01	
100.0	4000.0	23.99430E-02	55.97368E-01	
100.0	6000.0	26.40404E-02	65.86504E-01	
100.0	8000.0	28.08814E-02	73.55503E-01	
100.0	10000.0	29.37668E-02	79.93984E-01	16.00319E-10

GAS IS C2H4

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.33025E-06 B = -0.11268E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	10.56466E-04	16.79512E 00	
0.1	0.3	16.32744E-04	22.72908E 00	
0.1	0.4	20.24009E-04	25.81584E 00	
0.1	0.5	23.17824E-04	27.72730E 00	
0.1	0.6	25.51786E-04	29.03668E 00	
0.1	0.7	27.45416E-04	29.99475E 00	
0.1	0.8	29.10121E-04	30.72929E 00	
0.1	0.9	30.53104E-04	31.31244E 00	
0.1	1.0	31.79203E-04	31.78801E 00	33.02455E-08
0.1	2.0	39.68079E-04	34.09229E 00	
0.1	4.0	46.90565E-04	35.48383E 00	
0.1	6.0	50.84664E-04	36.06499E 00	
0.1	8.0	53.52244E-04	36.41383E 00	
0.1	10.0	55.53175E-04	36.65986E 00	24.66010E-09
0.1	20.0	61.42247E-04	37.33386E 00	
0.1	40.0	66.81744E-04	37.95709E 00	
0.1	60.0	69.76023E-04	38.32596E 00	
0.1	80.0	71.75833E-04	38.58665E 00	
0.1	100.0	73.25869E-04	38.81399E 00	18.41415E-10
0.1	200.0	77.65744E-04	39.54367E 00	
0.1	400.0	81.68589E-04	40.28271E 00	
0.1	600.0	83.88237E-04	40.63758E 00	
0.1	800.0	85.37535E-04	41.26492E 00	
0.1	1000.0	86.49573E-04	41.71788E 00	13.75020E-11
0.1	2000.0	89.78035E-04	42.94647E 00	
0.1	4000.0	92.78845E-04	44.41335E 00	
0.1	6000.0	94.42937E-04	45.40254E 00	
0.1	8000.0	95.54341E-04	46.17168E 00	
0.1	10000.0	96.38011E-04	46.81024E 00	10.26755E-12
1.0	2000.0	97.08832E-04	11.15946E 00	
1.0	4000.0	60.99645E-04	12.62624E 00	
1.0	6000.0	62.63737E-04	13.61454E 00	
1.0	8000.0	63.75145E-04	14.38345E 00	
1.0	10000.0	64.58808E-04	15.02221E 00	10.26755E-12
10.0	2000.0	34.24842E-04	69.87588E-01	
10.0	4000.0	37.25676E-04	77.54362E-01	
10.0	6000.0	38.85766E-04	87.42664E-01	
10.0	8000.0	40.01170E-04	95.12774E-01	
10.0	10000.0	40.84825E-04	10.15124E 00	10.26755E-12
100.0	2000.0	16.52167E-04	41.32542E-01	
100.0	4000.0	19.52581E-04	55.99326E-01	
100.0	6000.0	21.17072E-04	65.89620E-01	
100.0	8000.0	22.28482E-04	73.87731E-01	
100.0	10000.0	23.12141E-04	79.66296E-01	10.26755E-12

GAS IS C2H6

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.27142E-04 B = -0.88767E 00

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	54.38270E-05	16.79565E CC	
0.1	0.3	88.21257E-05	22.72995E 00	
0.1	0.4	11.31688E-04	25.81697E CC	
0.1	0.5	13.30886E-04	27.72871E 00	
0.1	0.6	14.97391E-04	29.03818E CC	
0.1	0.7	16.40854E-04	29.96638E 00	
0.1	0.8	17.67151E-04	30.73105E 00	
0.1	0.9	18.80136E-04	31.31432E CC	
0.1	1.0	19.82478E-04	31.78998E 00	27.14226E-08
0.1	2.0	26.86296E-04	34.09407E CC	
0.1	4.0	36.48215E-04	35.48726E 00	
0.1	6.0	39.21866E-04	36.06891E CC	
0.1	8.0	42.71256E-04	36.41805E 00	
0.1	10.0	45.50148E-04	36.66341E 00	35.15420E-09
0.1	20.0	54.62412E-04	37.33931E 00	
0.1	40.0	64.48545E-04	37.96353E CC	
0.1	60.0	70.62014E-04	38.33301E CC	
0.1	80.0	75.14536E-04	38.60416E 00	
0.1	100.0	78.75752E-04	38.82181E 00	45.53108E-10
0.1	200.0	90.57291E-04	39.55272E CC	
0.1	400.0	10.33452E-03	40.39304E CC	
0.1	600.0	11.12907E-03	40.84870E CC	
0.1	800.0	11.71517E-03	41.27663E CC	
0.1	1000.0	12.18200E-03	41.72975E 00	58.97098E-11
0.1	2000.0	13.71333E-03	42.96017E CC	
0.1	4000.0	15.36765E-03	44.42862E CC	
0.1	6000.0	16.39665E-03	45.41893E CC	
0.1	8000.0	17.15576E-03	46.18893E CC	
0.1	10000.0	17.76148E-03	46.82802E CC	76.37820E-12
1.0	2000.0	11.73096E-03	11.17016E CC	
1.0	4000.0	13.38516E-03	12.63862E CC	
1.0	6000.0	14.41419E-03	13.62895E 00	
1.0	8000.0	15.17396E-03	14.35982E CC	
1.0	10000.0	15.77921E-03	15.03705E CC	76.37820E-12
10.0	2000.0	91.62190E-04	62.96742E-01	
10.0	4000.0	10.81749E-03	77.65182E-01	
10.0	6000.0	11.84652E-03	87.58509E-01	
10.0	8000.0	12.60559E-03	95.25378E-01	
10.0	10000.0	13.21153E-03	10.16465E 00	76.37820E-12
100.0	2000.0	58.37578E-04	41.38376E-01	
100.0	4000.0	74.91823E-04	56.04812E-01	
100.0	6000.0	85.20912E-04	65.67140E-01	
100.0	8000.0	92.79588E-04	73.67010E-01	
100.0	10000.0	98.85933E-04	80.06182E-01	76.37820E-12

GAS IS C3H8

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.511925E-05 B = -0.18798E 01

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	72.374[illegible]E-03	16.868[illegible]E 00	
0.1	0.3	98.23[illegible]E-03	22.928[illegible]E 00	
0.1	0.4	11.17321E-02	25.[illegible]87CE 00	
0.1	0.5	12.00867E-02	27.84[illegible]80E 00	
0.1	0.6	12.57[illegible]8E-02	29.163[illegible]E 00	
0.1	0.7	12.99[illegible]2E-02	30.126[illegible]E 00	
0.1	0.8	13.31350E-02	30.86418E 00	
0.1	0.9	13.56428E-02	31.449[illegible]E 00	
0.1	1.0	13.767[illegible]E-02	31.[illegible]2764E 00	51.19220E-07
0.1	2.0	14.72446E-02	34.24220E 00	
0.1	4.0	15.244[illegible]E-02	35.63[illegible]6E 00	
0.1	6.0	15.43[illegible]58E-02	36.22221E 00	
0.1	8.0	15.52[illegible]9E-02	36.[illegible]3366E 00	
0.1	10.0	15.587645E-02	36.81[illegible]27E 00	67.66[illegible]7E-09
0.1	20.0	15.71409E-02	37.49644E 00	
0.1	40.0	15.78285E-02	38.1[illegible]135E 00	
0.1	60.0	15.80742E-02	38.4[illegible]107E 00	
0.1	80.0	15.82[illegible]24E-02	38.76226E 00	
0.1	100.0	15.82818E-02	38.9[illegible]0[illegible]E 00	80.43[illegible]3E-11
0.1	200.0	15.844[illegible]9E-02	39.711[illegible]7E 00	
0.1	400.0	15.85[illegible]58E-02	40.[illegible]5157E 00	
0.1	600.0	15.85[illegible]23E-02	41.1[illegible]727E 00	
0.1	800.0	15.858[illegible]2E-02	41.[illegible]3[illegible]22E 00	
0.1	1000.0	15.85[illegible]7E-02	41.[illegible]8[illegible]4E 00	11.82192E-12
0.1	2000.0	15.862195E-02	43.11879E 00	
0.1	4000.0	15.86[illegible]9E-02	44.[illegible]872[illegible]E 00	
0.1	6000.0	15.863[illegible]2E-02	45.[illegible]7766E 00	
0.1	8000.0	15.864[illegible]4E-02	46.34746E 00	
0.1	10000.0	15.86418E-02	46.[illegible]8[illegible]56E 00	15.62620E-14
1.0	2000.0	20.943[illegible]0E-03	11.191[illegible]3E 00	
1.0	4000.0	20.95[illegible]62E-03	12.6[illegible]5[illegible]8E 00	
1.0	6000.0	20.95[illegible]1E-03	13.64[illegible]1E 00	
1.0	8000.0	20.96[illegible]15E-03	14.41[illegible]76E 00	
1.0	10000.0	20.96353E-03	15.05[illegible]5E 00	15.62620E-14
10.0	2000.0	27.4[illegible]48E-04	62.[illegible]493E-01	
10.0	4000.0	27.57[illegible]1E-04	77.[illegible]8[illegible]7E-01	
10.0	6000.0	27.617[illegible]3E-04	87.[illegible]27[illegible]E-01	
10.0	8000.0	27.63[illegible]4E-04	95.29[illegible]2E-01	
10.0	10000.0	27.6[illegible]381E-04	10.16721E 00	15.62620E-14
100.0	2000.0	34.00[illegible]7E-05	41.[illegible]871[illegible]E-01	
100.0	4000.0	35.20[illegible]2E-05	54.071626E-01	
100.0	6000.0	35.[illegible]41[illegible]E-05	65.07[illegible]6E-01	
100.0	8000.0	35.85[illegible]3E-05	77.[illegible]736[illegible]E-01	
100.0	10000.0	35.[illegible]6[illegible]E-05	88.[illegible]541[illegible]E-01	15.62620E-14

GAS IS HYDROCARBONS

TOTAL OUTGASSING (Q), INTEGRATION OF Y=A*X**B
A = 0.65026E-06 B = -0.77595E 00

INITIAL TIME HOURS	FINAL TIME HOURS	OUTGASSING(Q) TORR-LITERS	TOTAL Q (ALL PREVIOUS GASES)	OUTGASSING RATE TORR-LITERS/SEC
0.1	0.1	0.0	0.0	
0.1	0.2	10.47697E-04	16.86803E 00	
0.1	0.3	17.40406E-04	22.82819E 00	
0.1	0.4	22.71503E-04	25.92870E 00	
0.1	0.5	27.07698E-04	27.84880E 00	
0.1	0.6	30.80651E-04	29.16397E 00	
0.1	0.7	34.08098E-04	30.12633E 00	
0.1	0.8	37.01019E-04	30.84418E 00	
0.1	0.9	39.66782E-04	31.44995E 00	
0.1	1.0	42.10522E-04	31.92764E 00	65.02601E-08
0.1	2.0	59.65989E-04	34.24220E 00	
0.1	4.0	80.16619E-04	35.63965E 00	
0.1	6.0	93.72279E-04	36.22221E 00	
0.1	8.0	10.41174E-03	36.57336E 00	
0.1	10.0	11.26546E-03	36.81927E 00	10.89538E-08
0.1	20.0	14.20679E-03	37.49644E 00	
0.1	40.0	17.64255E-03	38.12135E 00	
0.1	60.0	19.91418E-03	38.49107E 00	
0.1	80.0	21.65584E-03	38.76234E 00	
0.1	100.0	23.08625E-03	38.98009E 00	18.25863E-09
0.1	200.0	28.01459E-03	39.71117E 00	
0.1	400.0	33.77131E-03	40.55157E 00	
0.1	600.0	37.57751E-03	41.10727E 00	
0.1	800.0	40.49577E-03	41.53522E 00	
0.1	1000.0	42.99251E-03	41.88834E 00	30.58805E-10
0.1	2000.0	51.15010E-03	43.11675E 00	
0.1	4000.0	60.75575E-03	44.58725E 00	
0.1	6000.0	67.17318E-03	45.57756E 00	
0.1	8000.0	72.06279E-03	46.34746E 00	
0.1	10000.0	76.07853E-03	46.98645E 00	51.25140E-11
1.0	2000.0	46.93656E-03	11.19113E 00	
1.0	4000.0	56.58229E-03	12.65958E 00	
1.0	6000.0	62.96259E-03	13.64991E 00	
1.0	8000.0	67.85220E-03	14.41978E 00	
1.0	10000.0	71.86800E-03	15.05895E 00	51.25149E-11
10.0	2000.0	39.88463E-03	62.99493E-01	
10.0	4000.0	49.53030E-03	77.67937E-01	
10.0	6000.0	55.90773E-03	87.58270E-01	
10.0	8000.0	60.79734E-03	95.28142E-01	
10.0	10000.0	64.81308E-03	10.16731E 00	51.25149E-11
100.0	2000.0	26.06384E-03	41.38715E-01	
100.0	4000.0	37.70951E-03	56.07162E-01	
100.0	6000.0	44.08697E-03	65.97496E-01	
100.0	8000.0	48.97657E-03	73.67366E-01	
100.0	10000.0	52.99238E-03	80.06562E-01	51.25149E-11

TOTAL OUTGASSING

INITIAL TIME HOURS	FINAL TIME HOURS	TOTAL Q
0.1	0.1	0.0
0.1	0.2	1.68680E 01
0.1	0.3	2.28292E 01
0.1	0.4	2.59287E 01
0.1	0.5	2.78488E 01
0.1	0.6	2.91640E 01
0.1	0.7	3.01263E 01
0.1	0.8	3.08642E 01
0.1	0.9	3.14500E 01
0.1	1.0	3.19276E 01
0.1	2.0	3.42422E 01
0.1	4.0	3.56[illegible]E 01
0.1	6.0	3.62232E 01
0.1	8.0	3.65794E 01
0.1	10.0	3.68192E 01
0.1	20.0	3.74964E 01
0.1	40.0	3.81214E 01
0.1	60.0	3.84611E 01
0.1	80.0	3.87622E 01
0.1	100.0	3.89801E 01
0.1	200.0	3.97112E 01
0.1	400.0	4.05516E 01
0.1	600.0	4.11079E 01
0.1	800.0	4.15352E 01
0.1	1000.0	4.18883E 01
0.1	2000.0	4.31188E 01
0.1	4000.0	4.45872E 01
0.1	6000.0	4.55776E 01
0.1	8000.0	4.63475E 01
0.1	10000.0	4.69866E 01
1.0	2000.0	1.11511E 01
1.0	4000.0	1.26556E 01
1.0	6000.0	1.36499E 01
1.0	8000.0	1.44198E 01
1.0	10000.0	1.50850E 01
10.0	2000.0	6.29546E 00
10.0	4000.0	7.76794E 00
10.0	6000.0	8.75827E 00
10.0	8000.0	9.52814E 00
10.0	10000.0	1.01673E 01
100.0	2000.0	4.13873E 00
100.0	4000.0	5.60716E 00
100.0	6000.0	6.59756E 00
100.0	8000.0	7.36737E 00
100.0	10000.0	8.00654E 00

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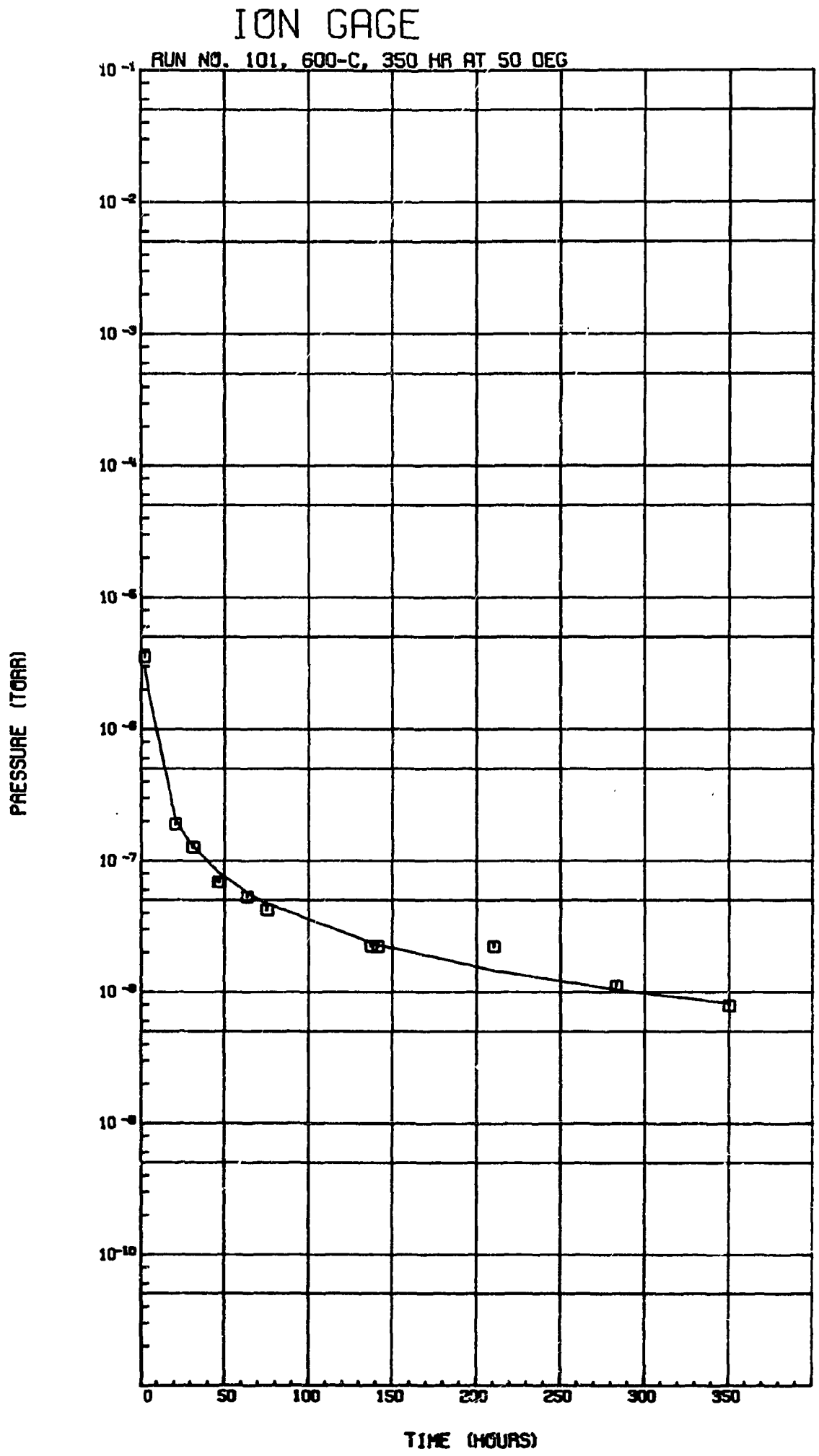
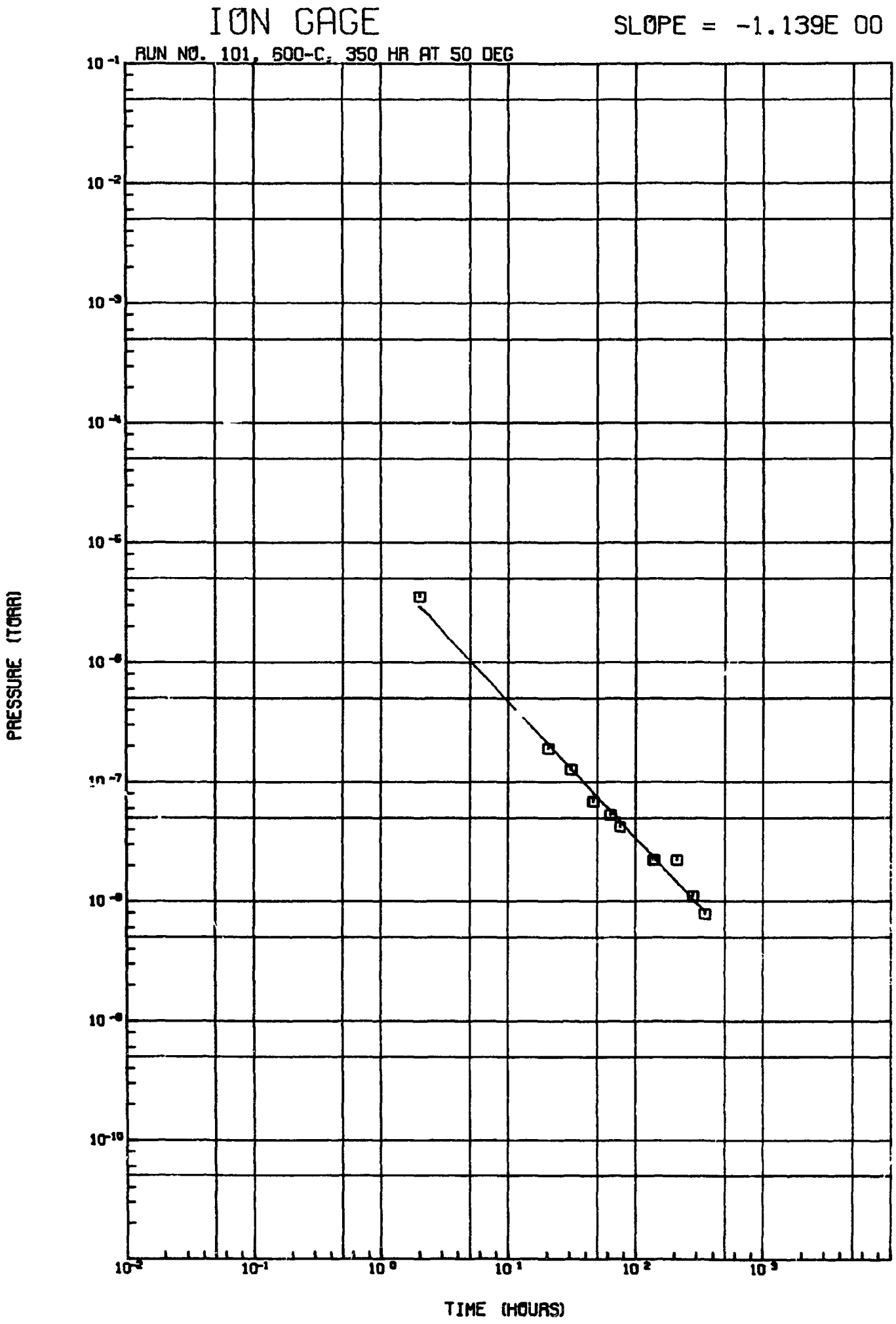
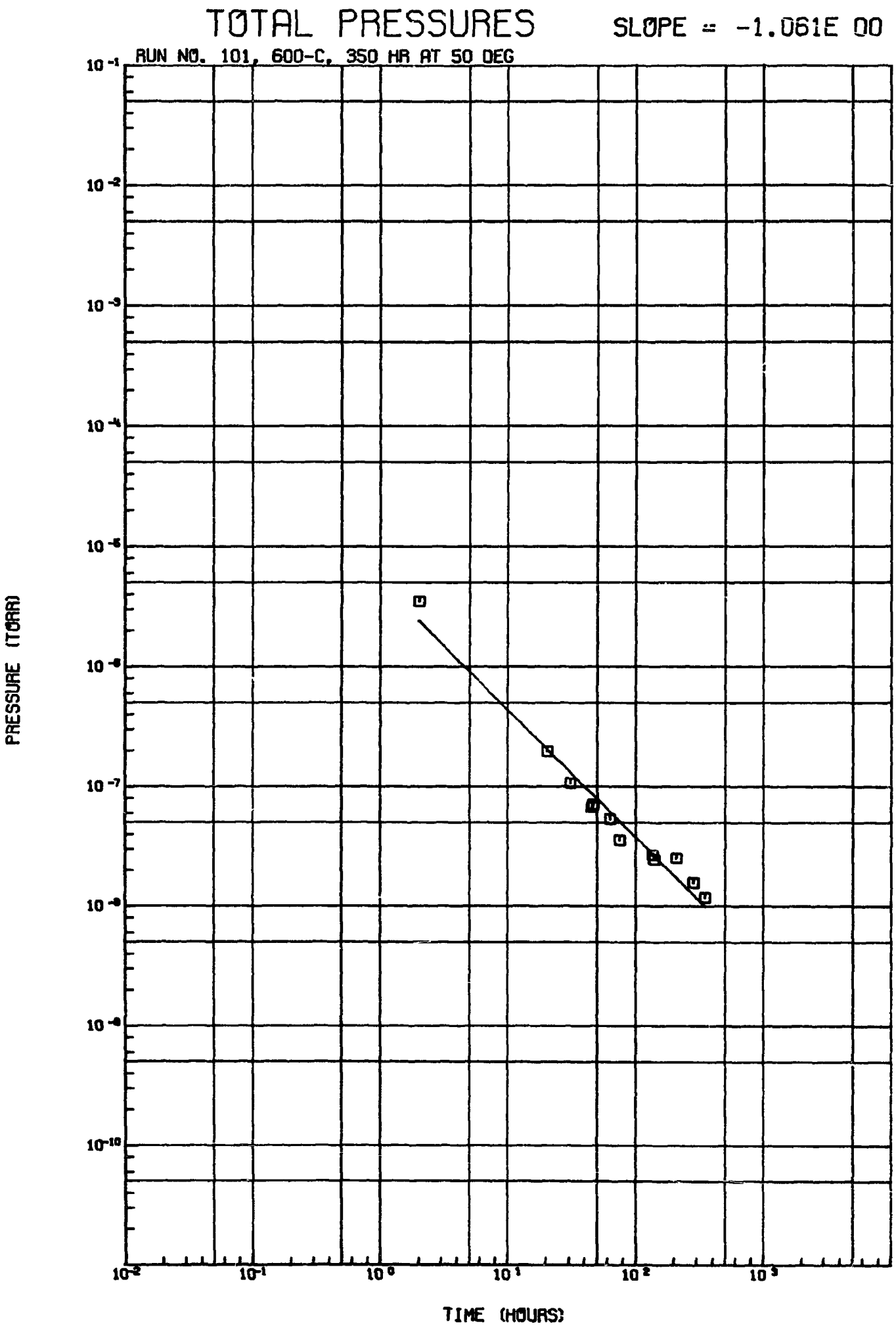
IEF285I   SYS70265.T094821.RV000.CLAE.FJOBLIB          PASSED
IEF285I   VOL SER NOS= CLIB01.
IEF285I   SYS70265.T094821.SVC00.CLAE.R0000044         SYSOUT
IEF285I   VOL SER NOS= XXXXXX.
IEF285I   SYS70265.T094821.RVC00.CLAE.FJOBLIB          DELETED
IEF285I   VOL SER NOS= CLIB01.
IEF285I   SYS70265.T094821.RVC00.CLAE.UT2C             DELETED
IEF285I   VOL SER NOS= 222222.
IEF285I   SYS70265.T094821.SVC00.CLAE.R0000045         SYSOUT
IEF285I   VOL SER NOS= RRRRRR.
IEF285I   SYS70265.T094821.RVC00.CLAE.SC000046         SYSIN
IEF285I   VOL SER NOS= YYYYYY.
IEF285I   SYS70265.T094821.RVC00.CLAE.SC000046         DELETED
IEF285I   VOL SER NOS= YYYYYY.

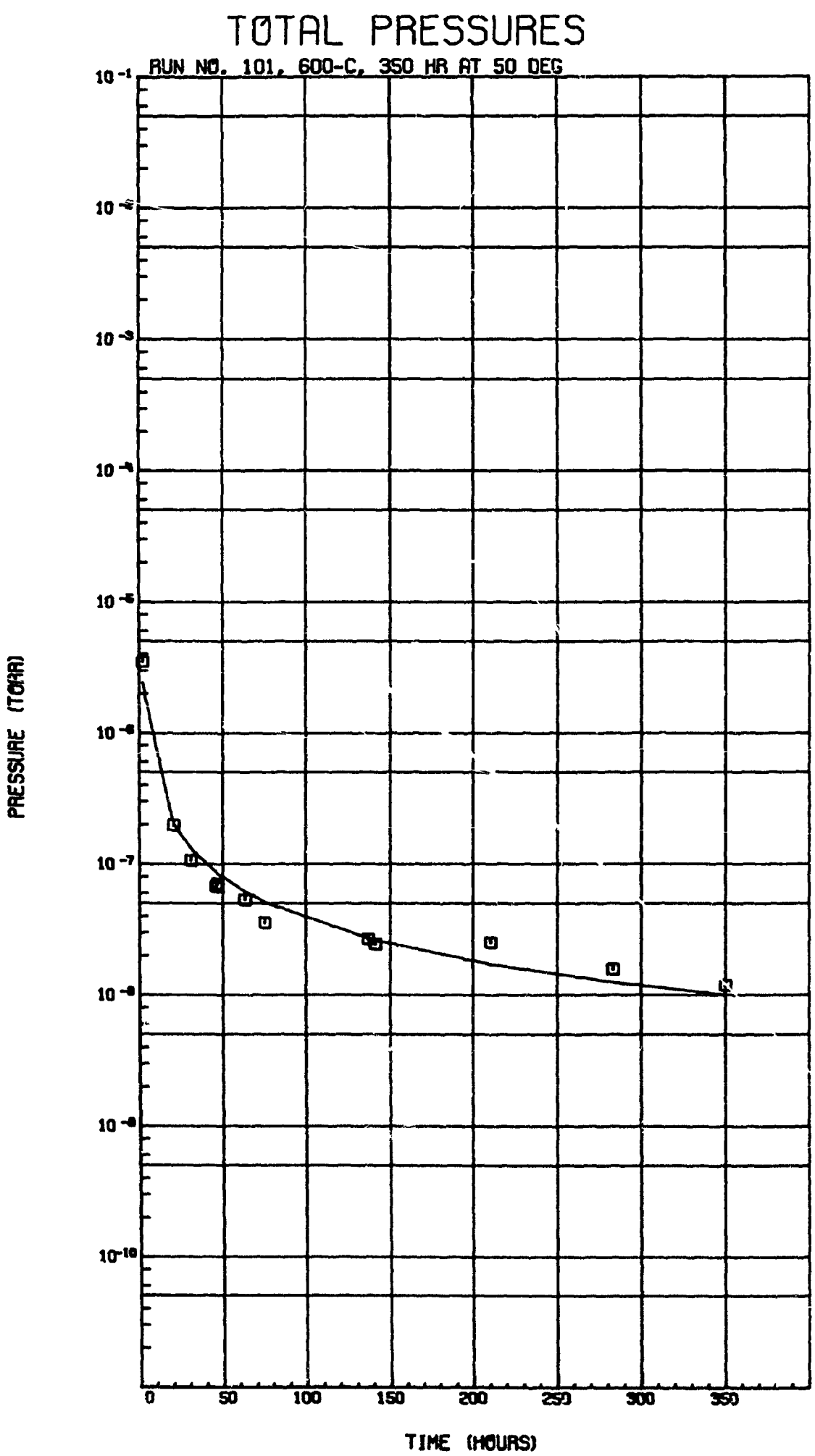
CLAE      CP                    19.50.26 10-22-70
      CPU SEC.=  269.77//     I/O REQUESTS=   139//     REGION ALLOC.= 250K//     MACH. USE SEC.=   270.67//     REGION USED= 196K

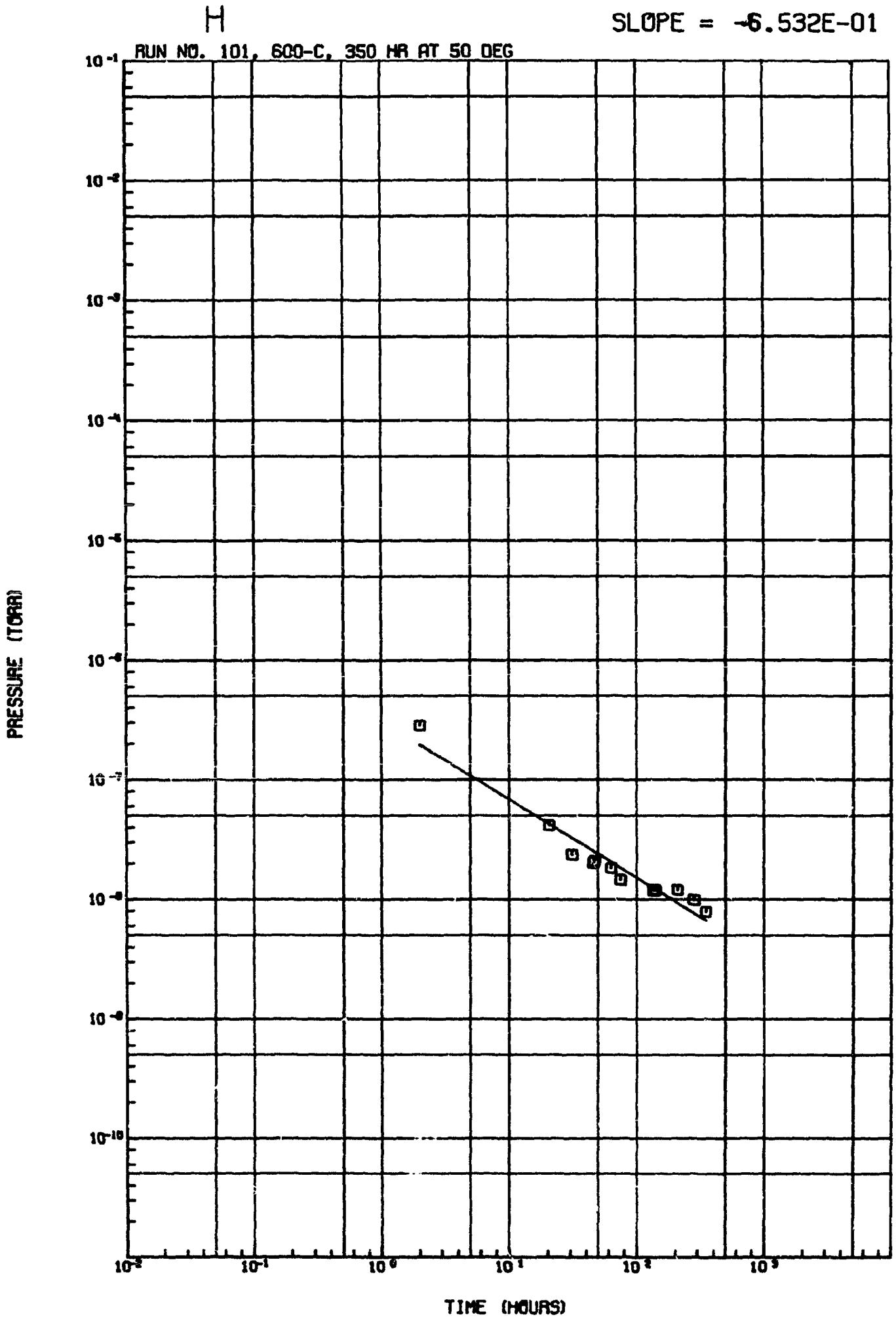
CLAE      MODEL=75 12333        19.50.26 10-22-70
TOTAL CPU SEC.=  356.78//TOTAL I/O REQUESTS=  1463//MAX. REGION ALLOC.= 470K//TOTAL MACH. USE SEC.=   268.15//MAX. REGION USED= 420K
```


ION GAGE
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -6
10 -7
10 -9
10 -8
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

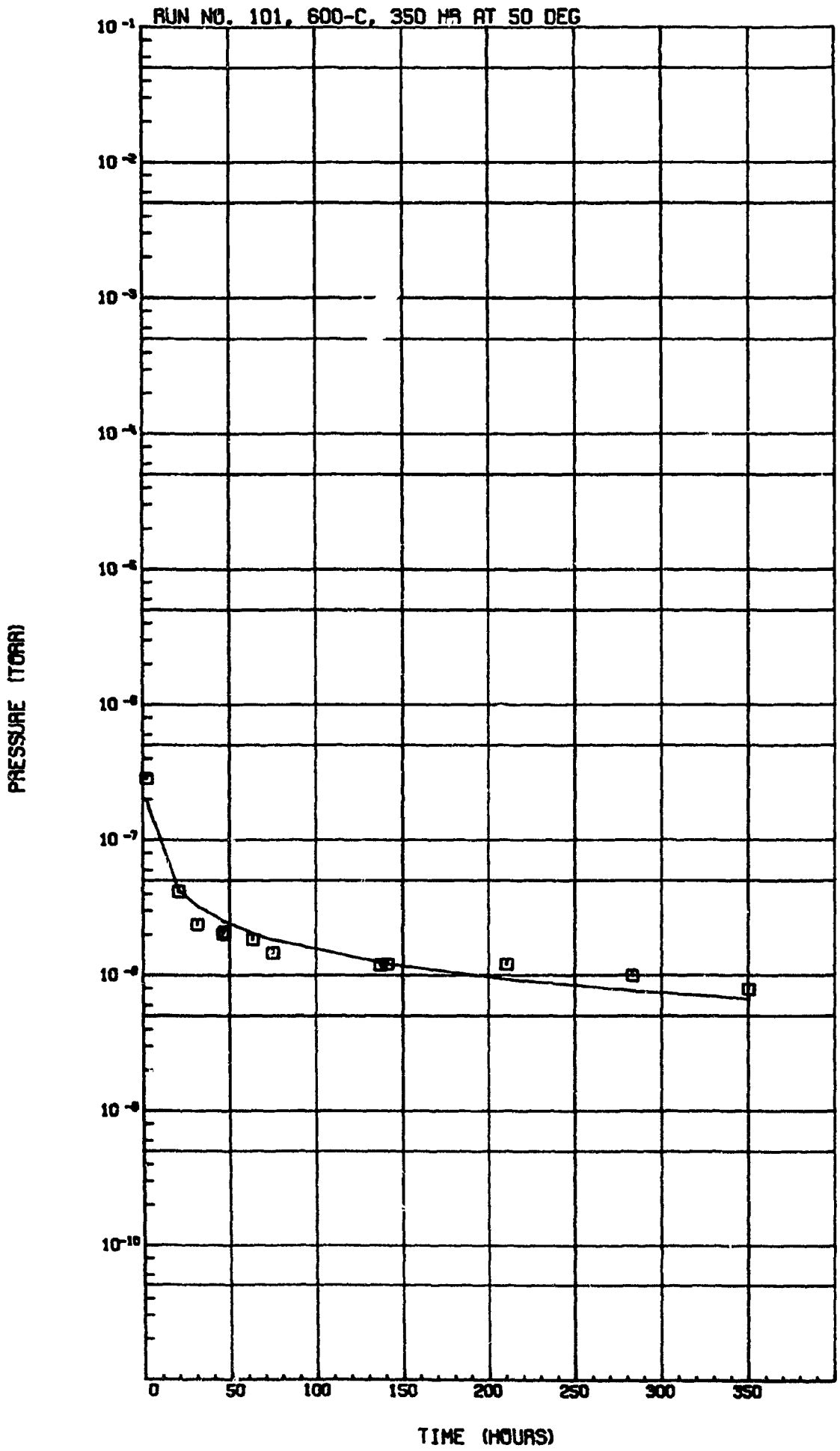

ION GAGE
SLOPE = -1.139E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

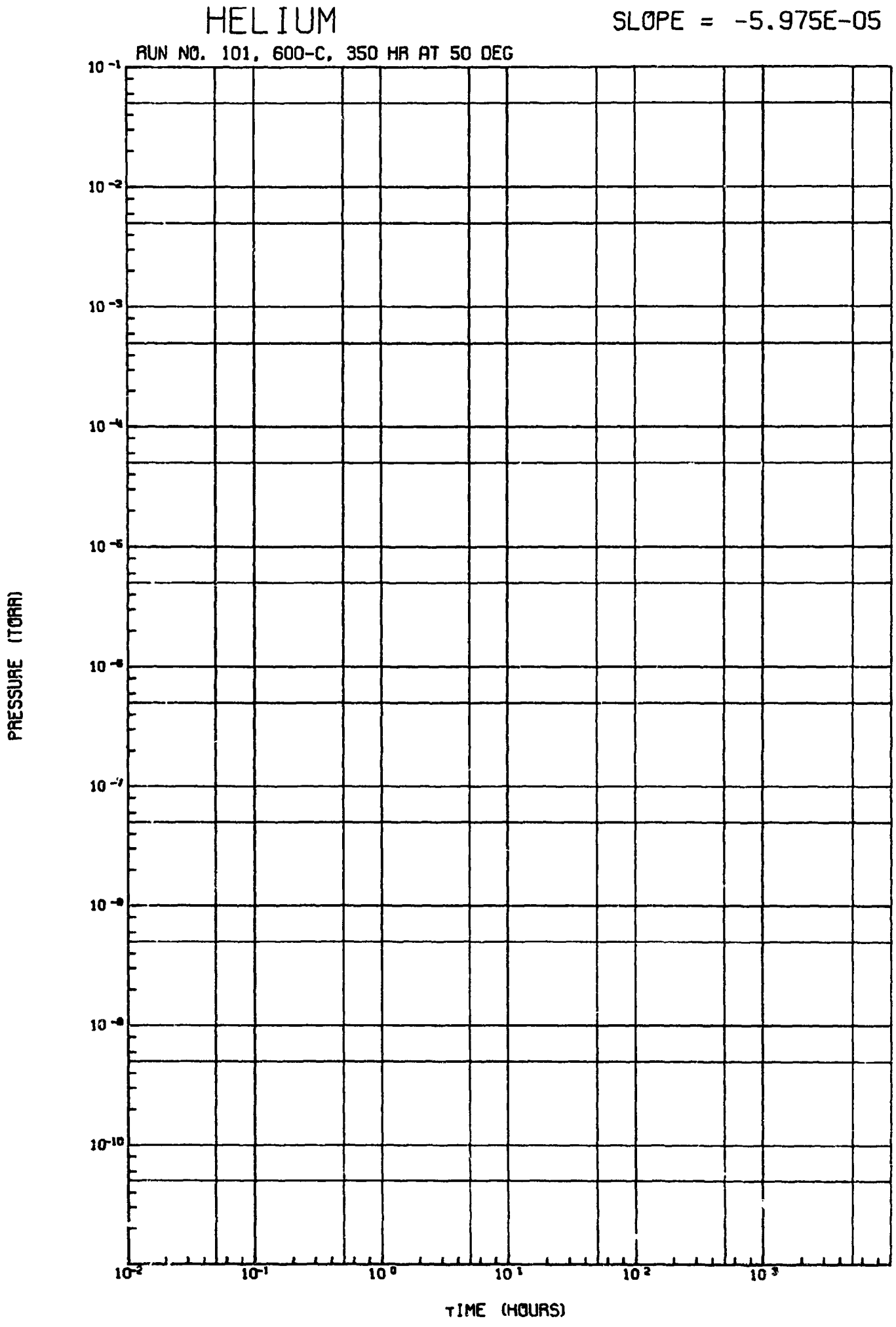

TOTAL PRESSURES
SLOPE = -1.061E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

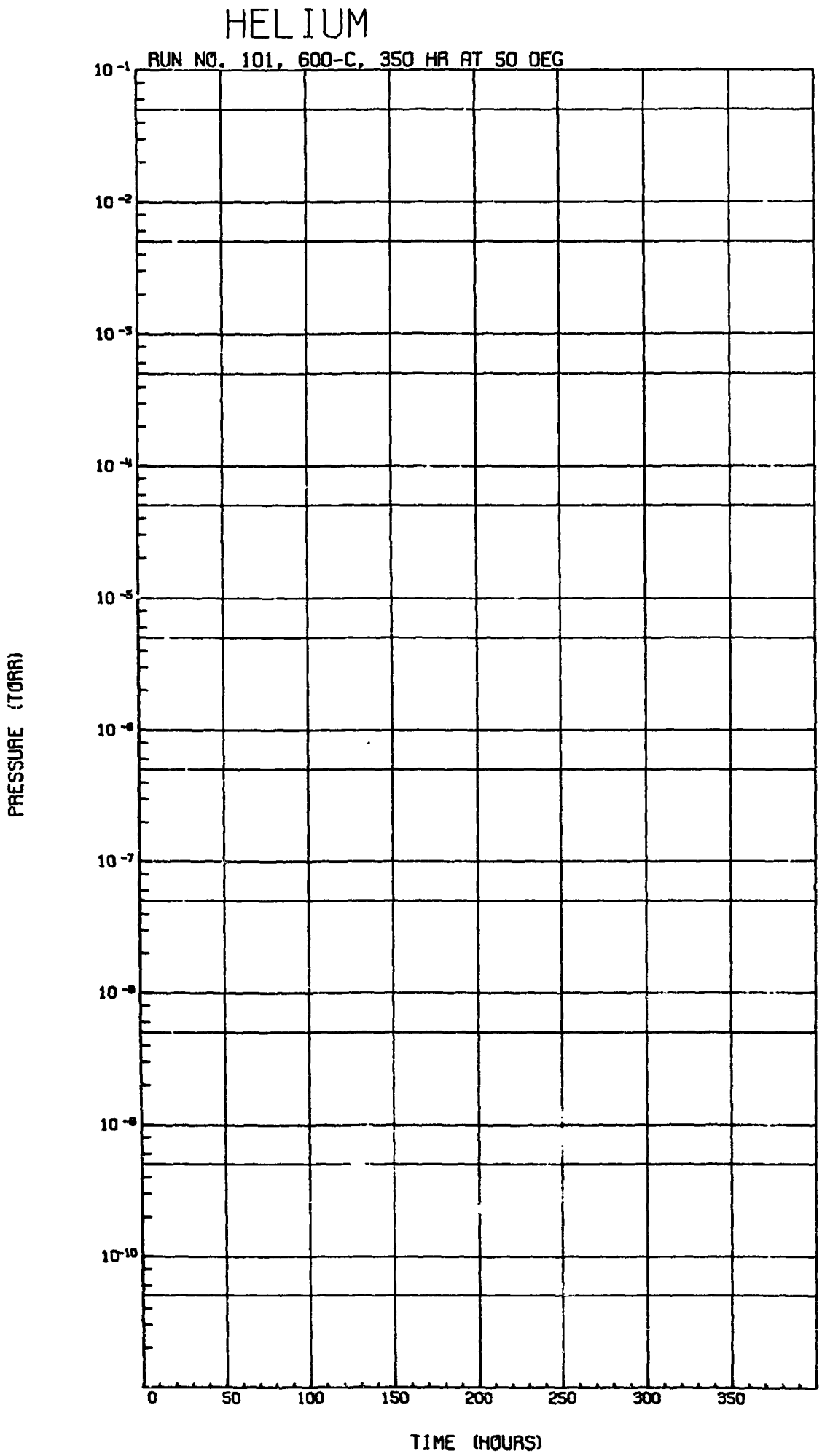

TOTAL PRESSURES
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -4
10 -5
10 -6
10 -8
10 -9
10 -10
10 -7
0
50
100
150
200
250
300
350
TIME (HOURS)

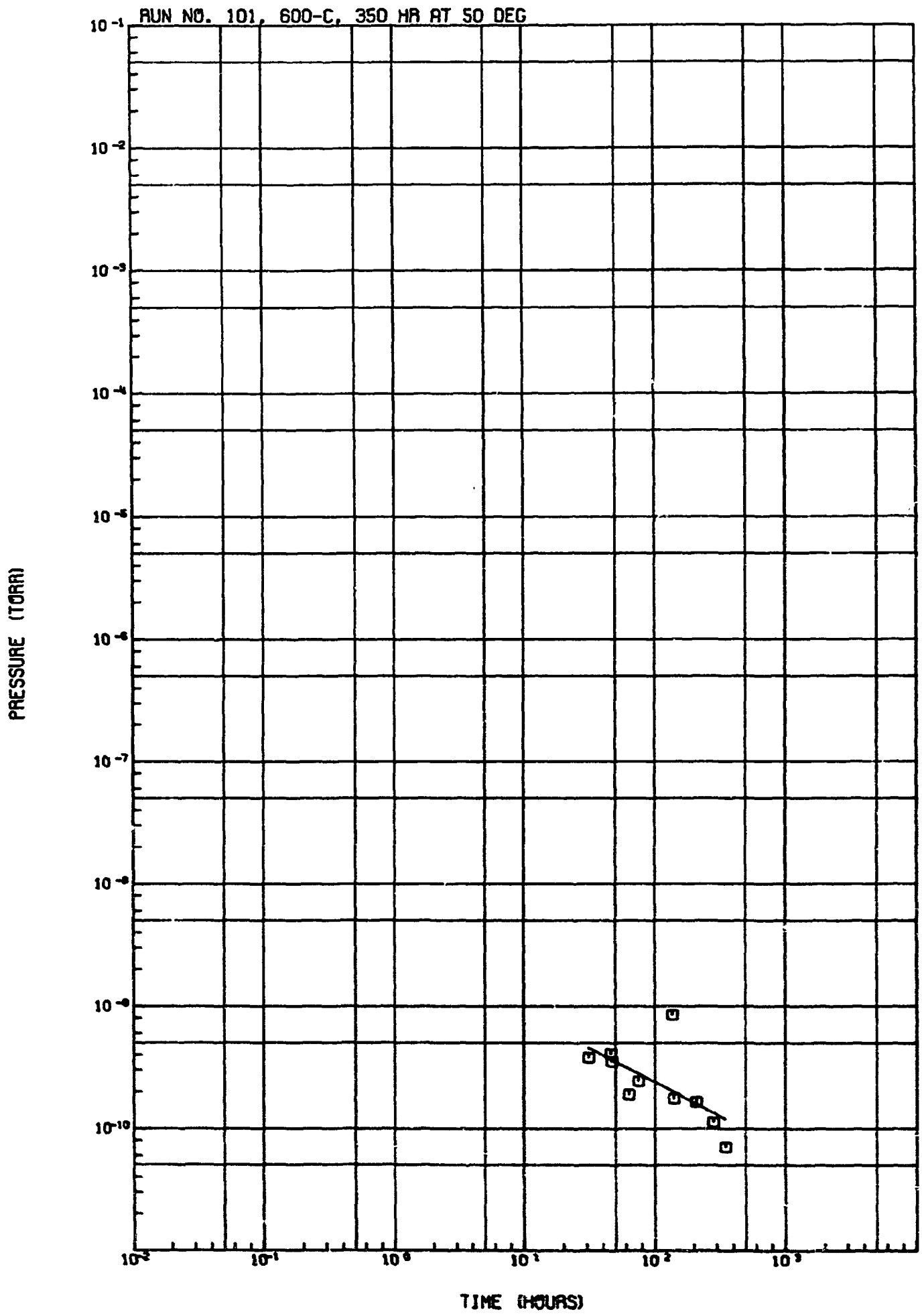

H
SLOPE = -6.532E-01
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

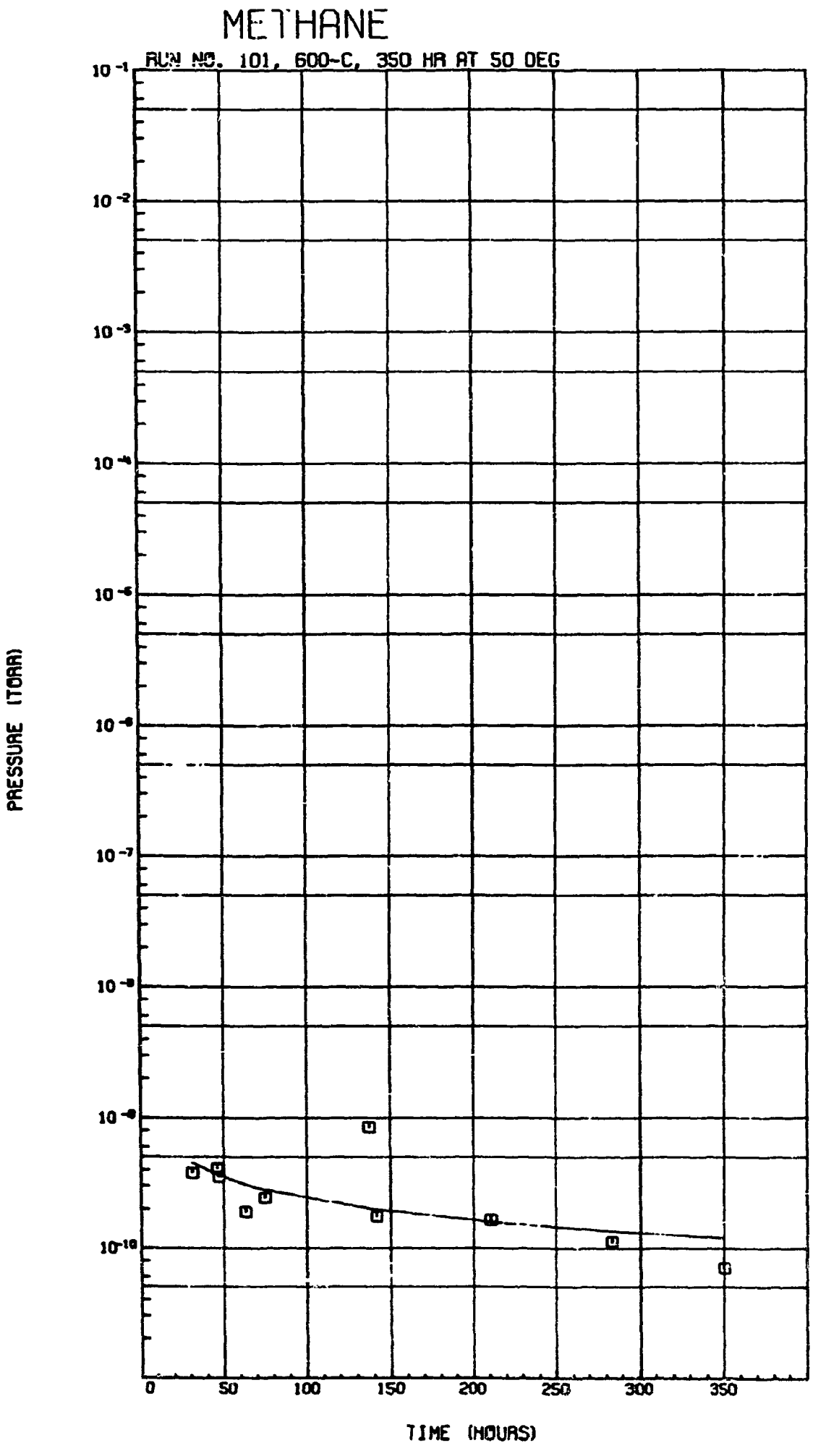
H

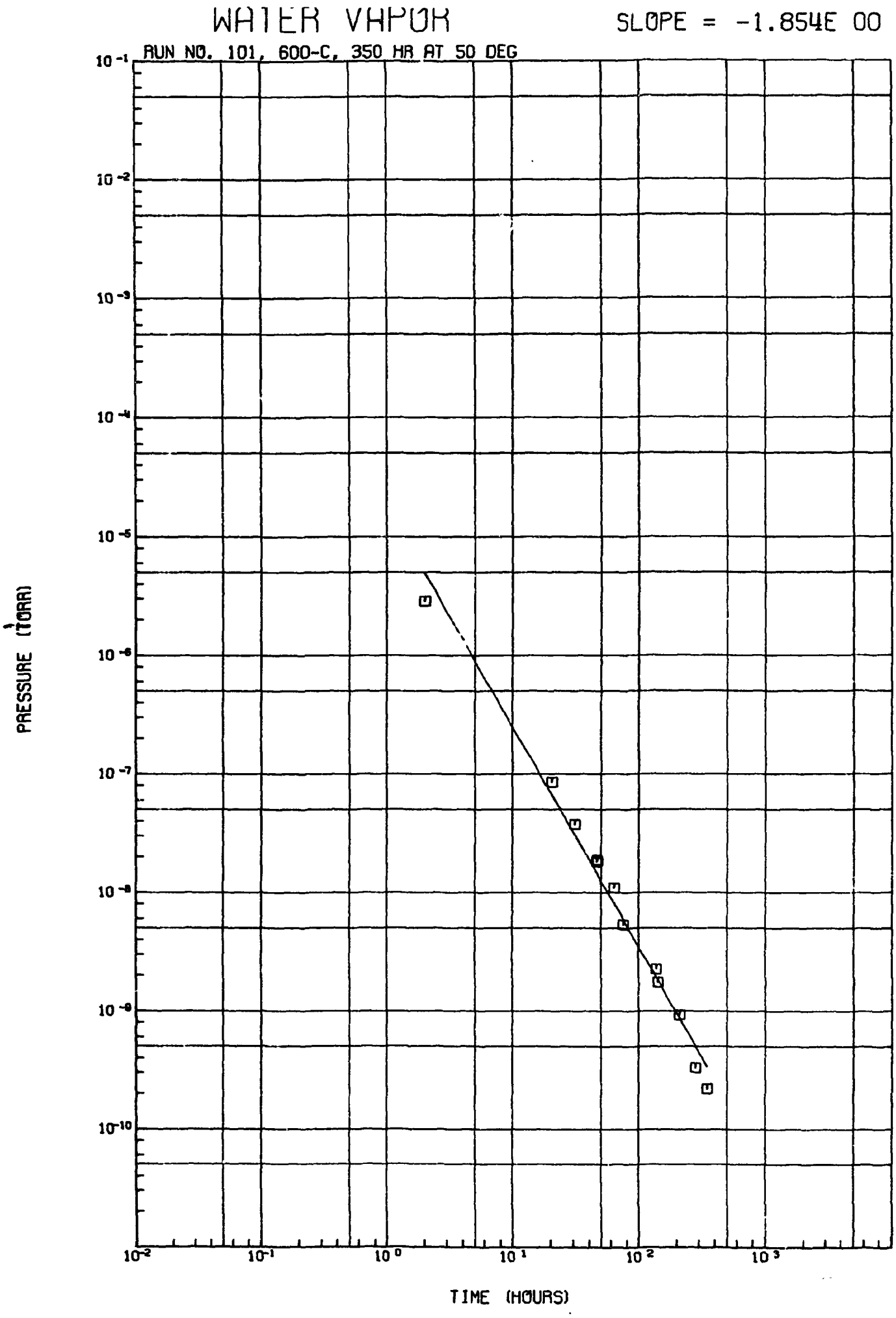

RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

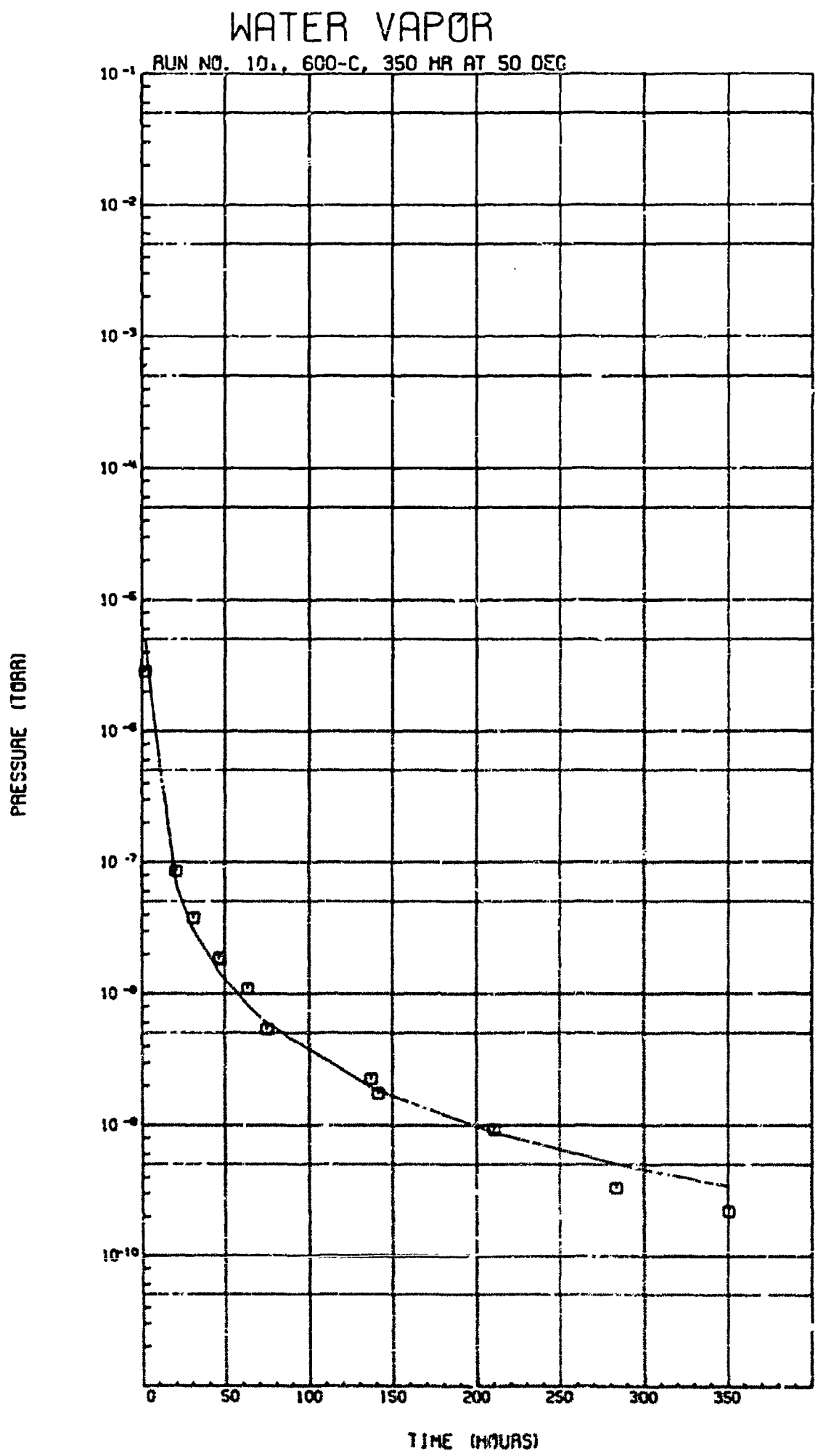

HELIUM
SLØPE = -5.975E-05
RUN NØ. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TØRR)
TIME (HOURS)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10 -10
10 -2
10 -1
10 0
10 1
10 2
10 3

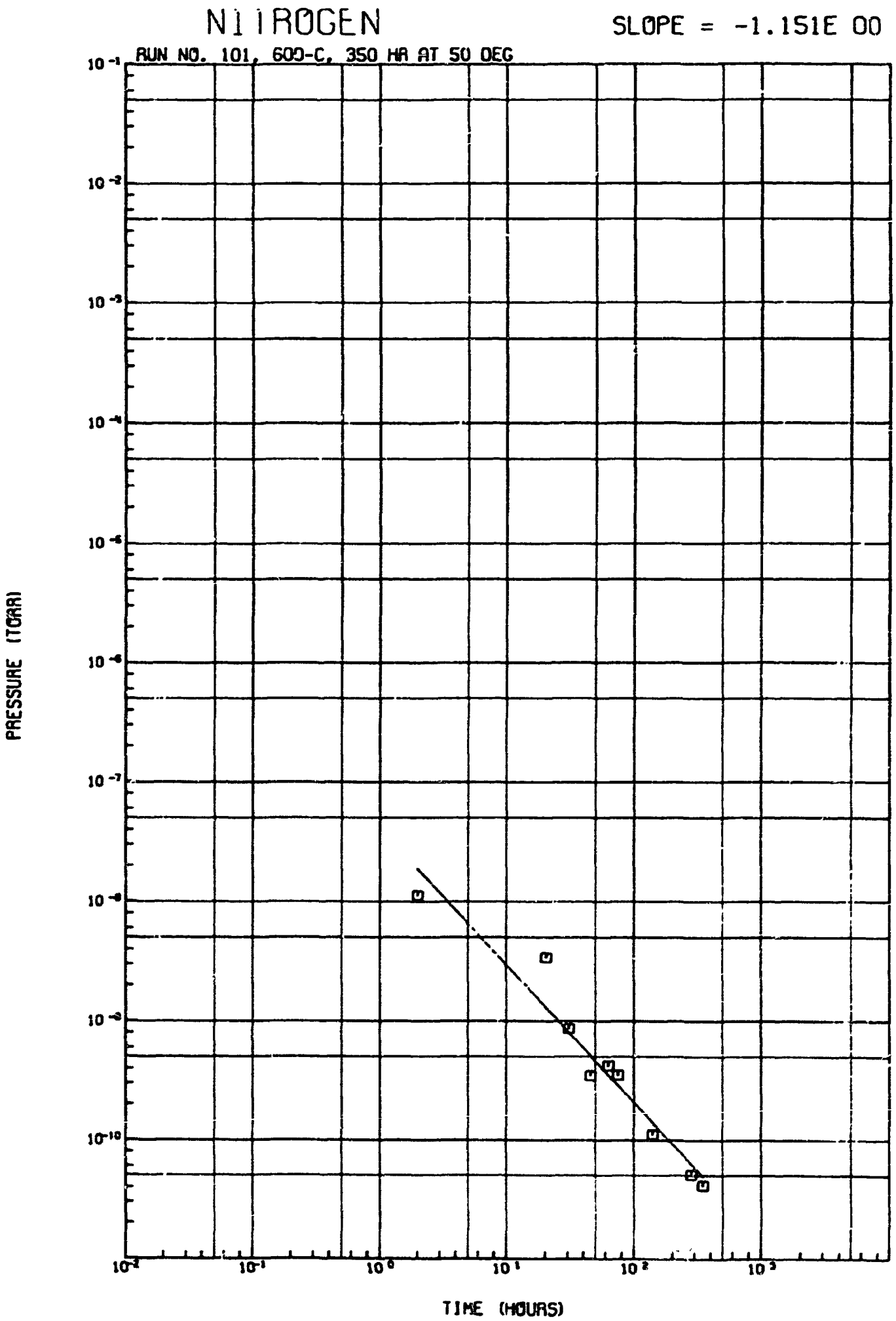

HELIUM
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

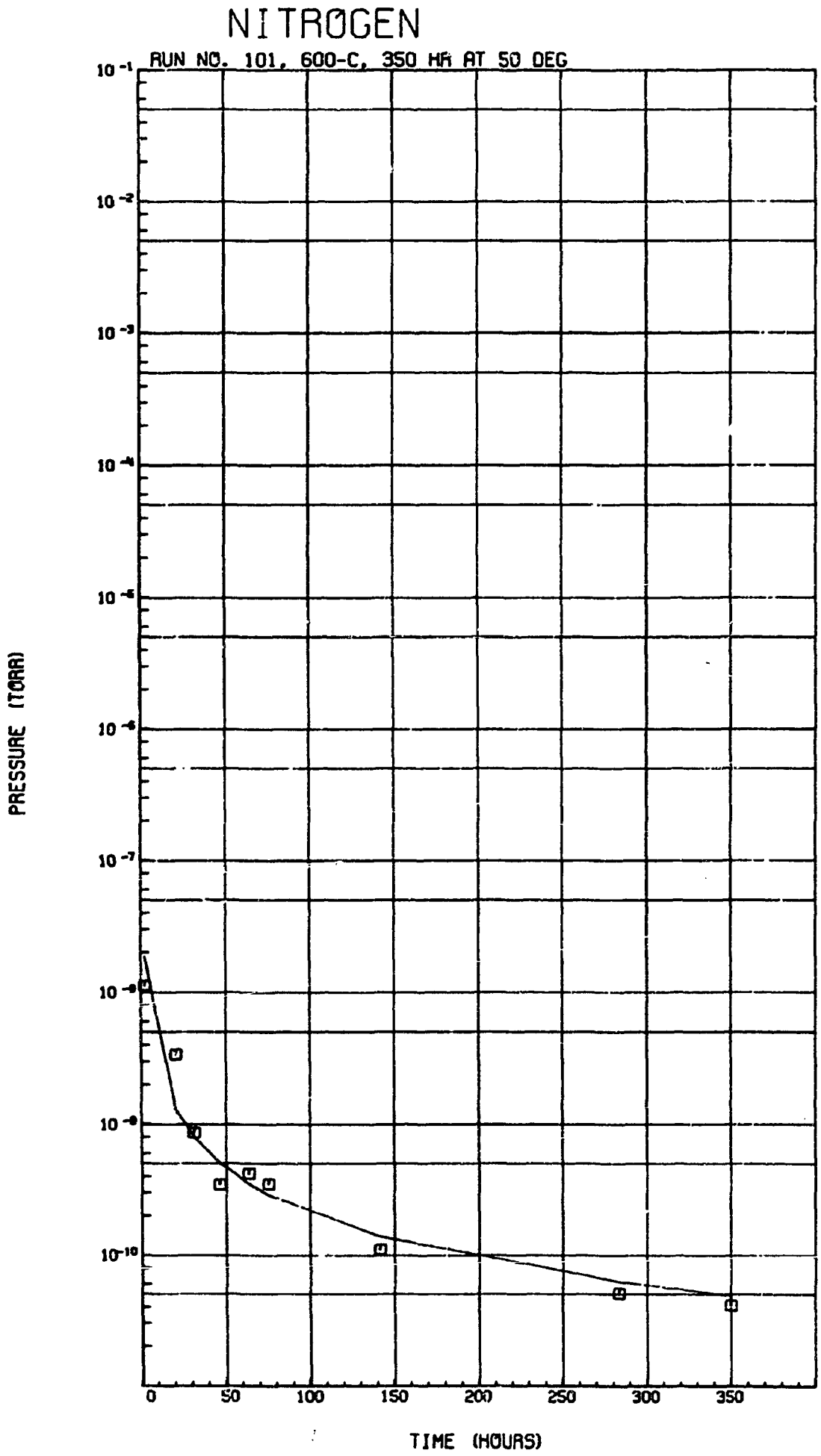

METHANE
SLOPE = -5.498E-01
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

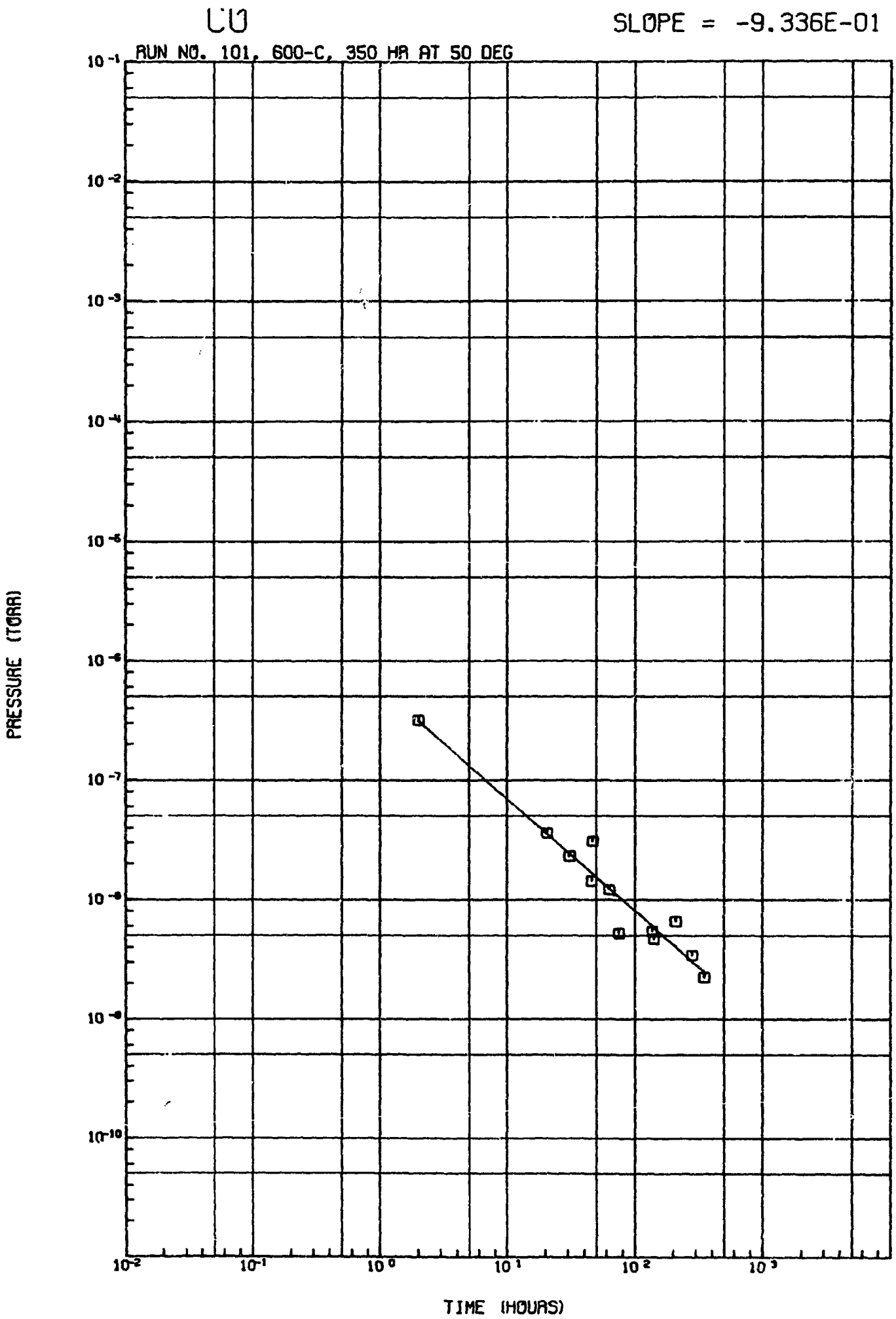

METHANE
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10 -10
0
50
100
150
200
250
300
350
TIME (HOURS)

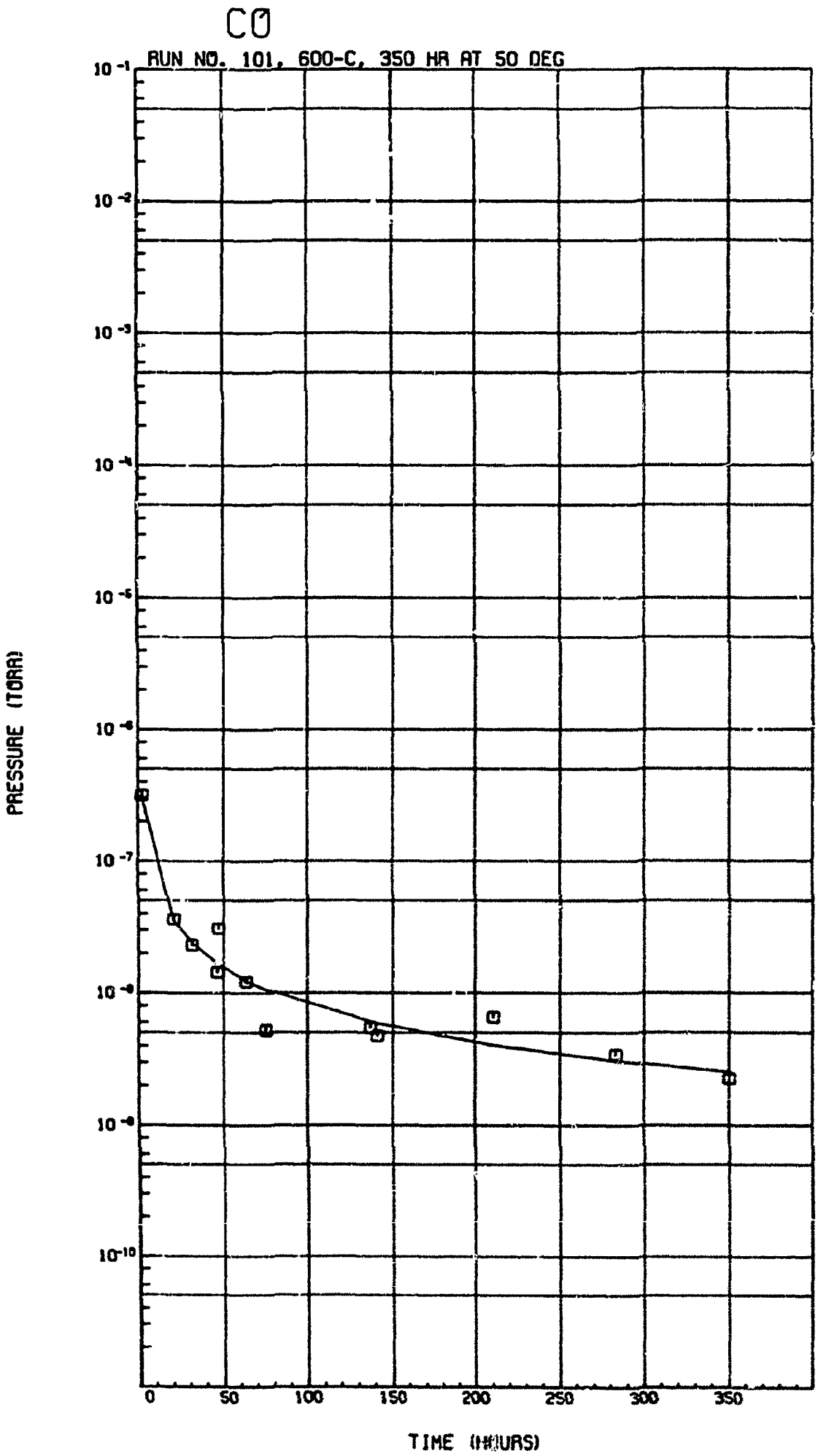

WATER VAPOR
SLOPE = -1.854E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
10-2
10-1
10 0
10 1
10 2
10 3

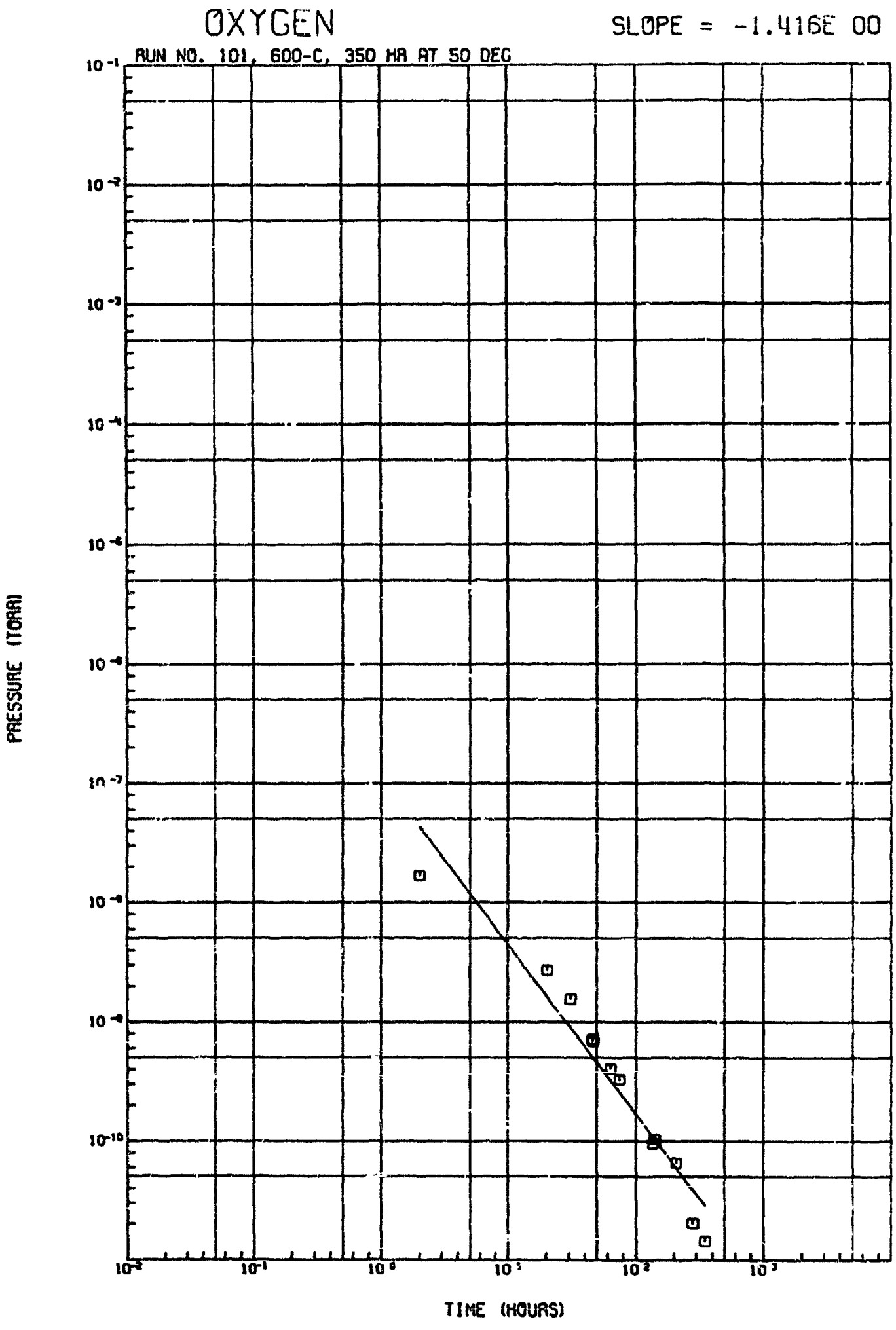

WATER VAPOR
RUN NO. 10., 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

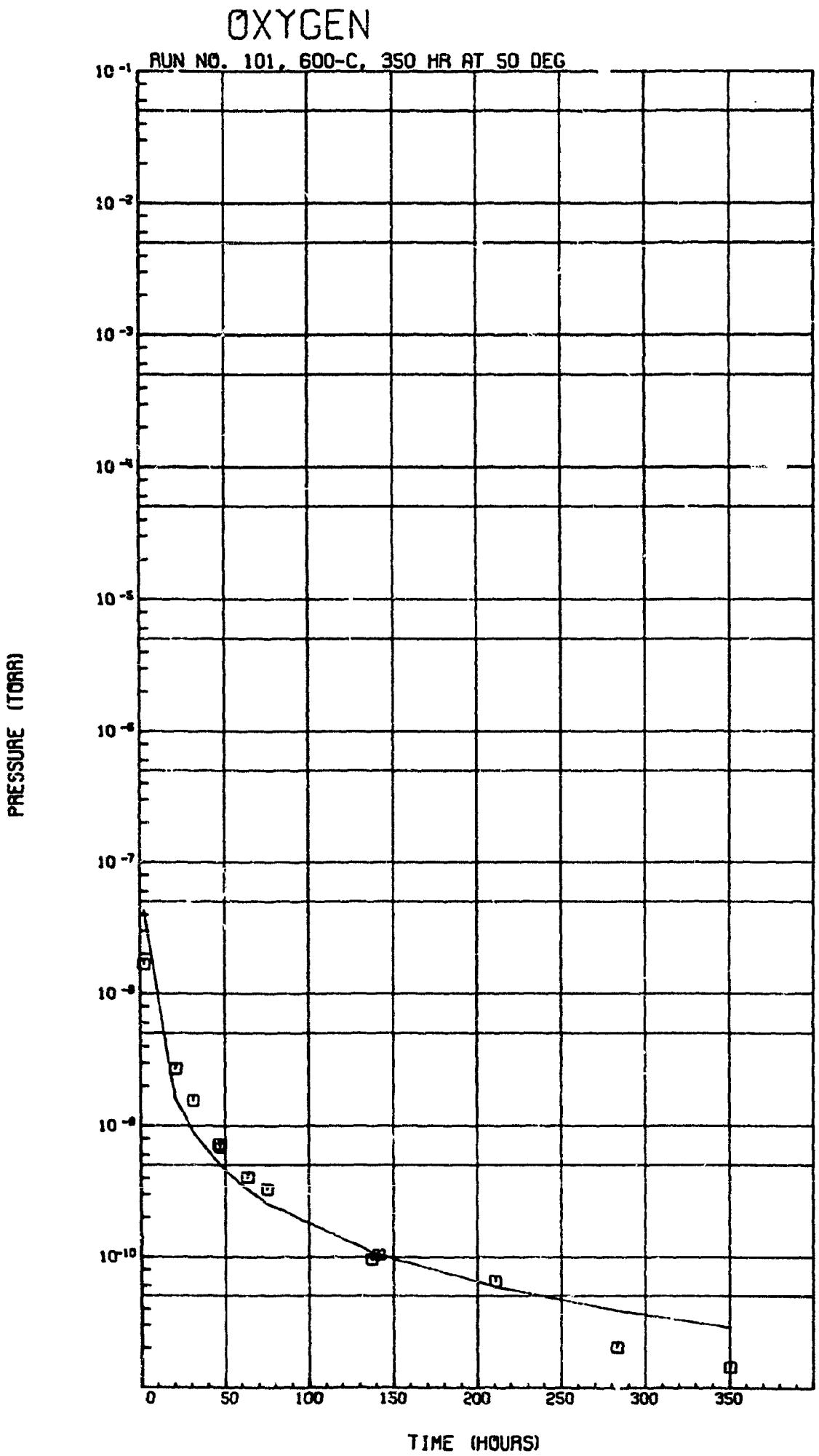

NITROGEN
SLOPE = -1.151E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

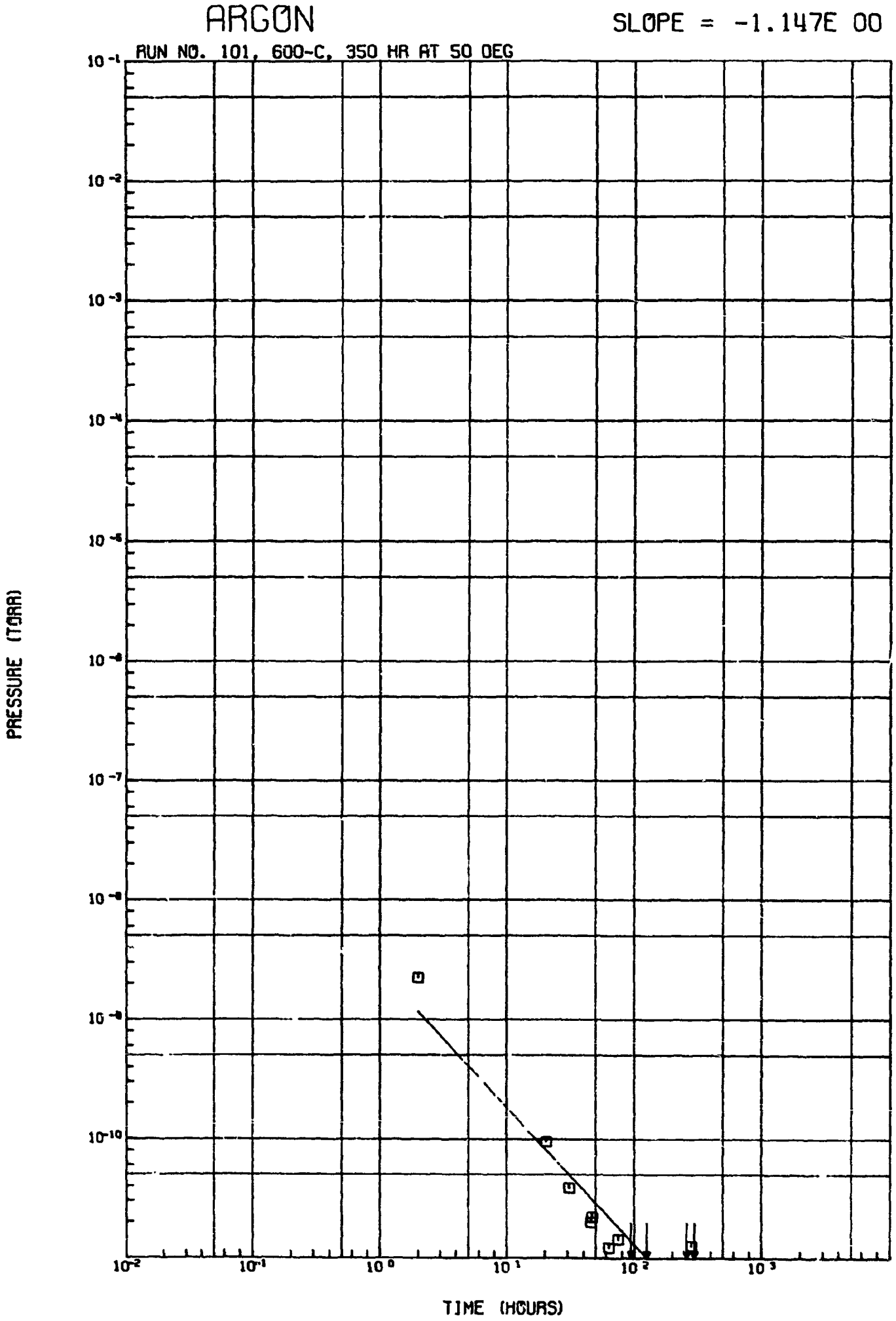

NITROGEN
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

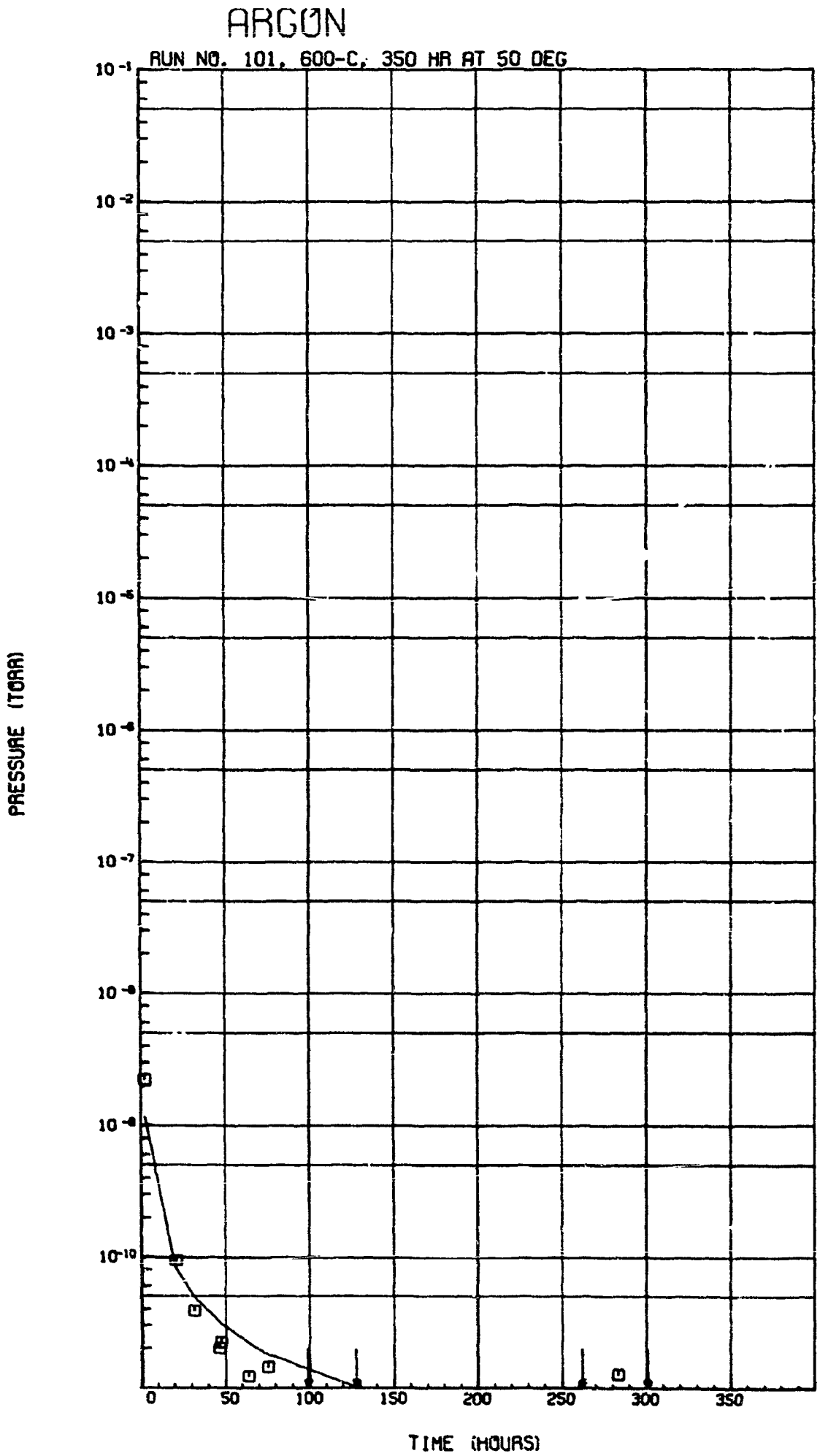

CO
SLOPE = -9.336E-01
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

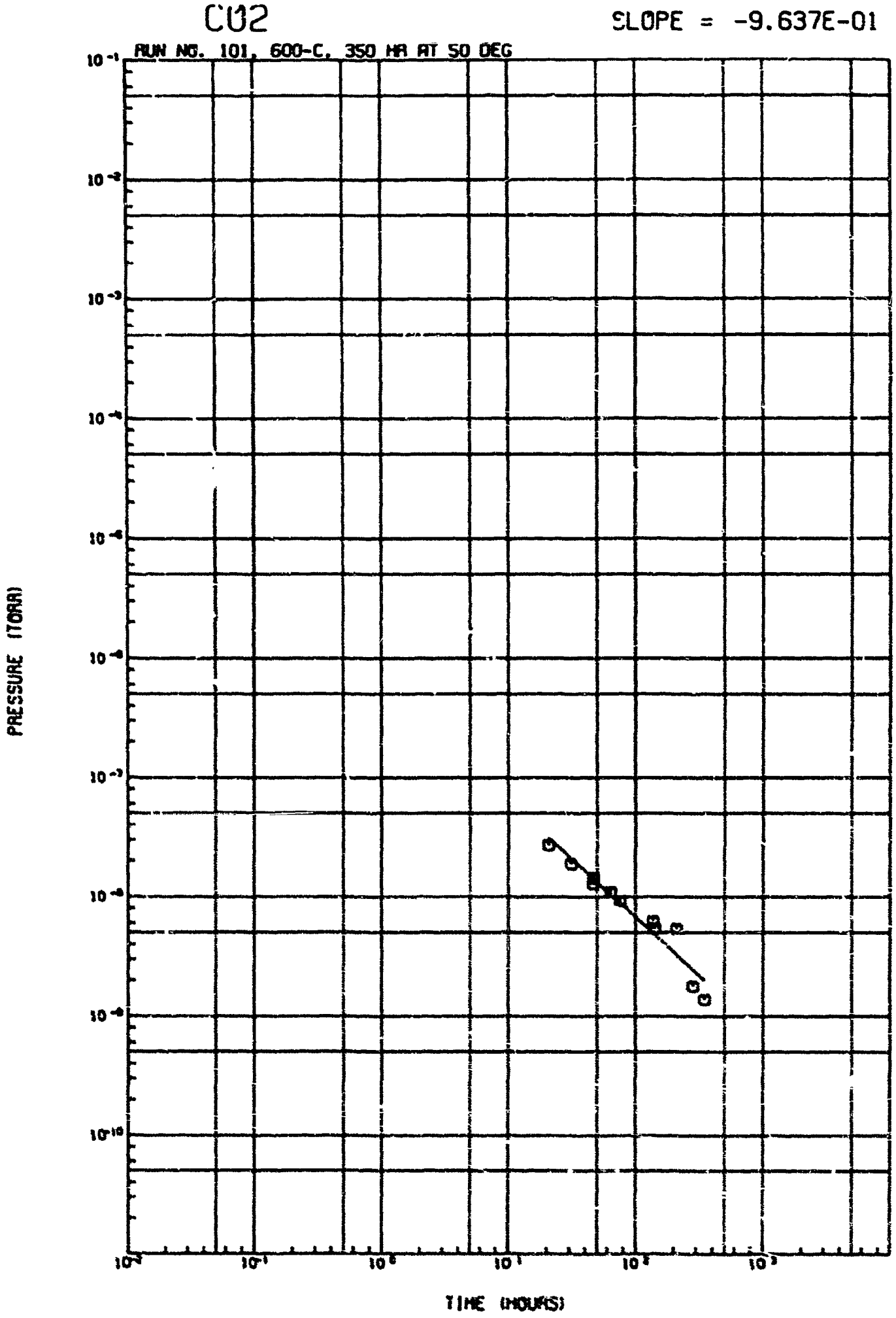

CO
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

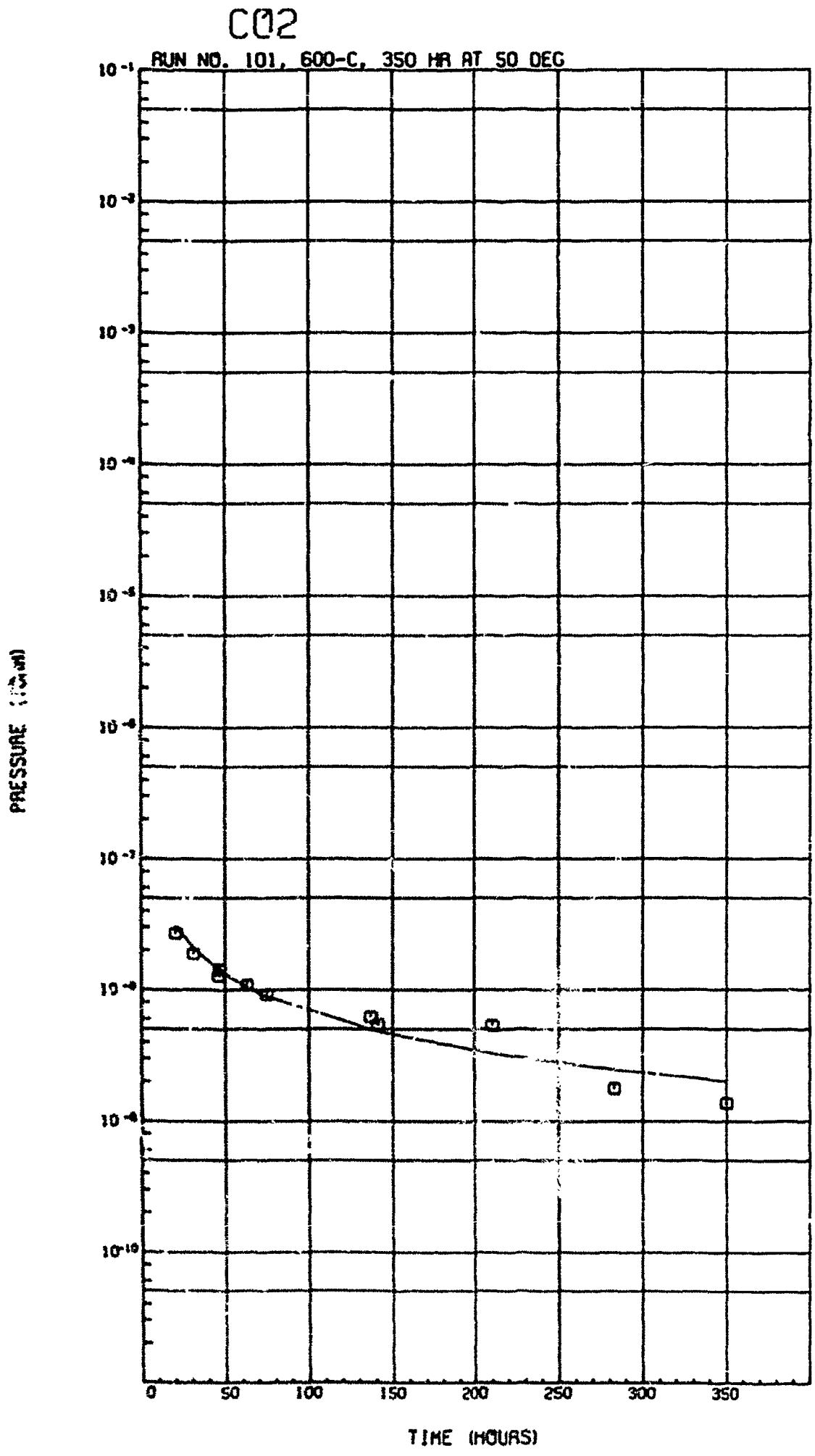

OXYGEN
SLOPE = -1.416E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

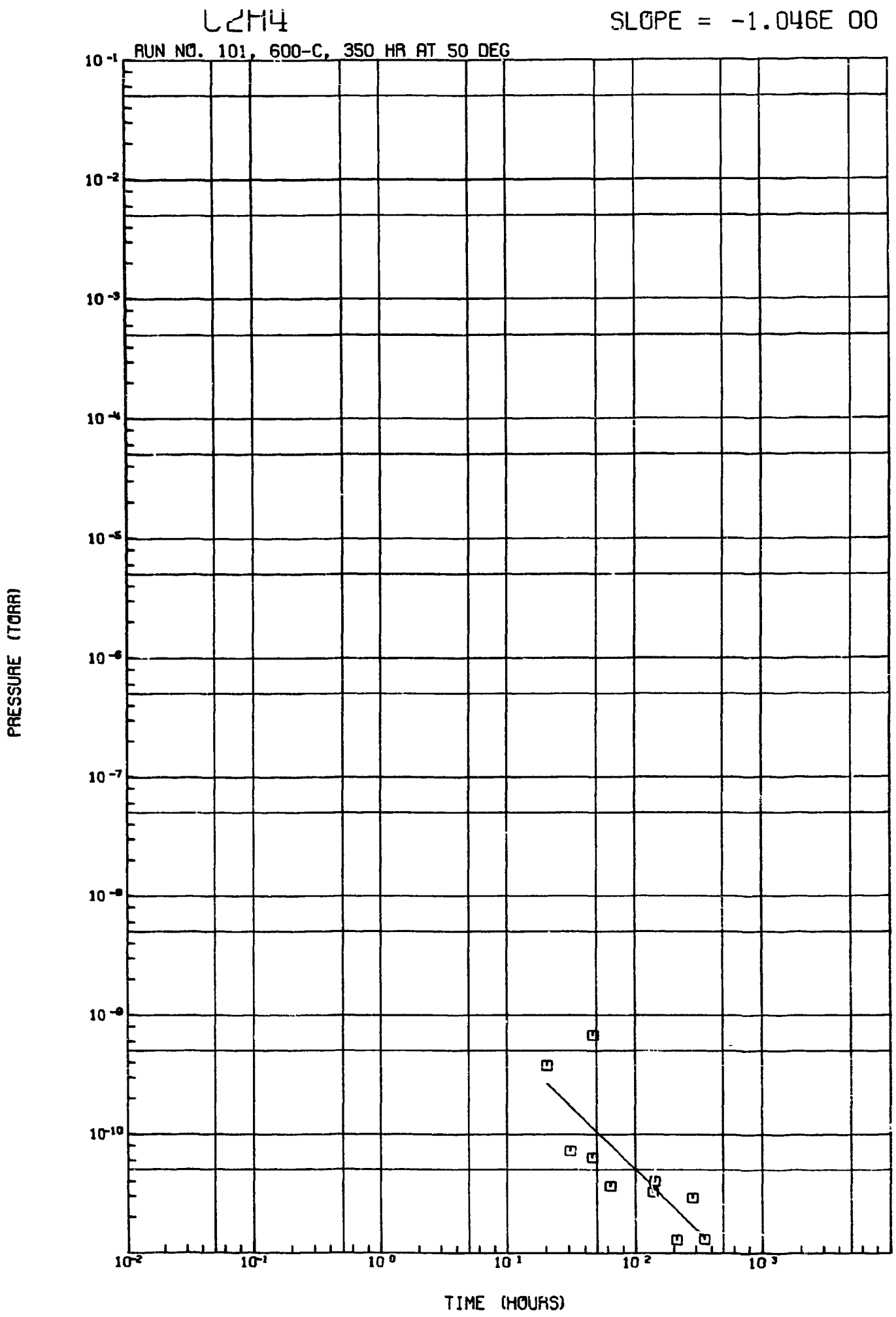

OXYGEN
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

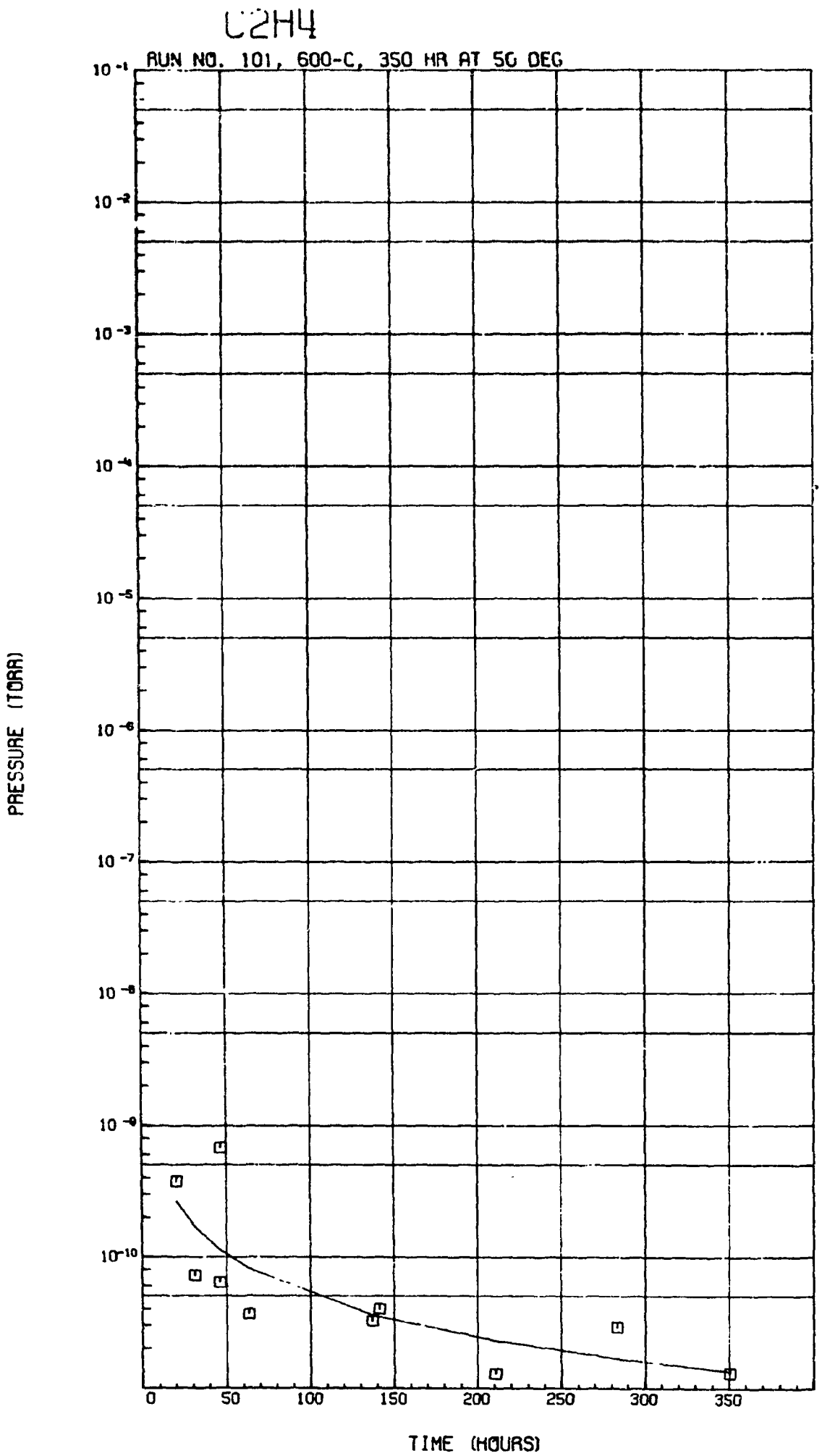

ARGON
SLOPE = -1.147E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)
10 -1
10 -2
10 -3
10 -4
10 -6
10 -7
10 -8
10 -9
10-10
10-2
10-1
10 0
10 1
10 2
10 3

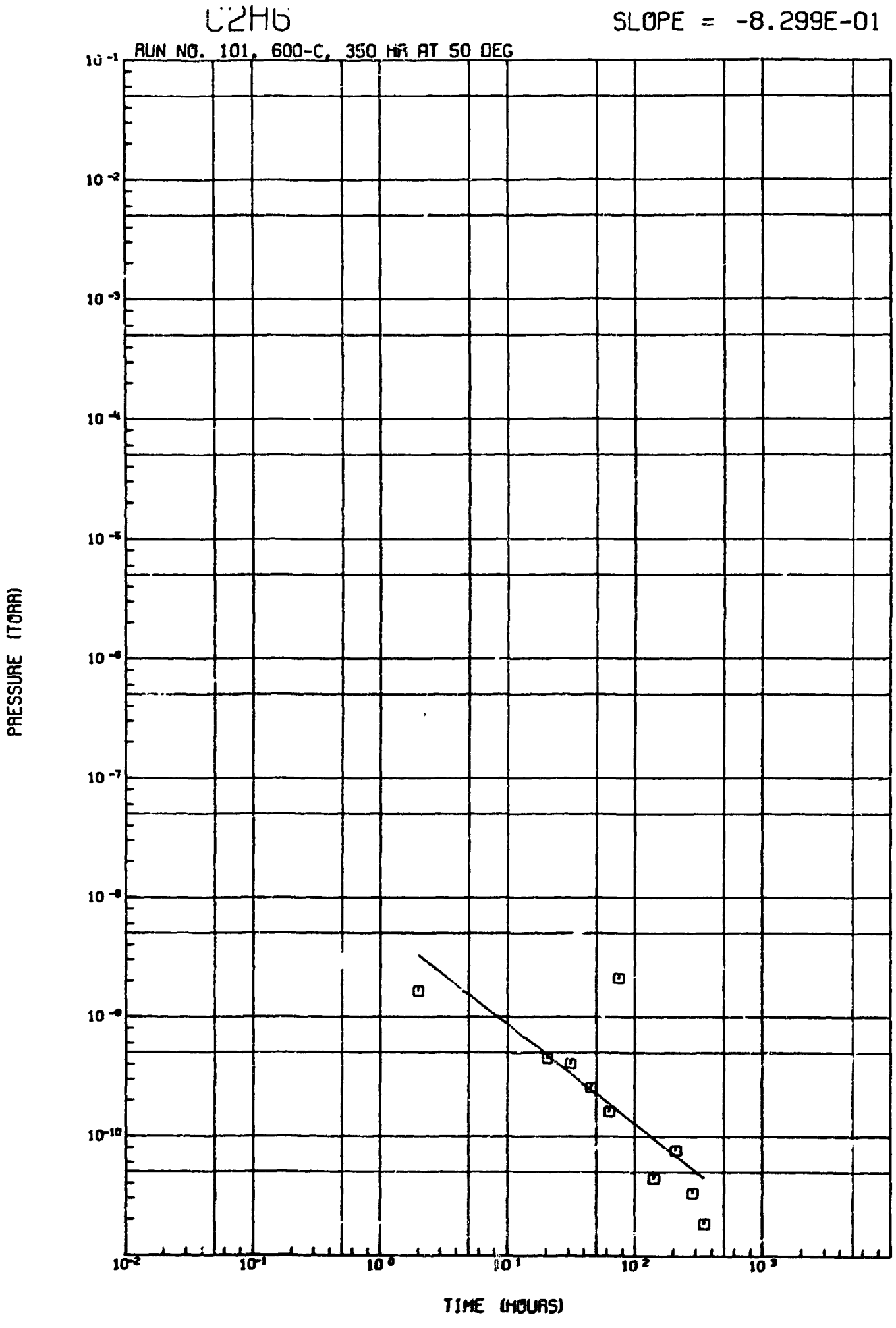

ARGON
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

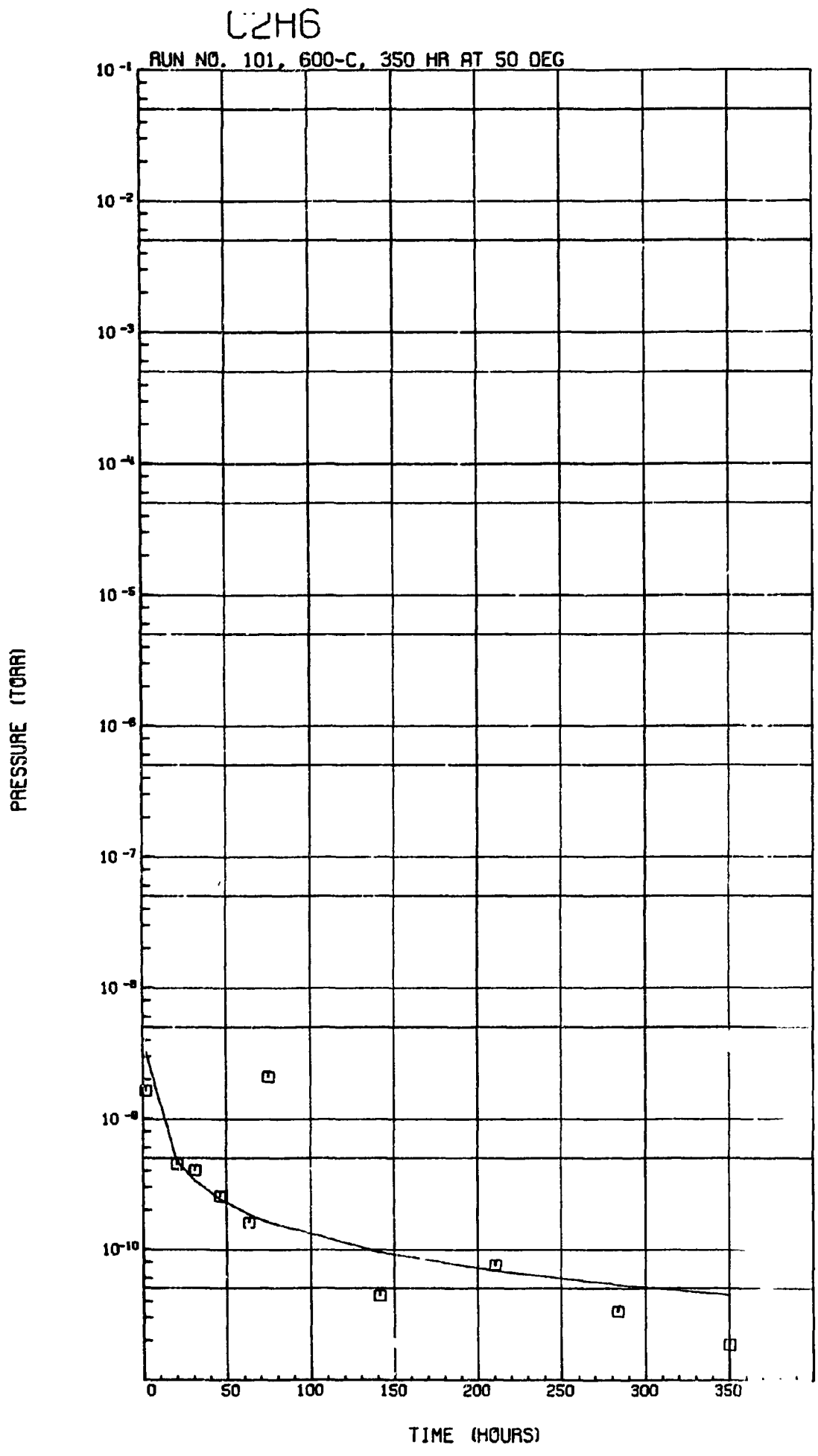

C02
SLOPE = -9.637E-01
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

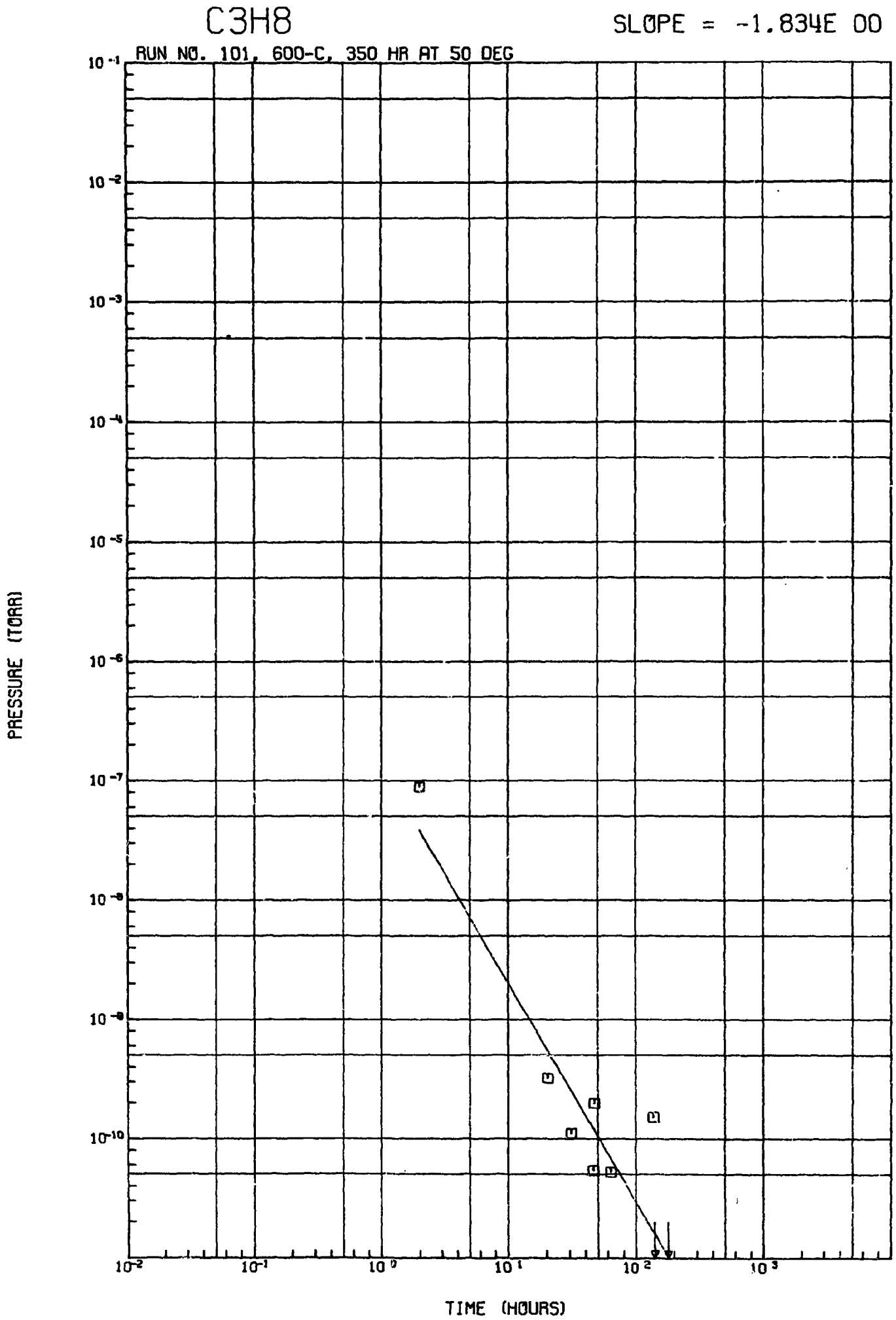

C02
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (mm Hg)
10⁻¹
10⁻²
10⁻³
10⁻⁴
10⁻⁵
10⁻⁶
10⁻⁷
10⁻⁸
10⁻⁹
10⁻¹⁰
0
50
100
150
200
250
300
350
TIME (HOURS)

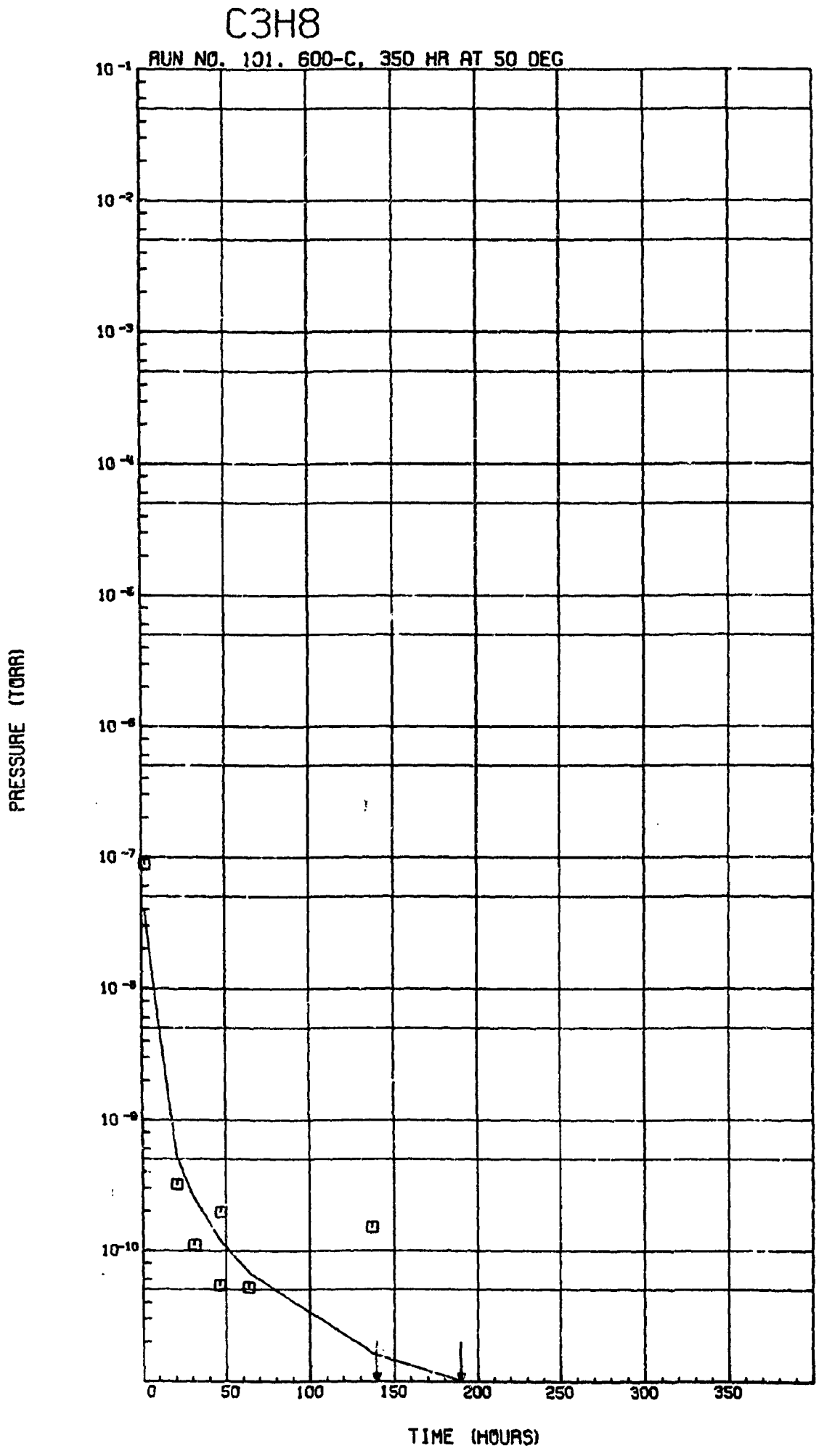

L2H4
SLOPE = -1.046E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
10-2
10-1
10 0
10 1
10 2
10 3

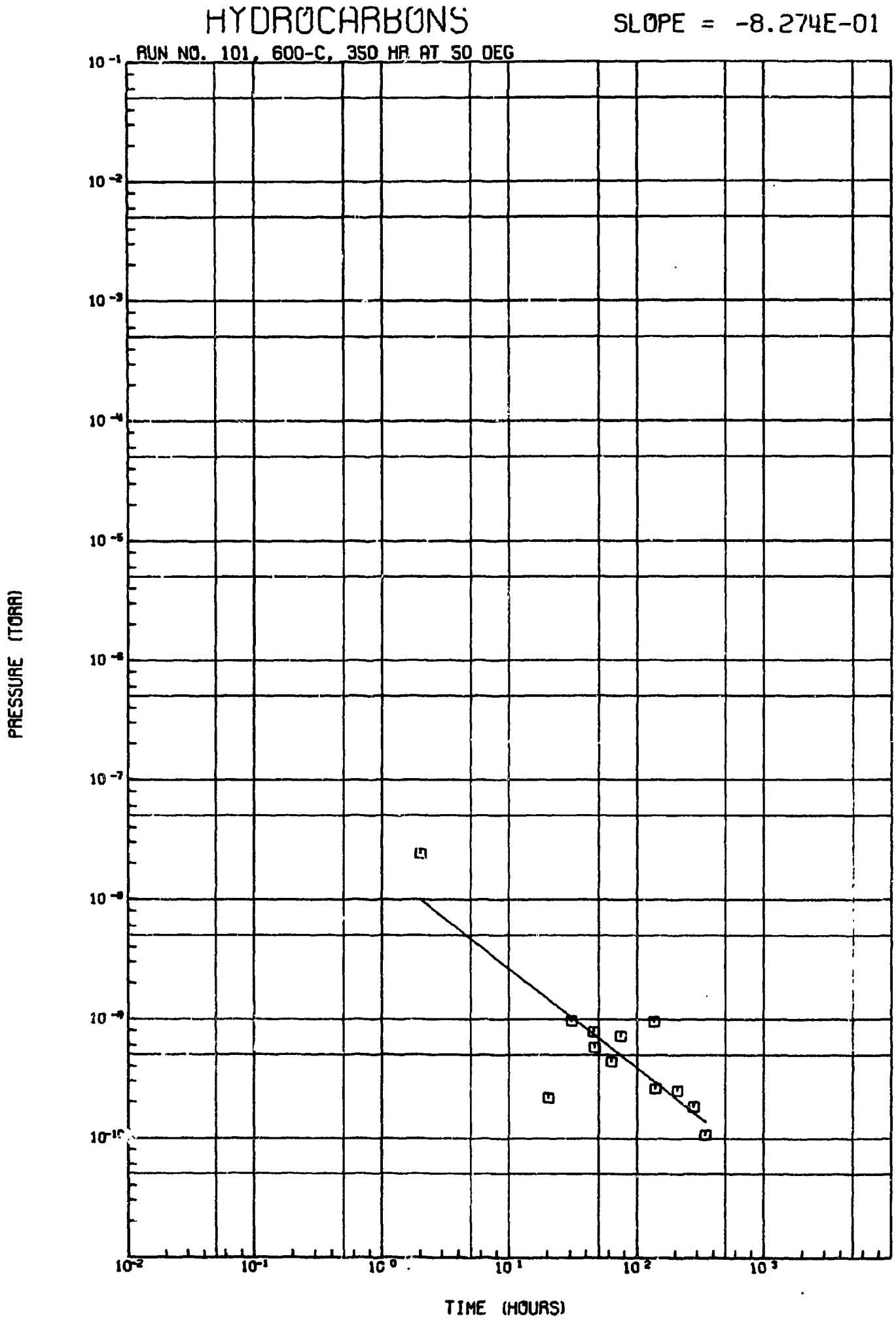

C2H4
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

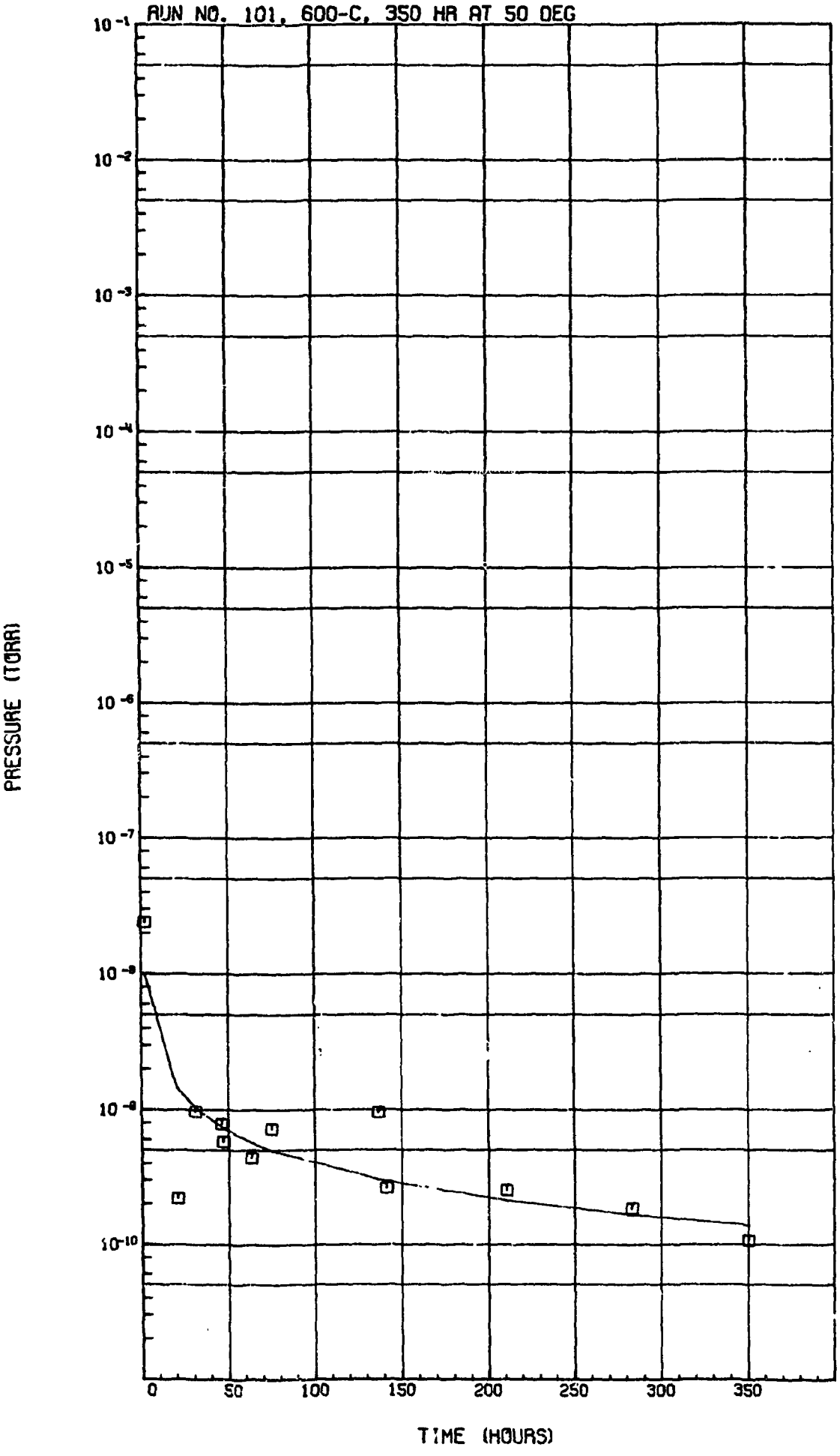

C2H6
SLOPE = -8.299E-01
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)

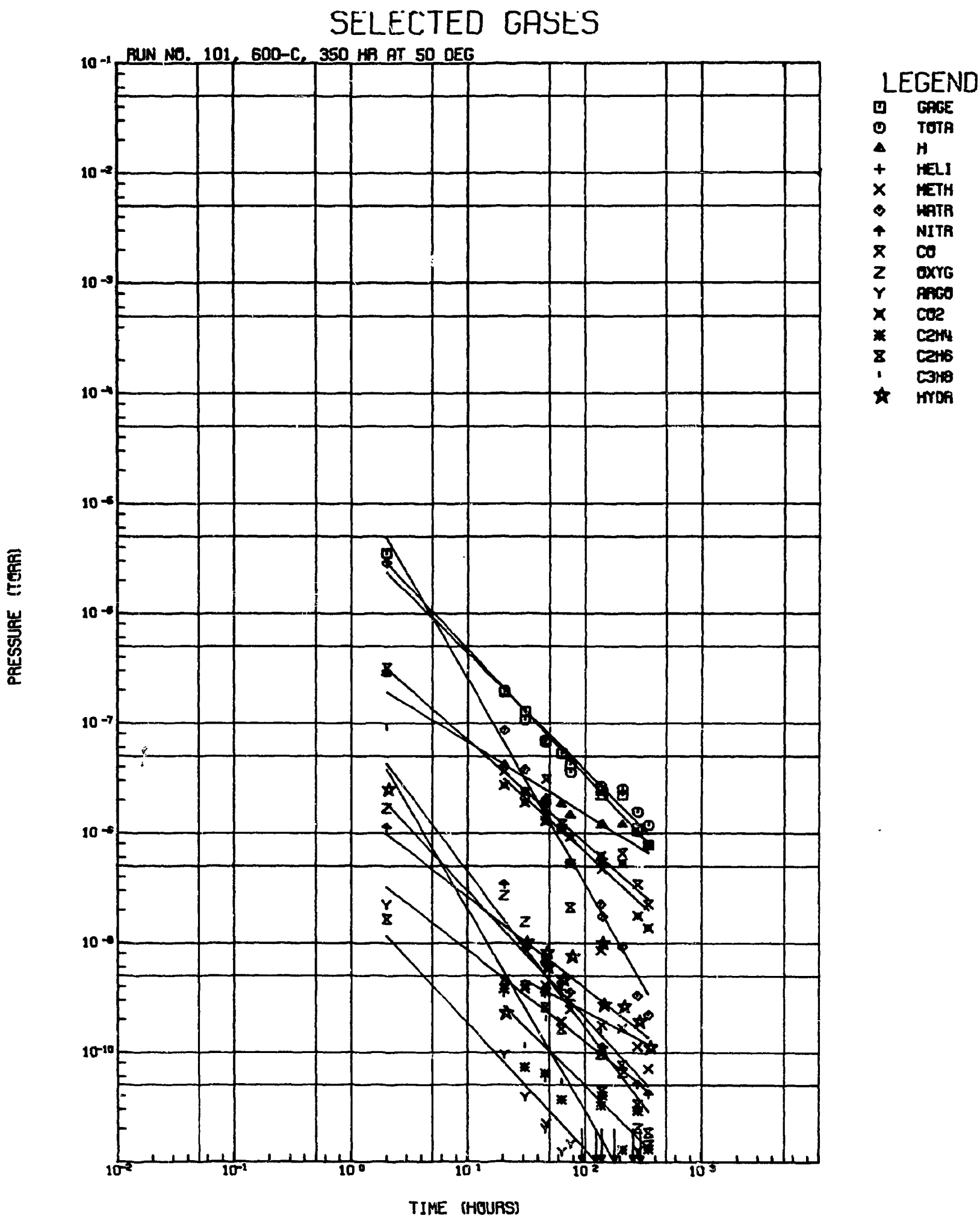

C2H6
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)

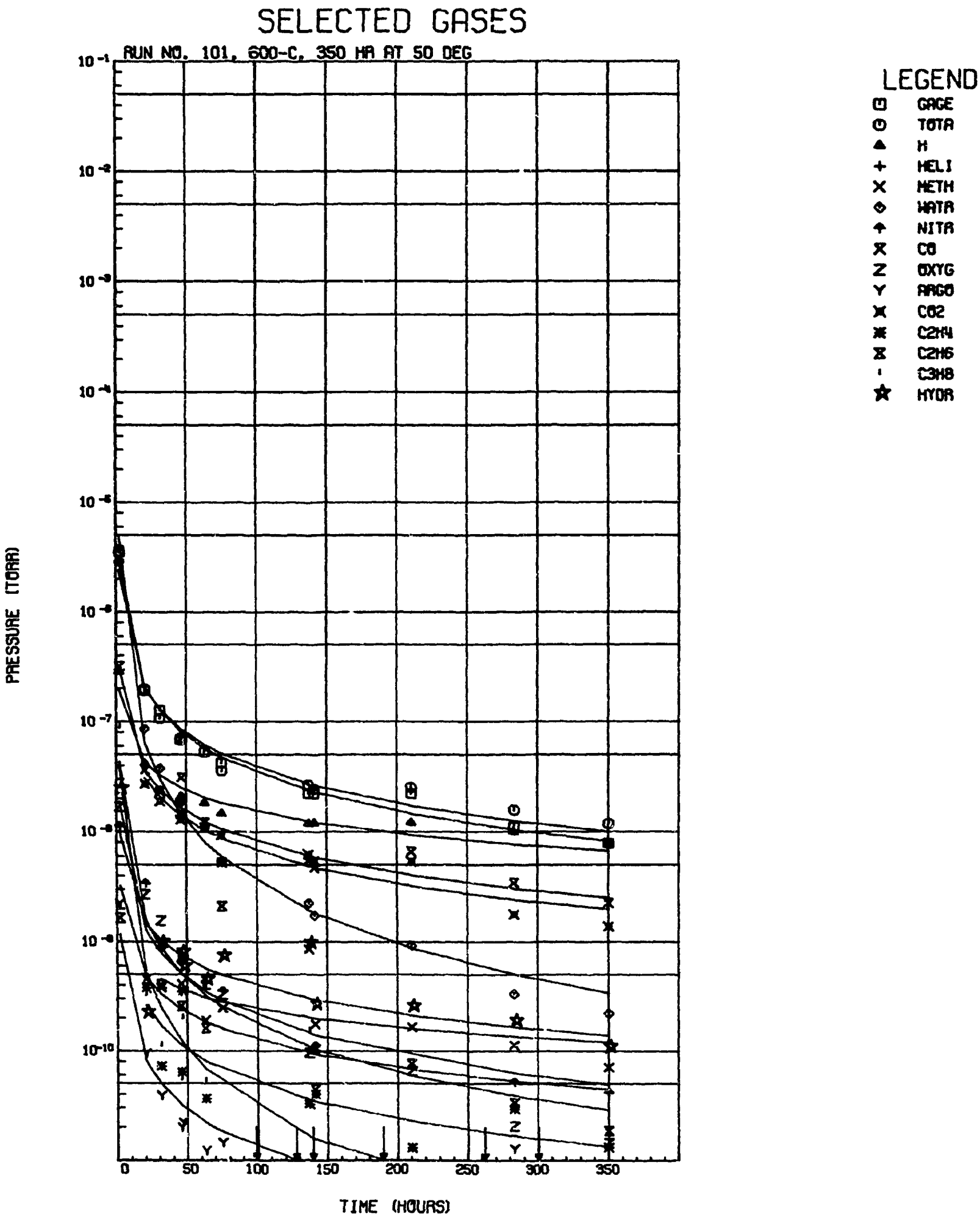

C3H8
SLOPE = -1.834E 00
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
10-2
10-1
10 0
10 1
10 2
10 3


C3H8
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -8
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)


HYDROCARBONS
SLOPE = -8.274E-01
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)


HYDROCARBONS
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
10 -1
10 -2
10 -3
10 -4
10 -5
10 -6
10 -7
10 -9
10 -9
10-10
0
50
100
150
200
250
300
350
TIME (HOURS)


SELECTED GASES
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)
LEGEND
GAGE
TOTA
H
HELI
METH
WATR
NITR
CO
OXYG
ARGO
CO2
C2H4
C2H6
C3H8
HYDR


SELECTED GASES
RUN NO. 101, 600-C, 350 HR AT 50 DEG
PRESSURE (TORR)
TIME (HOURS)
LEGEND
GAGE
TOTA
H
HELI
METH
WATR
NITR
CO
OXYG
ARGO
CO2
C2H4
C2H6
C3H8
HYDR

APPENDIX B

PROGRAM TO USE COMPLOT

```
**FTN.L,E,G.                              KEYWORDS = IF, DO, GOTO, READ, PRINT
C     PROGRAM TO USE COMPLOT -- SEE COMPLOT FOR DATA INSTRUCTIONS                10
C                                                                                20
C                                                                                30
C     PLOTS OUTGASSING RATE VS TEMPERATURE FOR SEVERAL RUNS                      40
C     ML=NUMBER OF GASES+3(TOTAL,ION GAGE,HYDROCARBONS)                          50
C                                                                                60
      REAL*8 TITLE                                                               70
      DIMENSION TITLE(100)                                                       80
      DATA (TITLE=8H GAGE PR,8H        ,8H TOTAL   ,8H        ,                 90
     1             8H H       ,8H        ,8H HELIUM  ,8H        ,                91
     2             8H METHANE,8H         ,                                      92
     3             8H WATER V,8HAPOR     ,8H NITROGE,8HN        ,                93
     4             8H CO      ,8H        ,8H OXYGEN  ,8H        ,                94
     5             8H ARGON   ,8H        ,8H CO2     ,8H        ,                95
     6             8H C2H4    ,8H        ,8H C2H6    ,8H        ,                96
     7             8H C3H8    ,8H        ,8H HYDROCA,8HRBONS    )                97
      ML=15                                                                      100
      CALL COMPLOT(TITLE,ML)                                                     110
      STOP                                                                       120
      END                                                                        130
```

TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
COMPLOT				SUBROUTINE	110
ML			INTEGER*4	LOCAL	100* 110
TITLE	(100)	100	REAL*8	LOCAL (DATA)	70, 80, 90, 110

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST

BLANK PAGE

```
      SUBROUTINE COMPLOT(TITL1,ML)                                          COMPL 10
C                                                                           COMPL 20
C                                                                           COMPL 30
C THIS ROUTINE PRODUCES COMPOSITE PLOTS OF OUTGASSING VS. TEMPERATURE       COMPL 40
C COMPILED FROM SEPARATE RUNS, EACH RUN REPRESENTING A DIFFERENT SAMPLE     COMPL 50
C AND TEMPERATURE.                                                          COMPL 60
C A DESCRIPTION OF THE VARIABLES USED IS                                    COMPL 70
C    P13--NUMBER OF RUNS                                                    COMPL 80
C    ML--NUMBER OF PLOTS, WHICH IS EQUAL TO THE NUMBER OF GASES +3          COMPL 90
C        (TOTAL,ION GAGE, AND HYDROCARBONS)                                 COMP 100
C    T--NUMBER OF TIME POINTS CONSIDERED. 10 IS THE MAXIMUM.                COMP 110
C    L--SET TO 0 FOR POINTS TO BE CONNECTED BY A LINE.                      COMP 120
C       SET TO -1 FOR POINTS ONLY.                                          COMP 130
C    IPLOT--SET TO 1 TO OBTAIN PLOTS OF RATE VS. 1/TEMPERATURE.             COMP 140
C          SET TO 0 OR LEAVE BLANK FOR NO 1/T PLOT                          COMP 150
C    TIME--ARRAY WHICH CONTAINS THE TIME POINTS (IN HOURS) TO COMPARE       COMP 160
C          EACH RUN.                                                        COMP 170
C    TEMP--TEMPERATURE OF EACH RUN                                          COMP 180
C    A,B--VARIABLES FROM EQUATION Y=A*X**B. READ IN FOR EACH GAS TO         COMP 190
C         COMPUTE OUTGASSING RATE AS A FUNCTION OF TIME.                    COMP 200
C INPUT CONSISTS OF THE FOLLOWING CARDS OR SETS OF CARDS.                   COMP 210
C THESE CARDS FOLLOW THE CONTROL CARD                                       COMP 220
C    //GO.FT50F001 DD *                                                     COMP 230
C                                                                           COMP 240
C    1. 1 CARD CONTAINING THE INTEGER VALUES OF P13,T,L,IPLOT IN COLUMNS    COMP 250
C       5,10,15, AND 20 RESPECTIVELY.                                       COMP 260
C    2. 1 CARD CONTAINING THE SELECTED TIME POINTS IN HOURS.                COMP 270
C       COLUMNS OF 10 (RIGHT ADJUSTED), 5 PER CARD.                         COMP 280
C    3. A SET OF CARDS FOR EACH RUN CONTAINING                              COMP 290
C        A. TITLE CARD. COLUMNS 1-80.                                       COMP 300
C        B. TEMPERATURE IN DEGREES C. COLUMN 8, RIGHT ADJUSTED.             COMP 310
C        C. SET OF CARDS CONTAINING M(NUMBER OF GASES) + 3 SETS OF          COMP 320
C           VALUES OF A AND B, ALTERNATELY ENTERED IN COLUMNS OF 8,         COMP 330
C           10 PER CARD.                                                    COMP 340
C THIS CONCLUDES DATA AND THE LAST 2 CARDS IN THE DECK ARE THE FOLLOWING    COMP 350
C CONTROL CARDS                                                             COMP 360
C   /*                                                                      COMP 370
C   //                                                                      COMP 380
C                                                                           COMP 390
C                                                                           COMP 400
      INTEGER P13,T                                                         COMP 410
      REAL * 8 TITL1,RUNTIT,T2,XTITLE                                       COMP 420
      DATA (XTITLE(I)=8HTEMPERAT,8HURE(C.)$,8H1/TEMPER,8HATURE(K.),8H)$     COMP 430
     1    /                                                                 COMP 431
      DIMENSION TITL1(100),RUNTIT(10,10),A(15,100),B(15,100),TEMP(100),     COMP 440
     1O(10C,1C),TIME(10),WILO(2),XHILO(4),BUF(3000),INDEX(7),D1(100,1C)     COMP 441
     2,D2(10),TEM1(20),TEM2(200),XTITLE(10),JSYM(11),LNTHS(10)              COMP 442
      READ 1,P13,T,L,IPLOT                                                  COMP 450 ----------READ
    1 FORMAT (4I5)                                                          COMP 460
      READ 2,(TIME(I),I=1,T)                                                COMP 470 ----------READ
    2 FORMAT  (5F10.0)                                                      COMP 480
      PRINT 3,P13                                                           COMP 490 ----------PRINT
    3 FORMAT (1H1,54X,'*** COMPOSITE DATA ***'//46X,'THE NUMBER OF EXPERCOMP 500
     1IMENTAL RUNS IS ',I3//)                                               COMP 501
I-----------   DO 100 I=1,T                                                 COMP 510 ------DO
I             JSYM(I)=-2                                                    COMP 520
I-----------100 LNTHS(I)=2                                                 COMP 530
              JSYM(T+1)=-1                                                  COMP 540
              CALL QQQCPA(5,5.)                                             COMP 550
              CALL QQQCPA (20,0)                                            COMP 560
J-----------  DO 105 J=1,P13                                               COMP 570 ------DO
J             READ 4, (RUNTIT(I,J),I=1,10)                                  COMP 580 ----------READ
J           4 FORMAT (10A8)                                                 COMP 590
J             CALL REPLACE(RUNTIT(1,J),80,1,'$')                            COMP 600
J-----------105 READ 5, TEMP(J),(A(I,J),B(I,J),I=1,ML)                     COMP 610 ----------READ
            5 FORMAT (E8.2/(10E8.2))                                        COMP 620
            C                                                               COMP 630
            C     ARRANGE TEMPERATURES IN ASCENDING ORDER.                  COMP 640
            C                                                               COMP 650
              IP13=P13-1                                                    COMP 660
I-----------  DO 125 I=1,IP13                                              COMP 670 ------DO
I             IP1=I+1                                                       COMP 680
I  J--------  DO 125 J=IP1,P13                                             COMP 690 ------DO
I  J          IF (TEMP(I)-TEMP(J))125,125,110                               COMP 700 IF
I  J        110 T1=TEMP(I)                                                  COMP 710
I  J          TEMP(I)=TEMP(J)                                               COMP 720
I  J          TEMP(J)=T1                                                    COMP 730
I  J  K-----  DO 115 K=1,10                                                 COMP 740 ------DO
I  J  K       T2=RUNTIT(K,I)                                                COMP 750
I  J  K       RUNTIT(K,I) =RUNTIT(K,J)                                      COMP 760
I  J  K-----115 RUNTIT(K,J)=T2                                              COMP 770
I  J                                                                        COMP 780
I  J  K-----  DO 120 K=1,ML                                                 COMP 790 ------DO
I  J  K       T1=A(K,I)                                                     COMP 800
I  J  K       A(K,I)=A(K,J)                                                 COMP 810
I  J  K       A(K,J)=T1                                                     COMP 820
I  J  K       T1=B(K,I)                                                     COMP 830
I  J  K       B(K,I)=B(K,J)                                                 COMP 840
I  J  K-----120 B(K,J)=T1                                                   COMP 850
I--J--------125 CONTINUE                                                   COMP 860
```

```
I-------------        DO 165 I=1,ML                                                    COMP 860 ------DO
I                     PRINT 6,TITL1(2*I-1),TITL1(2*I)                                  COMP 870 ------------------------PRINT
I                6    FORMAT (1H1///2A8)                                               COMP 880
I                     JJ=0                                                             COMP 890
I   K-----------      DO 135K=1,T                                                      COMP 900 ------DO
I   K                 NP13=0                                                           COMP 910
I   K  J--------      DO 135J=1,P13                                                    COMP 920 ------DO
I   K  J              O(J,K)=A(I,J)*TIME(K)**B(I,J)                                    COMP 930
I   K  J              IF (A(I,J).EQ.0.0.AND.B(I,J).EQ.0.0) 135,130                     COMP 940 IF
I   K  J         130  NP13=NP13+1                                                      COMP 950
I   K  J              JJ=JJ+1                                                          COMP 960
I   K  J              O1(JJ    )=O(J,K)                                                COMP 970
I   K  J              TEM2(NP13)=TEMP(J)                                               COMP 980
I   K  J              TEM2(NP13+100)=1./(TEMP(J)+273.2)                                COMP 990
I   K--J--------  135 CONTINUE                                                         COM 1000
I              C                                                                       COM 1010
I              C      SET LIMITS ON SCALE.                                             COM 1020
I              C                                                                       COM 1030
I                     NUMY=NP13*T                                                      COM 1040
I                     HILO(1)=1.E-11                                                   COM 1050
I                     HILO(2)=1.E-02                                                   COM 1060
I                     XHILO(1)=0.                                                      COM 1070
I                     XHILO(2)=1000.                                                   COM 1080
I                     XHILO(3)=1./(1000.+273.2)                                        COM 1090
I                     XHILO(4)=1./273.2                                                COM 1100
I                     NPLOT=1                                                          COM 1110
I                140  CALL SETPLT(XHILO(2*NPLOT-1),HILO,2,'YLOG','MECH',0.,0.,BUF,3000) COM 1120
I                     CALL TITLE(.2,'$',XTITLE(2*NPLOT-1),'$')                         COM 1130
I                     CALL LABEL (-1,.1,'OUTGASSING RATE (TORR-LITERS/SEC) AT TIMES(HOURCOM 1140
I                    1S)',$,$,$,$,$,$,$,$,$,$,$$',JSYM,TIME,LNTHS)                     COM 1141
I                     CALL SYMBOL(.5,10.25,.21,TITL1(2*J-1),0.,16)                     COM 1150
I                     CALL QQQCPA(10,L)                                                COM 1160
I   K-----------      DO 145 K=1,NUMY,NP13                                             COM 1170 ------DO
I   K----------- 145  CALL LINPLT(TEM2(1+100*(NPLOT-1)),O1(K  ),NP13,0,0)             COM 1180
I                     CALL QQQCPA(10,-1)                                               COM 1190
I                     ISYM=0                                                           COM 1200
I   J-----------      DO 160 J=1,P13                                                   COM 1210 ------DO
I   J                 IF (NPLOT.NE.1) GO TO 150                                        COM 1220 IF
I   J                 PRINT 7,(RUNTIT(J1,J),J1=1,9),TEMP(J),A(I,J),B(I,J)              COM 1230 ------------------------PRINT
I   J            7    FORMAT ('0',9A8/' TEMPERATURE = ',F6.2,' A = ',E13.5,' B = ',E13.5COM 1240
I   J                1//' TIME (HRS.)',3X,'OUTGASSING RATE')                          COM 1241
I   J                 PRINT 8,(TIME(J1),O(J,J1),J1=1,T)                                COM 1250 ------------------------PRINT
I   J            8    FORMAT (OPF9.1,1PE19.5)                                          COM 1260
I   J           150   IF (ISYM.GT.14) ISYM=0                                           COM 1270 IF
I   J                 IF (A(I,J).EQ.0.0.AND.B(I,J).EQ.0.0) GO TO 160                   COM 1280 IF
I   J  K--------      DO 155 K=1,T                                                     COM 1290 ------DO
I   J  K              TEM1(K)=TEMP(J)                                                  COM 1300
I   J  K              TEM1(10+K)=1./(TEMP(J)+273.2)                                    COM 1310
I   J  K-------- 155  O2(K)=O(J,K)                                                     COM 1320
I   J                 CALL LINPLT(TEM1(1+10*(NPLOT-1)),O2(1),T,ISYM,0)                 COM 1330
I   J----------  160  ISYM=ISYM+1                                                      COM 1340
I                     NPLOT=NPLOT+1                                                    COM 1350
I              C                                                                       COM 1360
I              C TEST IPLOT TO SEE IF A PLOT OF OUTGASSING VS. 1/TEMPERATURE IS DESIREDCOM 1370
I              C                                                                       COM 1380
I                     IF (IPLOT.EQ.1) GO TO 165                                        COM 1390 IF
I                     IF (NPLOT.EQ.2) GO TO 140                                        COM 1400 IF
I   ------------  165 CONTINUE                                                         COM 1410
               C                                                                      COM 1420
               C      PRINT LEGEND AT END OF PLOTS.                                   COM 1430
               C                                                                      COM 1440
                      NINDEX=P13/15                                                   COM 1450
K--------------       DO 170 K=1,NINDEX                                               COM 1460 ------DO
K-------------- 170  INDEX(K)=15                                                     COM 1470
                      IF (MOD(P13,15).NE.0) 175,180                                   COM 1480 IF
                 175  NINDEX=NINDEX+1                                                COM 1490
                      INDEX(NINDEX)=MOD(P13,15)                                       COM 1500
                 180  CALL LEGEND ('$'          ,0,-INDEX(1),RUNTIT(1,1),-3.5,.25*INDEX(COM 1510
                     11),11.,10.)                                                     COM 1511
                      DO 185 K=2,NINDEX                                               COM 1520 ------DO
K-------------- 185  CALL LEGEND ('$'                ,0,INDEX(K),RUNTIT(1,(K-1)*15+1),-COM 1530
                     13.5,.25*INDEX(K),11.,10.)                                       COM 1531
                      CALL ADVANS                                                     COM 1540
                      RETURN                                                          COM 1550
                      END                                                             COM 1560
**** STATEMENT  185 +    ? ERROR DAD?
```

TABLE OF VARIABLE NAMES

VARIABLE NAME	ARRAY DIMENSIONS	TOTAL NO ELEMENTS	ELEMENT TYPE	DECLARATION	CROSS REFERENCE TABLE (BY SEQUENCE NUMBERS)
A	(15,100)	1500	REAL*4	LOCAL	440, 610, 790, 800* 810* 930, 940, 1230, 1280
ADVANS				SUBROUTINE	1540
B	(15,100)	1500	REAL*4	LOCAL	440, 610, 820, 830* 840* 930, 940, 1230, 1280
BUF	(3000)	3000	REAL*4	LOCAL	440, 1120
COMPLOT			REAL*4	ENTRY POINT	10
HILO	(2)	2	REAL*4	LOCAL	440, 1050* 1060* 1120
I			INTEGER*4	LOCAL	470* 510* 520, 530, 580* 610* 670* 680, 700, 710, 720, 750, 760, 790, 800, 820, 830, 860* 870, 930, 940, 1150, 1230, 1280
INDEX	(7)	7	INTEGER*4	LOCAL	440, 1470* 1500* 1510, 1530
IPLOT			INTEGER*4	LOCAL	450, 1390
IP1			INTEGER*4	LOCAL	680* 690
IP13			INTEGER*4	LOCAL	660* 670
ISYM			INTEGER*4	LOCAL	1200* 1270* 1330, 1340*
J			INTEGER*4	LOCAL	570* 580, 600, 610, 690* 700, 720, 730, 760, 770, 800, 810, 830, 840, 920* 930, 940, 970, 980, 990, 1210* 1230, 1250, 1280, 1300, 1310, 1320
JJ			INTEGER*4	LOCAL	890* 960* 970
JSYM	(11)	11	INTEGER*4	LOCAL	440, 520* 540* 1140
J1			INTEGER*4	LOCAL	1230* 1250*
K			INTEGER*4	LOCAL	740* 750, 760, 770, 780* 790, 800, 810, 820, 830, 840, 900* 930, 970, 1170* 1180, 1290* 1300, 1310, 1320, 1460* 1470, 1520* 1530
L			INTEGER*4	LOCAL	450, 1160
LABEL				SUBROUTINE	1140
LEGEND				SUBROUTINE	1510, 1530
LINPLT				SUBROUTINE	1180, 1330
LNTHS	(10)	10	INTEGER*4	LOCAL	440, 530* 1140
ML			INTEGER*4	PARAMETER	10, 610, 780, 860
MOD			INTEGER*4	FUNCTION	1480, 1500
NINDEX			INTEGER*4	LOCAL	1450* 1460, 1490* 1500, 1520
NPLOT			INTEGER*4	LOCAL	1110* 1120, 1130, 1180, 1220, 1330, 1350* 1400
NP13			INTEGER*4	LOCAL	910* 950* 980, 990, 1040, 1170, 1180
NUMY			INTEGER*4	LOCAL	1040* 1170
O	(100,10)	1000	REAL*4	LOCAL	440, 930* 970, 1250, 1320
O1	(100,10)	1000	REAL*4	LOCAL	440, 970* 1180
O2	(10)	10	REAL*4	LOCAL	440, 1320* 1330
PI3			INTEGER*4	LOCAL	410, 450, 490, 570, 660, 690, 920, 1210, 1450, 1480, 1500
QQQCPA				SUBROUTINE	550, 560, 1160, 1190
REPLACE				SUBROUTINE	600
RUNTIT	(10,100)	1000	REAL*8	LOCAL	420, 440, 580, 600, 750, 760* 770* 1230, 1510, 1530

SETPLT				SUBROUTINE	1120
SYMBOL				SUBROUTINE	1150
T			INTEGER*4	LOCAL	410, 450, 470, 510, 540, 900, 1040, 1250, 1290, 1330
TEMP	(100)	100	REAL*4	LOCAL	440, 610, 700, 710- 720* 730* 980, 990, 1230, 1300, 1310
TEM1	(20)	20	REAL*4	LOCAL	440, 1300* 1310* 1330
TEM2	(200)	200	REAL*4	LOCAL	440, 980* 990* 1180
TIME	(10)	10	REAL*4	LOCAL	440, 470, 930, 1140, 1250
TITLE				SUBROUTINE	1130
TITL1	(100)	100	REAL*8	PARAMETER	10, 420, 440, 870, 1150
T1			REAL*4	LOCAL	710* 730, 790* 810, 820* 840
T2			REAL*8	LOCAL	420, 750* 770
XHILO	(4)	4	REAL*4	LOCAL	440, 1070* 1080* 1090* 1100* 1120
XTITLE	(10)	10	REAL*8	LOCAL (DATA)	420, 430, 440, 1130

* = VARIABLES USED ON LEFT HAND SIDE OF EQUAL SIGN

INPUT / OUTPUT TABLE

DEFINING SEQ. NO.	I/O OPERATION	LOGICAL UNIT	I/O TYPE	FORMAT USED	I/O LIST
450	READ	50	BCD	1	P13,T,L,IPLOT
470	READ	50	BCD	2	(TIME(I),I=1,T)
580	READ	50	BCD	4	(RUNTIT(I,J),I=1,10)
610	READ	50	BCD	5	TEMP(J),(A(I,J),B(I,J),I=1,ML)
490	PRINT	51	BCD	3	P13
870	PRINT	51	BCD	6	TITL1(2*I-1),TITL1(2*I)
1230	PRINT	51	BCD	7	(RUNTIT(J1,J),J1=1,9),TEMP(J),A(I,J),B(I,J)
1250	PRINT	51	BCD	8	(TIME(J1),C(J,J1),J1=1,T)

```
IEF285I   A5.G3.P31177.C10155.DURFEE.PLI                PASSED
IEF285I   VOL SER NOS= ZZZZZZ.
IEF285I   SYS1.LINKLIB                                  PASSED
IEF285I   VOL SER NOS= MVT17P.
IEF285I   SYS70287.T181233.RV000.DSE1.FJOBLIB           PASSED
IEF285I   VOL SER NOS= YYYYYY.
IEF285I   SYS70287.T181233.SV00C.DSE1.P0000038          SYSOUT
IEF285I   VOL SER NOS= XXXXXX.
IEF285I   SYS70287.T181233.RV00C.DSE1.FJOBLIB           DELETED
IEF285I   VOL SER NOS= YYYYYY.
IEF285I   SYS70287.T181233.RV00C.DSE1.FTSYSIN           PASSED
IEF285I   VOL SER NOS= 222222.


DSE1     GO                    21.55.10 10-14-70
      CPU SEC.=  27.82//      I/O REQUESTS=   103//     REGION ALLOC.=1536K//      MACH. USE SEC.=    31.94//     REGION USED=1526K


IEF285I   A5.G3.P31177.C10155.DURFEE.PLI                KEPT
IEF285I   VOL SER NOS= ZZZZZZ.
IEF285I   SYS1.LINKLIB                                  KEPT
IEF285I   VOL SER NOS= MVT17P.
IEF285I   SYS70287.T181233.RV00C.DSE1.FTSYSIN           DELETED
IEF285I   VOL SER NOS= 222222.


DSE1     MODEL=75 12333         21.55.12 10-14-70
TOTAL CPU SEC.=  78.30//TOTAL I/O REQUESTS=  1521//MAX. REGION ALLOC.=1536K//TOTAL MACH. USE SEC.=   139.14//MAX. REGION USED=1526K
```

*** COMPOSITE DATA ***

THE NUMBER OF EXPERIMENTAL RUNS IS 5

GAGE P1

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.20200E-04 B = -0.75152E 00

TIME (HRS.)	OUTGASSING RATE
1.0	2.020008-05
10.0	2.57957E-06
100.0	6.34324E-07
1000.0	1.32406E-07

106-538--Y-12-B
TEMPERATURE = 538.20 A = 0.43200E-04 B = -0.91104E 00

TIME (HRS.)	OUTGASSING RATE
1.0	6.32000E-05
10.0	7.75671E-06
100.0	9.52001E-07
1000.0	1.16841E-07

105-646--Y-12-C
TEMPERATURE = 646.40 A = 0.39600E-03 B = -0.71639E 00

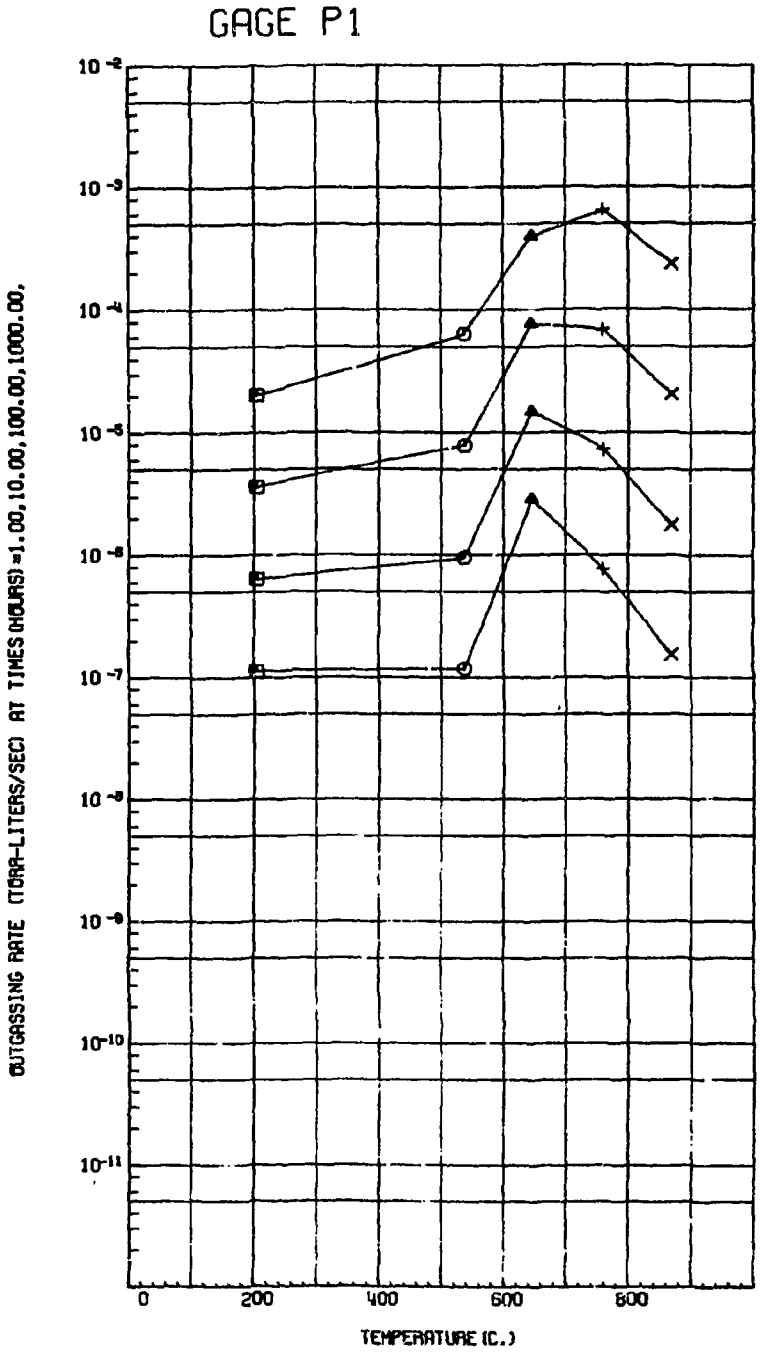
TIME (HRS.)	OUTGASSING RATE
1.0	3.96000E-04
10.0	7.62616E-05
100.0	1.46864E-05
1000.0	2.82837E-06

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.64[illegible]E-03 B = -0.97441E 00

TIME (HRS.)	OUTGASSING RATE
1.0	4.47000E-04
10.0	6.[illegible]
100.0	7.[illegible]
1000.0	1.72201E-07

106-4-870--Y-12-E
TEMPERATURE = 870.00 A = 0.33200E-03 B = -0.10613E 01

TIME (HRS.)	OUTGASSING RATE
1.0	3.32000E-04
10.0	2.01460E-05
100.0	1.74940E-06
1000.0	1.51911E-07



TOTAL

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.12900E-02 B = -0.67770E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.29000E-04
10.0	2.70951E-05
100.0	5.69102E-06
1000.0	1.19533E-06

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.76000E-04 B = -0.11209E 01

TIME (HRS.)	OUTGASSING RATE
1.0	7.60000E-05
10.0	5.75327E-06
100.0	4.35527E-07
1000.0	3.29698E-08

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.35800E-03 B = -0.95358E 00

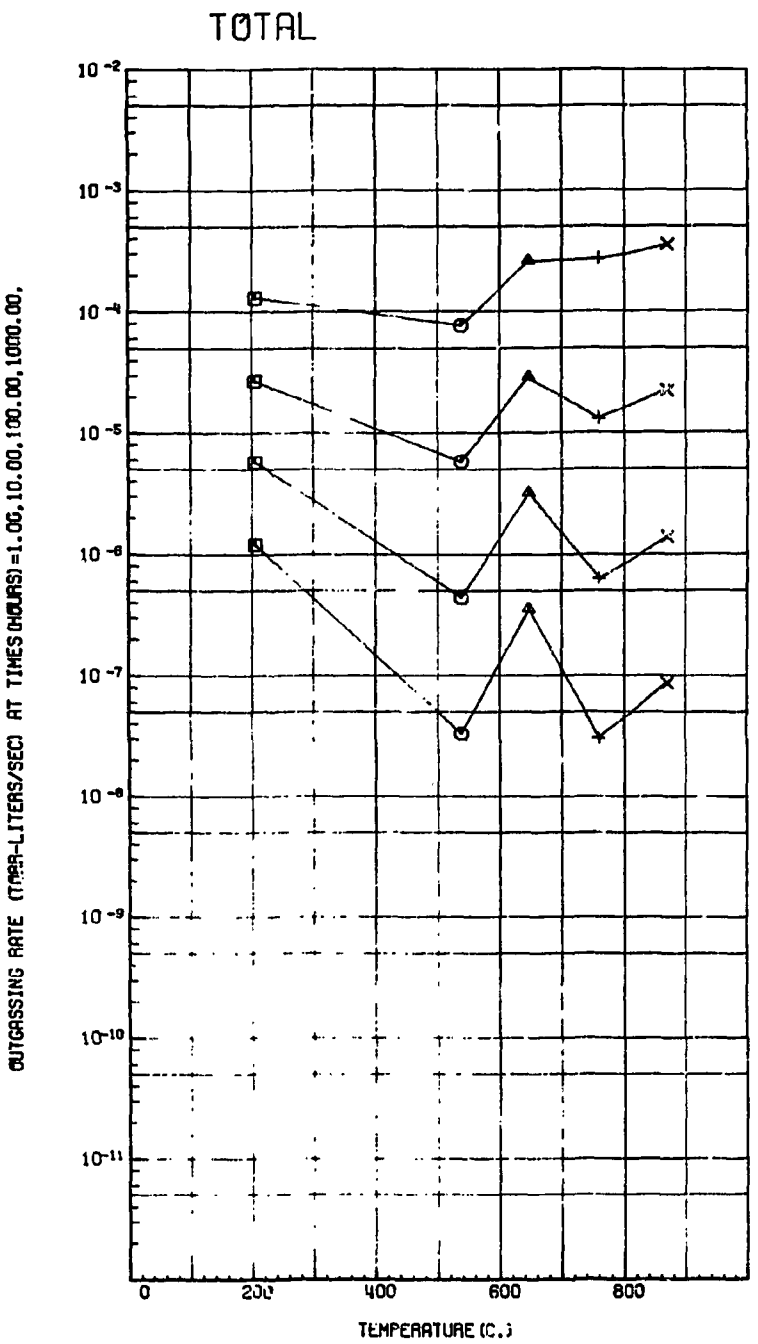
TIME (HRS.)	OUTGASSING RATE
1.0	2.58000E-04
10.0	2.87104E-05
100.0	3.19492E-06
1000.0	3.55533E-07

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.26900E-03 B = -0.13159E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.69000E-04
10.0	1.29490E-05
100.0	6.23655E-07
1000.0	3.02298E-08

106-870--Y-12-D
TEMPERATURE = 870.00 A = 0.35000E-03 B = -0.12038E 01

TIME (HRS.)	OUTGASSING RATE
1.0	3.50000E-04
10.0	3.19912E-05
100.0	1.26921E-06
1000.0	8.56387E-08



H

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.64700E-04 B = -0.55566E 00

TIME (HRS.)	OUTGASSING RATE
1.0	6.47000E-05
10.0	1.79988E-05
100.0	5.00708E-06
1000.0	1.39291E-06

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.10100E-04 B = -0.88279E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.01000E-05
10.0	1.32291E-06
100.0	1.73277E-07
1000.0	2.26961E-08

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.13100E-04 B = -0.10312E 01

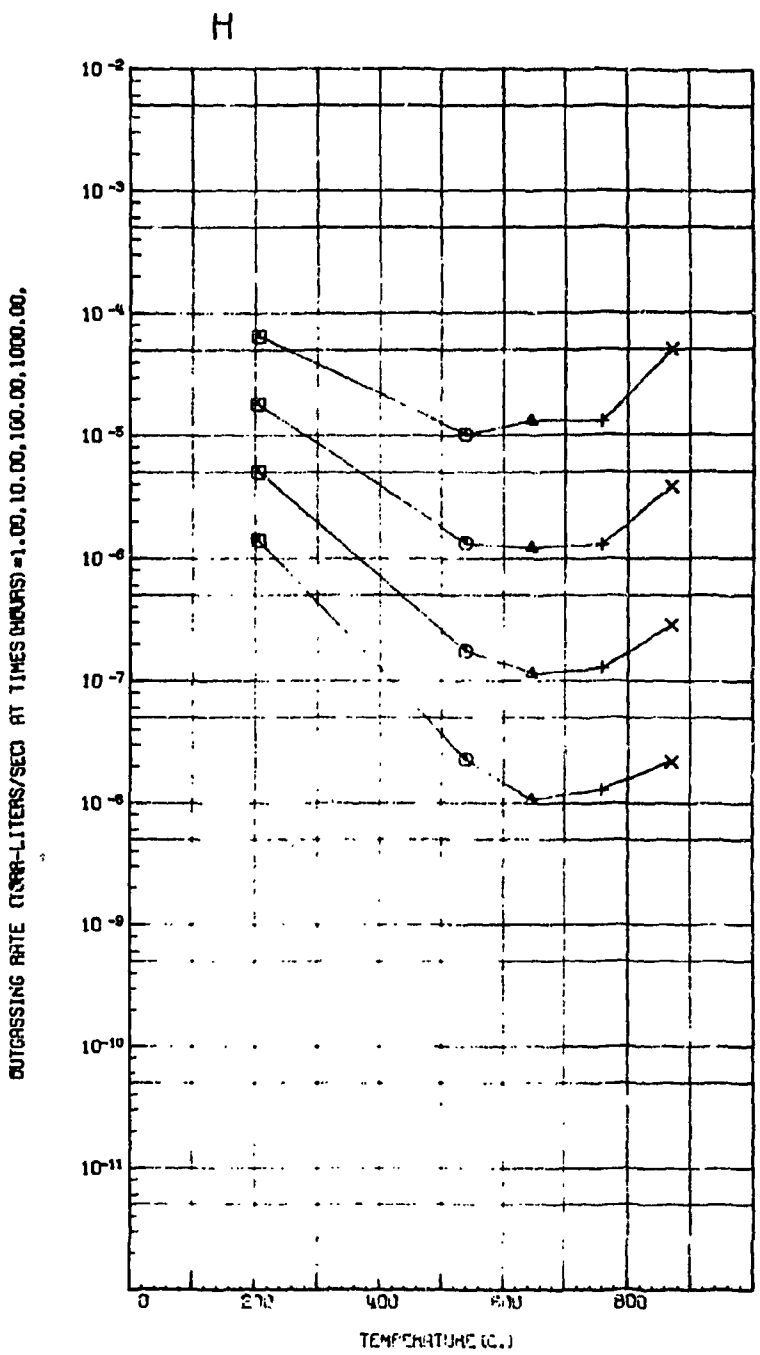
TIME (HRS.)	OUTGASSING RATE
1.0	1.31000E-05
10.0	1.21519E-06
100.0	1.12468E-07
1000.0	1.05602E-08

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.12800E-04 B = -0.10009E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.28000E-05
10.0	1.27735E-06
100.0	1.27471E-07
1000.0	1.27207E-08

106-4-870--Y-12-D
TEMPERATURE = 870.00 A = 0.50000E-04 B = -0.11214E 01

TIME (HRS.)	OUTGASSING RATE
1.0	5.00000E-05
10.0	3.78068E-06
100.0	2.85873E-07
1000.0	2.16157E-08



HELIUM

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.24100E-05 B = -0.35931E 00

TIME (HRS.)	OUTGASSING RATE
1.0	2.41000E-06
10.0	1.03206E-06
100.0	4.41975E-07
1000.0	1.89272E-07

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.25600E-04 B = -0.13134E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.56000E-05
10.0	1.24406E-06
100.0	6.04563E-08
1000.0	2.93793E-09

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.45700E-04 B = -0.15992E 01

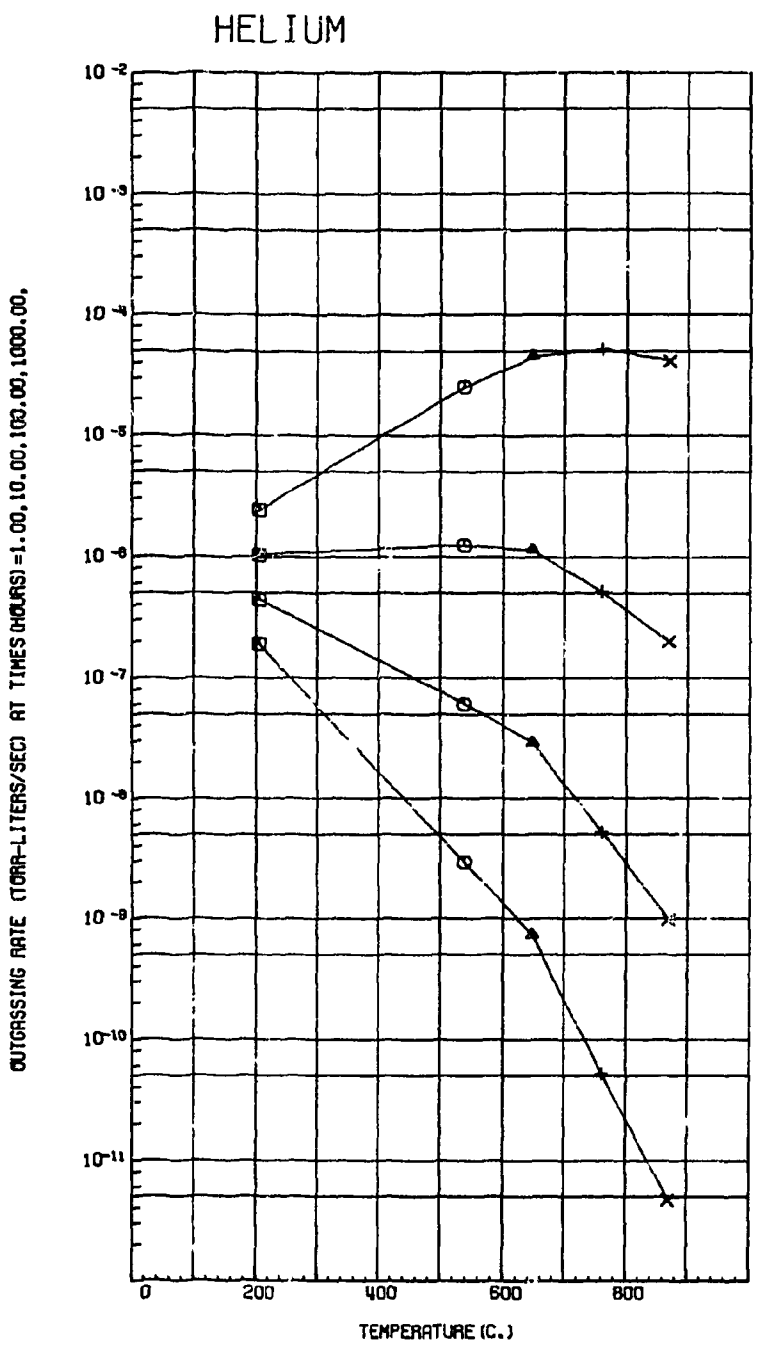
TIME (HRS.)	OUTGASSING RATE
1.0	4.57000E-05
10.0	1.15005E-06
100.0	2.89413E-08
1000.0	7.28313E-10

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.51500E-04 B = -0.19987E 01

TIME (HRS.)	OUTGASSING RATE
1.0	5.15000E-05
10.0	5.16545E-07
100.0	5.18094E-09
1000.0	5.19648E-11

106-4-870--Y-12-D
TEMPERATURE = 870.00 A = 0.41200E-04 B = -0.23140E 01

TIME (HRS.)	OUTGASSING RATE
1.0	4.12000E-05
10.0	1.89540E-07
100.0	8.70384E-10
1000.0	4.00588E-12



METHANE

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.62600E-06 B = -0.45778E 00

TIME (HRS.)	OUTGASSING RATE
1.0	6.26000E-07
10.0	2.18170E-07
100.0	7.60351E-08
1000.0	2.64993E-08

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.58100E-06 B = -0.11327E 01

TIME (HRS.)	OUTGASSING RATE
1.0	5.81000E-07
10.0	4.28022E-08
100.0	3.15338E-09
1000.0	2.323146-10

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.12700E-05 B = -0.14540E 01

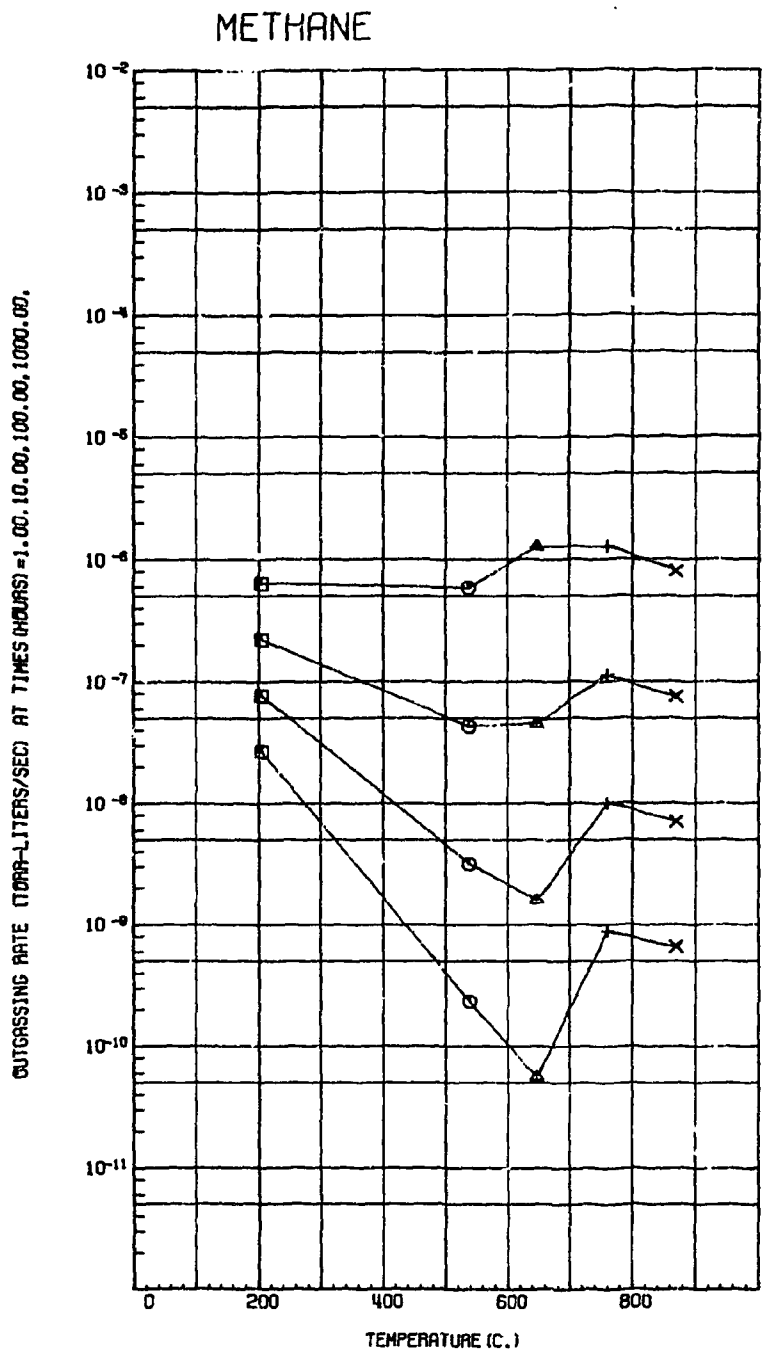
TIME (HRS.)	OUTGASSING RATE
1.0	1.27000E-06
10.0	4.46482E-08
100.0	1.569665-09
1000.0	5.51930E-11

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.12600E-05 B = -0.10519E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.26000E-06
10.0	1.11807E-07
100.0	9.92135E-09
1000.0	8.80291E-10

106-4-870--Y-12-E
TEMPERATURE = 870.00 A = 0.795COE-06 B = -0.10294E 01

TIME (HRS.)	OUTGASSING RATE
1.0	7.95000E-07
10.0	7.42668E-08
100.0	6.94332E-09
1000.0	6.488946-10



WATER VAPOR

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.4P400E-04 B = -C.13295E 01

TIME (HRS.)	OUTGASSING RATE
1.0	4.P4000E-05
10.0	2.26645E-06
100.0	1.06132E-07
1000.0	4.969P9E-09

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.25PCCE-04 B = -C.14517E C1

TIME (HRS.)	OUTGASSING RATE
1.0	2.58000E-05
10.0	2.11P45E-07
100.0	2.22271E-CP
1000.0	1.13P09E-09

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.F23CCE-04 B = -C.15913E C1

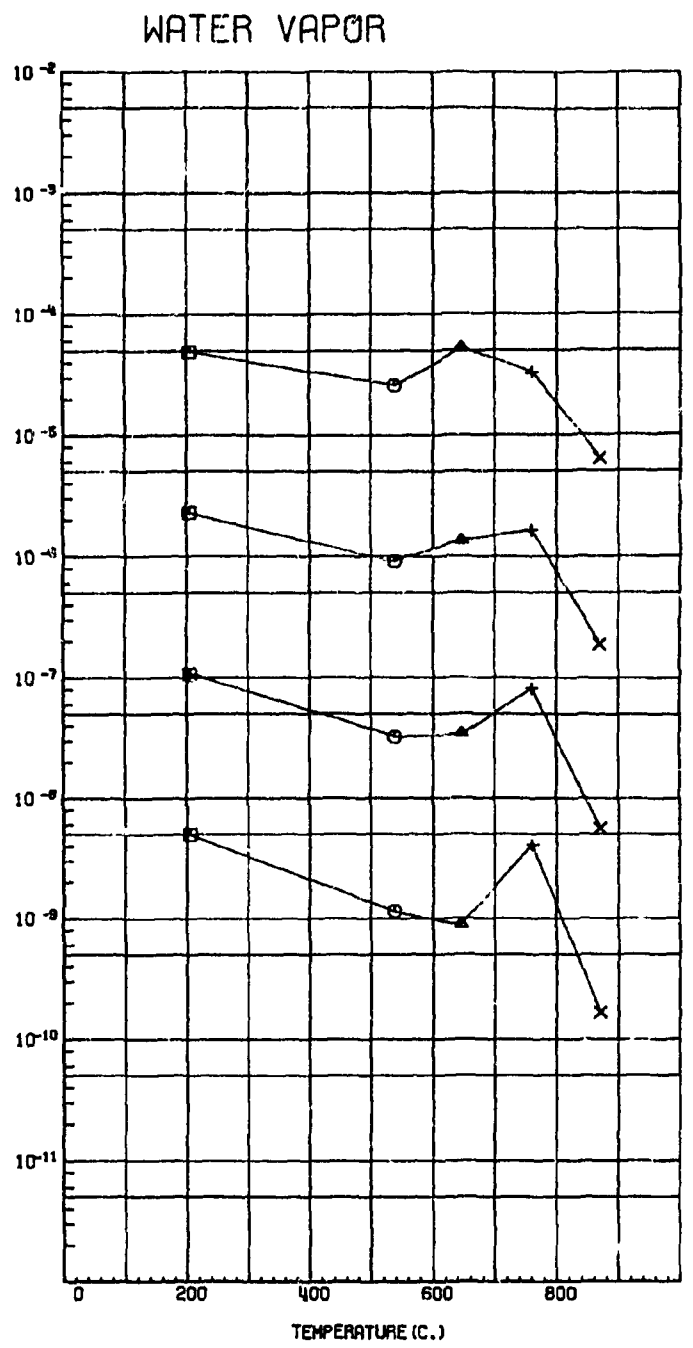
TIME (HRS.)	OUTGASSING RATE
1.0	5.23000E-05
10.0	1.24070E-06
100.0	3.43492E-08
1000.0	8.P0246E-10

110-760--Y-12-C
TEMPERATURE = 760.30 A = 0.727CCE-04 B = -C.13025E C1

TIME (HRS.)	OUTGASSING RATE
1.0	3.270005-05
10.0	1.62549E-06
100.0	8.119855-08
1000.0	4.04621E-09

106-4-870--Y-12-C
TEMPERATURE = 870.00 A = 0.630CCE-05 B = -C.15276E C1

TIME (HRS.)	OUTGASSING RATE
1.0	4.30000E-06
10.0	1.86087E-07
100.0	8.54807E-09
1000.0	1.64643E-10



NITROGEN

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.80900E-06 B = -0.89592E 00

TIME (HRS.)	OUTGASSING RATE
1.0	8.09000E-07
10.0	1.02808E-07
100.0	1.30650E-08
1000.0	1.66091E-09

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.29900E-06 B = -0.11109E 01

TIME (HRS.)	OUTGASSING RATE
1.0	3.09000E-07
10.0	3.09082E-08
100.0	2.39427E-09
1000.0	1.85470E-10

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.29400E-05 B = -0.13341E 01

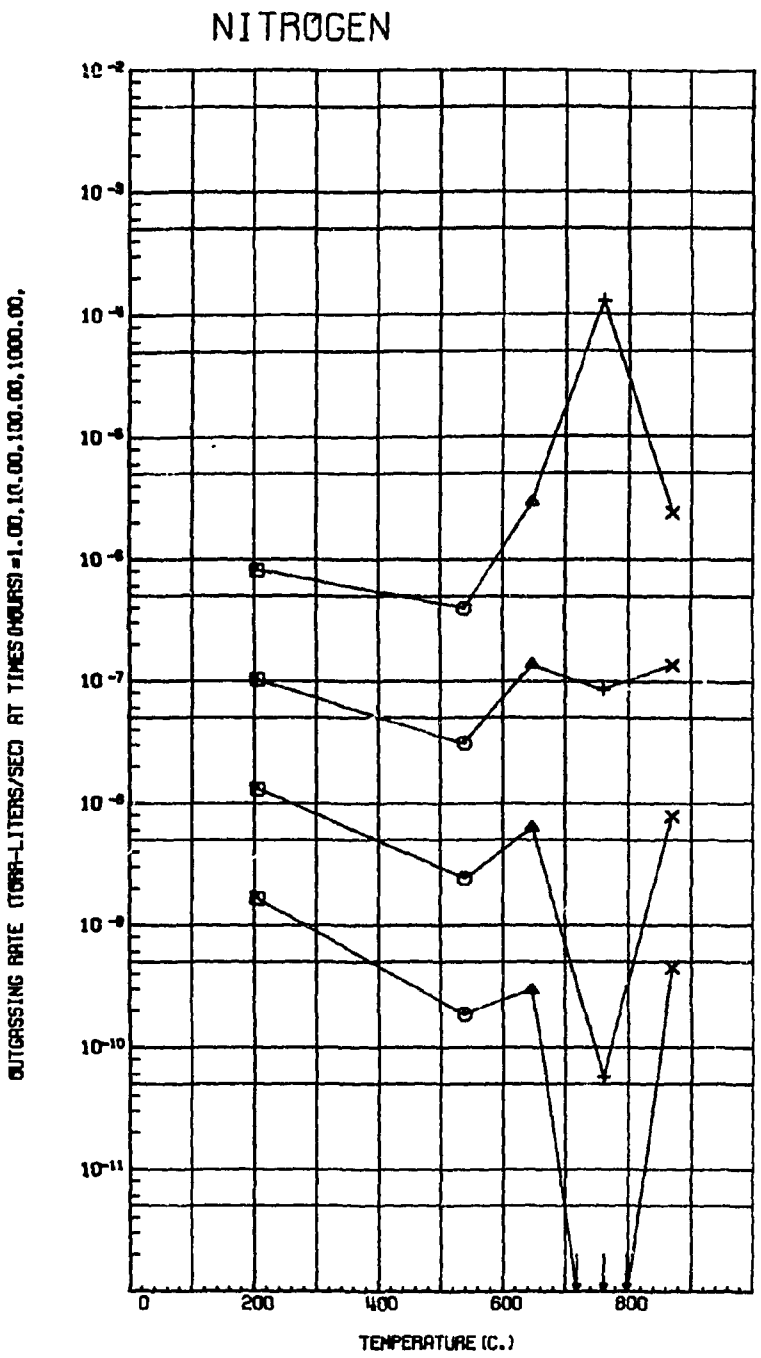
TIME (HRS.)	OUTGASSING RATE
1.0	2.94000E-06
10.0	1.36222E-07
100.0	6.31172E-09
1000.0	2.92447E-10

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.12700E-03 B = -0.21742E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.27000E-04
10.0	8.30244E-08
100.0	5.69384E-11
1000.0	3.81247E-14

106-4-870--Y-12-D
TEMPERATURE = 870.00 A = 0.23600E-05 B = -0.12417E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.36000E-06
10.0	1.35274E-07
100.0	7.75378E-09
1000.0	4.44441E-10



CO

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.18000E-05 B = -0.48771E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.80000E-06
10.0	5.85548E-07
100.0	1.90481E-07
1000.0	6.19644E-08

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.48500E-05 B = -0.70070E 00

TIME (HRS.)	OUTGASSING RATE
1.0	4.85000E-06
10.0	9.66143E-07
100.0	1.92461E-07
1000.0	3.83391E-08

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.10200E-03 B = -0.65871E 00

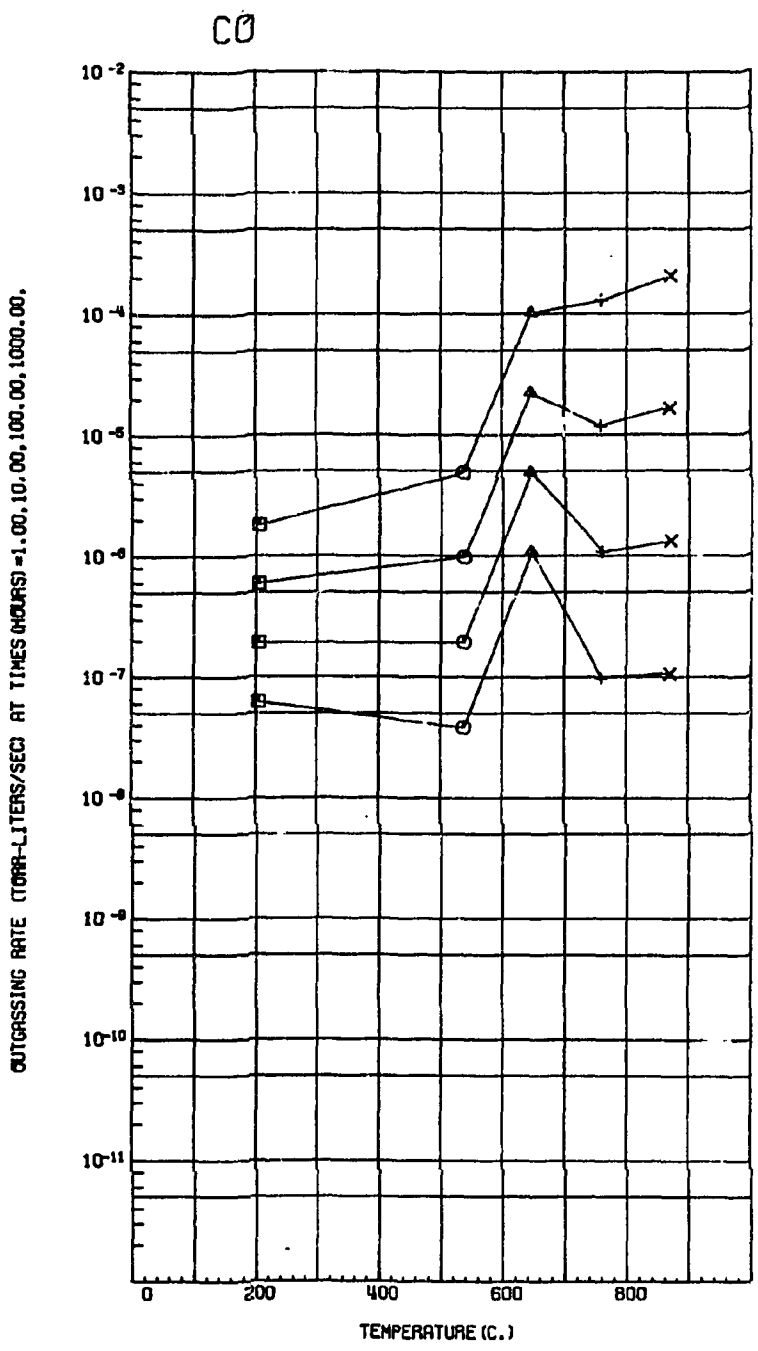
TIME (HRS.)	OUTGASSING RATE
1.0	1.02000E-04
10.0	2.23816E-05
100.0	4.91112E-06
1000.0	1.07763E-06

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.12900E-03 B = -0.10405E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.29000E-04
10.0	1.17514E-05
100.0	1.07051E-06
1000.0	9.75193E-08

106-4-870--Y-12-D
TEMPERATURE = 870.00 A = 0.20400E-03 B = -0.10954E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.04000E-04
10.0	1.63765E-05
100.0	1.31471E-06
1000.0	1.05543E-07



OXYGEN

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.297C0E-06 B = -C.72467E 00

TIME (HRS.)	OUTGASSING RATE
1.0	2.97C00E-07
10.0	5.5987CE-08
100.0	1.05540E-08
1000.0	1.98951E-09

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.503CCE-07 B = -C.85142E CC

TIME (HRS.)	OUTGASSING RATE
1.0	5.03C00E-08
10.0	7.08187E-09
100.0	9.97C76E-10
1000.0	1.40381E-10

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.448CCE-07 B = -0.54071E CC

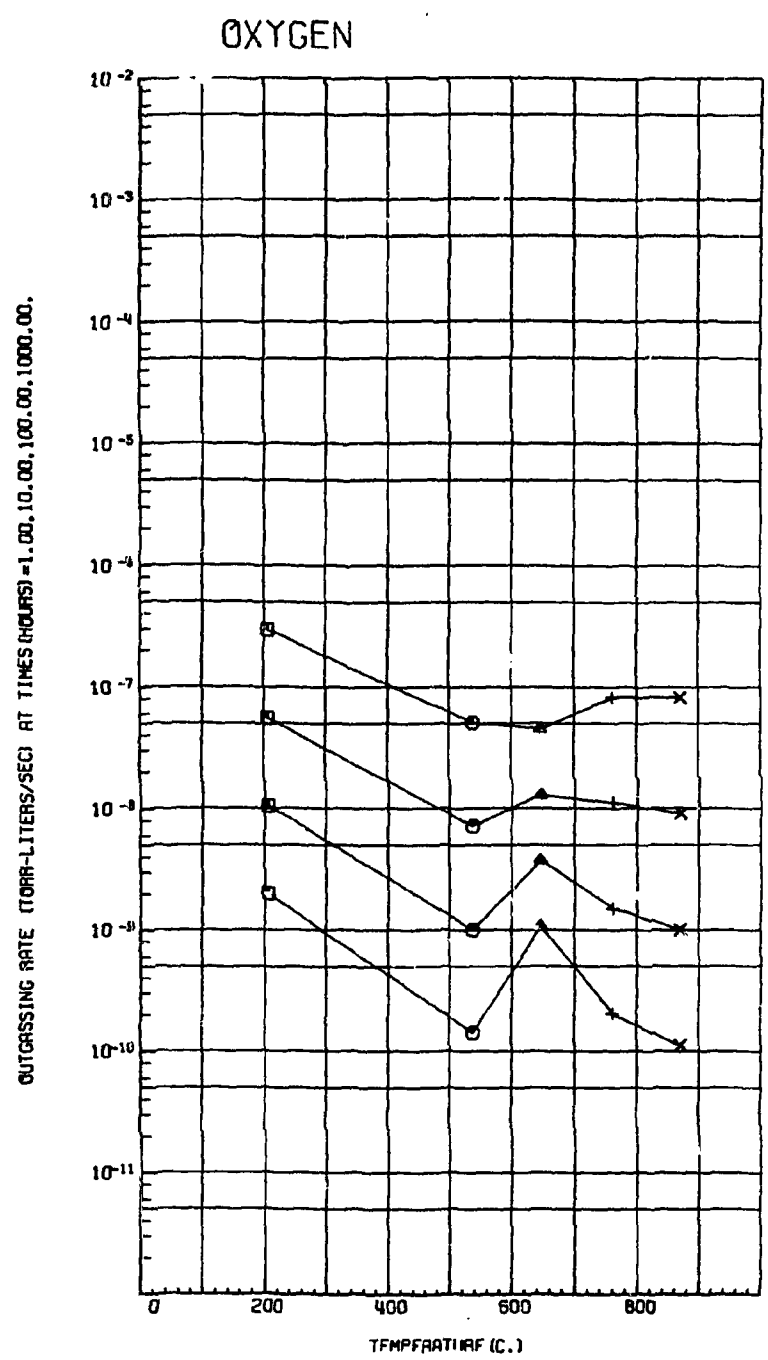
TIME (HRS.)	OUTGASSING RATE
1.0	4.480C0E-08
10.0	1.28994E-08
100.0	3.71414E-09
1000.0	1.06942E-09

110-76C--Y-12-D
TEMPERATURE = 760.80 A = 0.822CCE-07 B = -C.87017E CC

TIME (HRS.)	OUTGASSING RATE
1.0	8.22000E-08
10.0	1.10841E-08
100.0	1.49442E-09
1000.0	2.01540E-10

106-4-87C--Y-12-D
TEMPERATURE = 870.0C A = 0.81P0CE-07 B = -C.957C1E 00

TIME (HRS.)	OUTGASSING RATE
1.0	8.18C00E-08
10.0	9.03115E-09
100.0	9.970C8E-10
1000.0	1.10084E-10



ARGON

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.19600E-06 B = -0.50198E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.96000E-07
10.0	6.16088E-08
100.0	1.94221E-08
1000.0	6.11387E-09

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.89100E-09 B = -0.12096E 01

TIME (HRS.)	OUTGASSING RATE
1.0	8.91000E-10
10.0	5.40893E-11
100.0	3.39374E-12
1000.0	2.09440E-13

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.30000E-06 B = -0.14669E 01

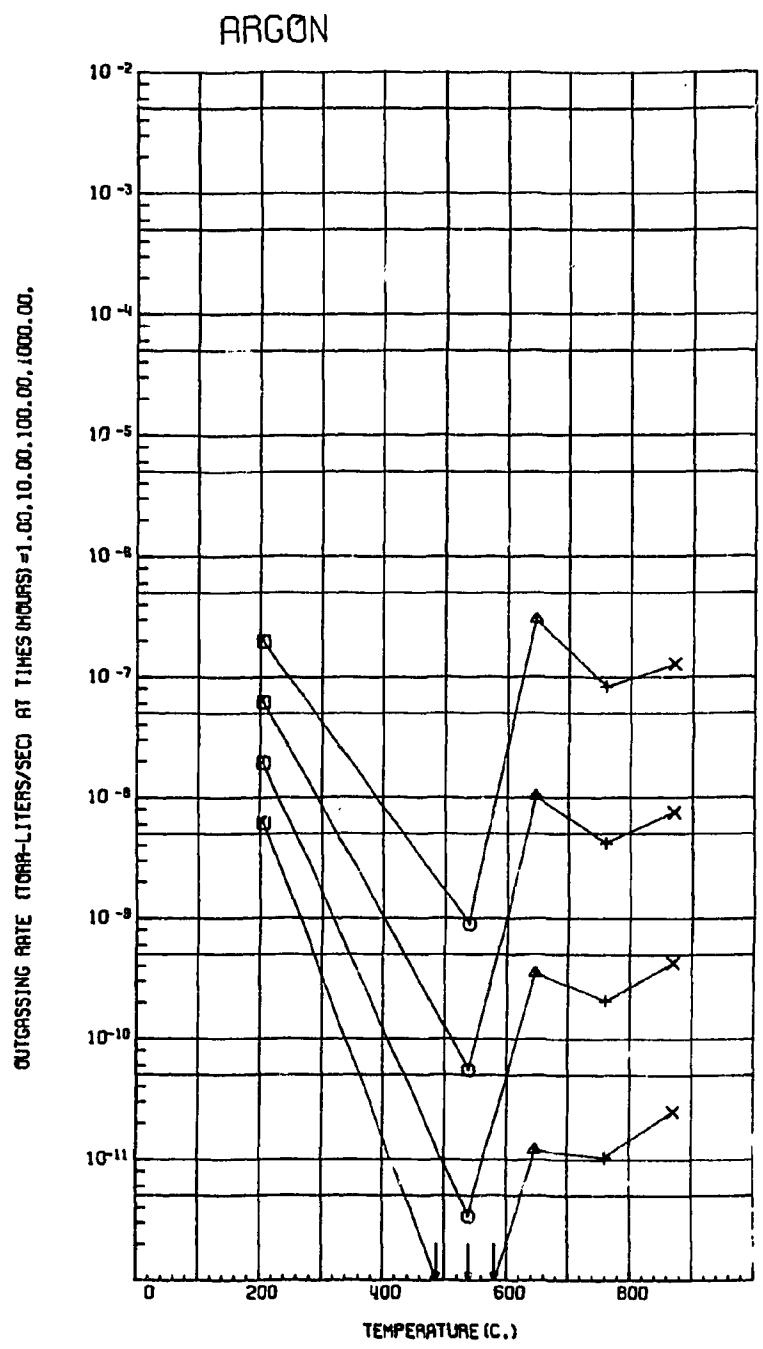
TIME (HRS.)	OUTGASSING RATE
1.0	3.00000E-07
10.0	1.02382E-08
100.0	3.49369E-10
1000.0	1.19240E-11

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.83400E-07 B = -0.13013E 01

TIME (HRS.)	OUTGASSING RATE
1.0	8.34000E-08
10.0	4.16742E-09
100.0	2.08242E-10
1000.0	1.04056E-11

106-4-870--Y-12-E
TEMPERATURE = 870.00 A = 0.12900E-06 B = -0.12387E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.29000E-07
10.0	7.44643E-09
100.0	4.29724E-10
1000.0	2.48022E-11



CO2

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.16700E-05 B = -0.61453E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.67000E-06
10.0	4.05683E-07
100.0	9.85500E-08
1000.0	2.39401E-08

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.12300E-05 B = -0.82810E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.23000E-06
10.0	1.82728E-07
100.0	2.71460E-08
1000.0	4.03278E-09

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.57100E-05 B = -0.90507E 00

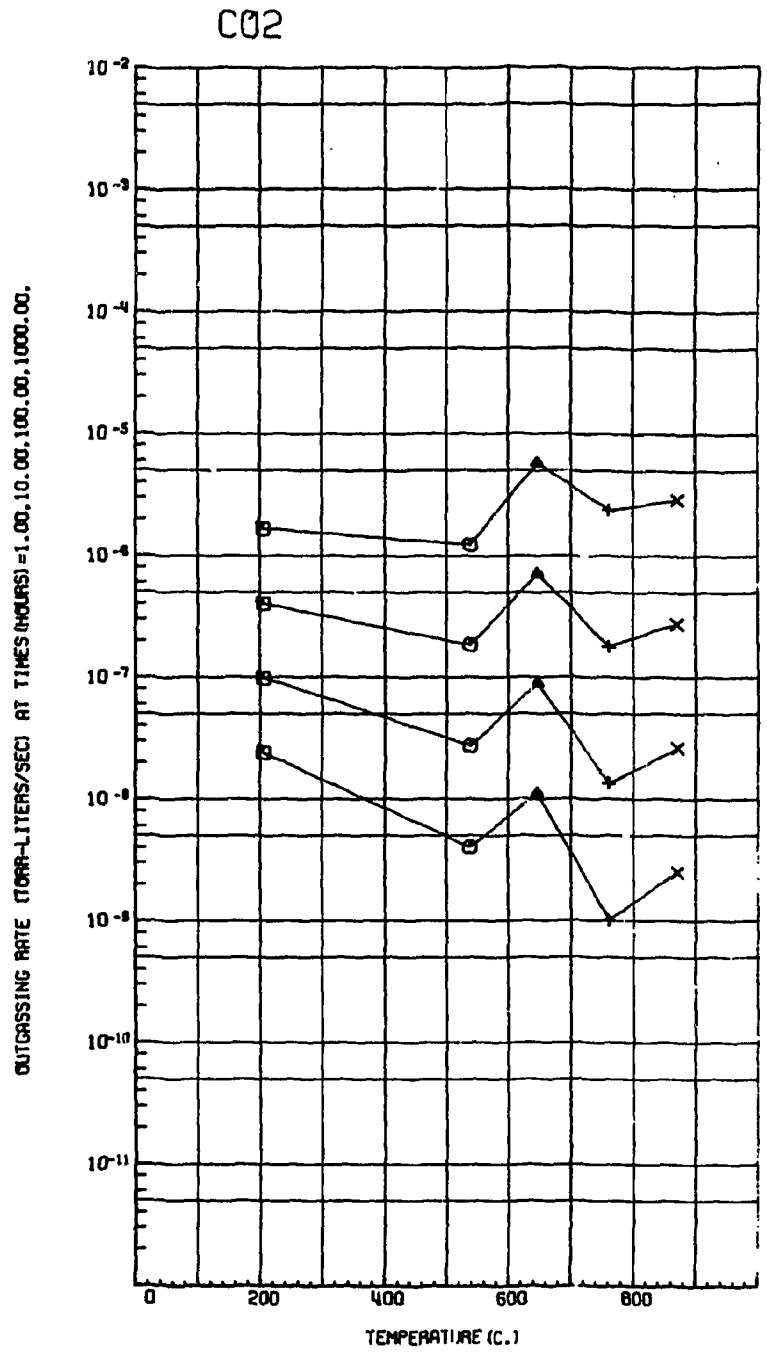
TIME (HRS.)	OUTGASSING RATE
1.0	5.71000E-06
10.0	7.10504E-07
100.0	8.84089E-08
1000.0	1.10008E-08

110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.23700E-05 B = -0.11237E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.37000E-06
10.0	1.76258E-07
100.0	1.31076E-08
1000.0	1.00844E-09

106-4-870--Y-12-D
TEMPERATURE = 870.00 A = 0.29200E-05 B = -0.10235E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.92000E-06
10.0	2.76620E-07
100.0	2.62050E-08
1000.0	2.48247E-09



C2H4

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.53300E-07 B = -0.83717E 00

TIME (HRS.)	OUTGASSING RATE
1.0	5.33000E-08
10.0	7.75457E-09
100.0	1.12820E-09
1000.0	1.64141E-10

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.24100E-06 B = -0.11784E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.41000E-07
10.0	1.59815E-08
100.0	1.05979E-09
1000.0	7.02780E-11

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.28400E-06 B = -0.11228E 01

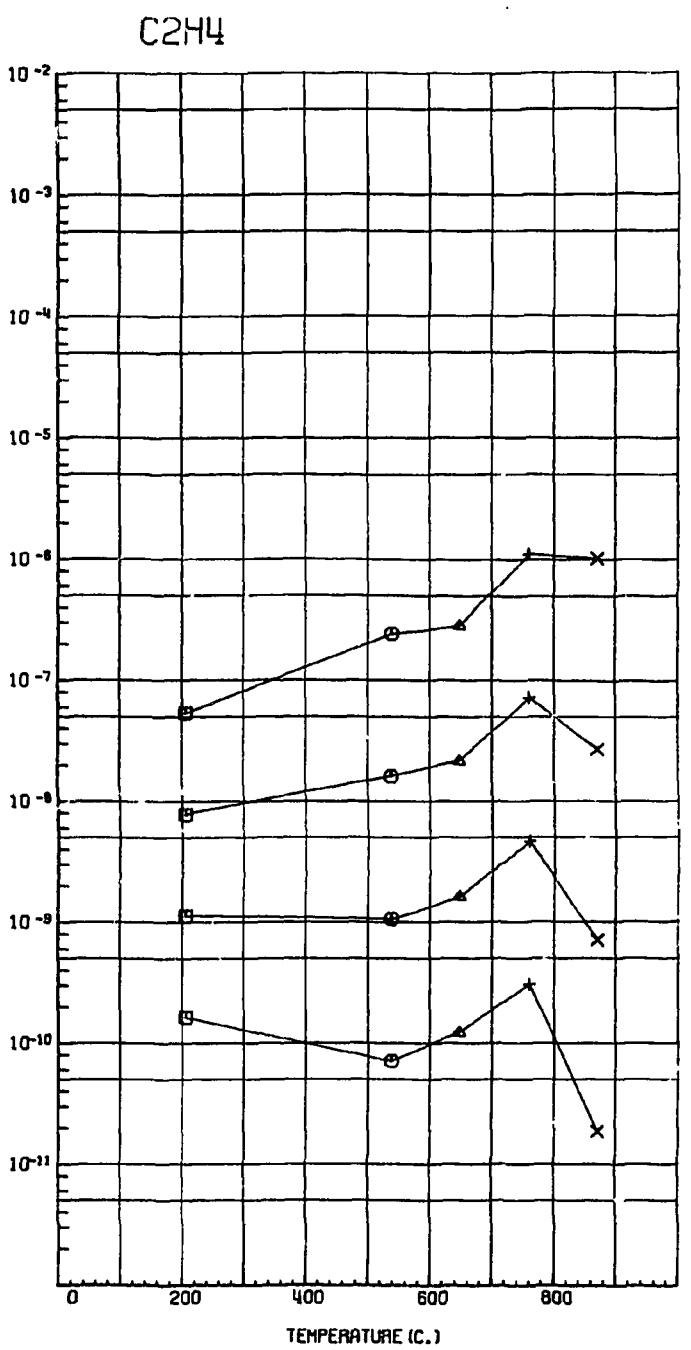
TIME (HRS.)	OUTGASSING RATE
1.0	2.84000E-07
10.0	2.14052E-08
100.0	1.61331E-09
1000.0	1.21596E-10

110-760--Y-12-C
TEMPERATURE = 760.30 A = 0.11000E-05 B = -0.11864E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.10000E-06
10.0	7.76132E-08
100.0	4.64223E-09
1000.0	3.03524E-10

106-4-870--Y-12-C
TEMPERATURE = 870.00 A = 0.10200E-05 B = -0.15801E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.02000E-06
10.0	2.69226E-08
100.0	7.05245E-10
1000.0	1.85482E-11



C2H6

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.28300E-06 B = -0.87149E 00

TIME (HRS.)	OUTGASSING RATE
1.0	2.83000E-07
10.0	3.80449E-08
100.0	5.11454E-09
1000.0	6.87569E-10

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.107C0E-06 B = -0.12664E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.07000E-07
10.0	5.79408E-09
100.0	3.13751E-10
1000.0	1.69897E-11

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.116CCE-05 B = -0.66894E 00

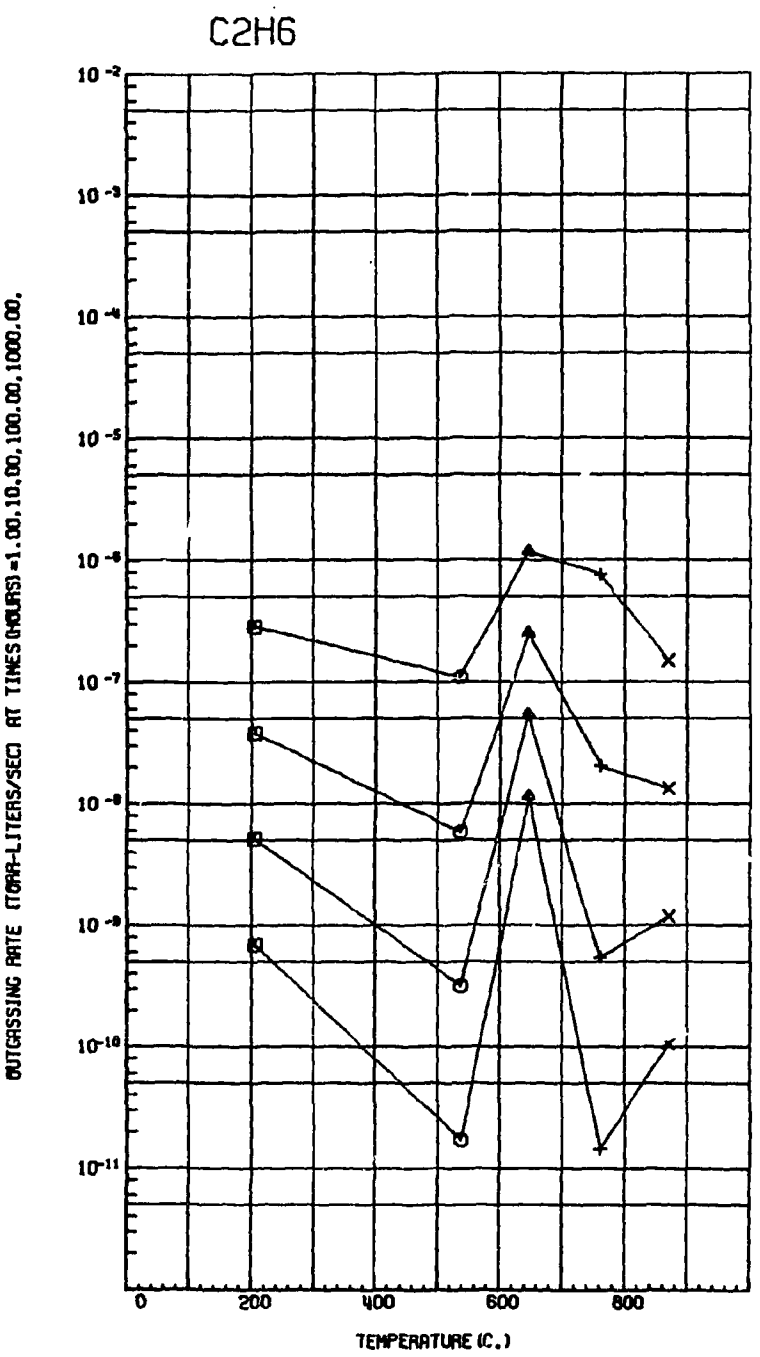
TIME (HRS.)	OUTGASSING RATE
1.0	1.16000E-06
10.0	2.48610E-07
100.0	5.32817E-08
1000.0	1.14193E-08

110-750--Y-12-D
TEMPERATURE = 760.30 A = 0.75500E-06 B = -0.15728E 01

TIME (HRS.)	OUTGASSING RATE
1.0	7.55000E-07
10.0	2.01905E-08
100.0	5.39943E-10
1000.0	1.44394E-11

106-4-870--Y-12-E
TEMPERATURE = 870.00 A = 0.14900E-06 B = -0.10486E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.48000E-07
10.0	1.32231E-08
100.0	1.18221E-09
1000.0	1.05795E-10



C3H8

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.12600E-07 B = -0.75691E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.26000E-08
10.0	2.20527E-09
100.0	3.85967E-10
1000.0	6.75524E-11

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.35600E-07 B = -0.23523E 01

TIME (HRS.)	OUTGASSING RATE
1.0	3.56000E-08
10.0	1.58180E-10
100.0	7.02831E-13
1000.0	3.12248E-15

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.0 B = 0.0

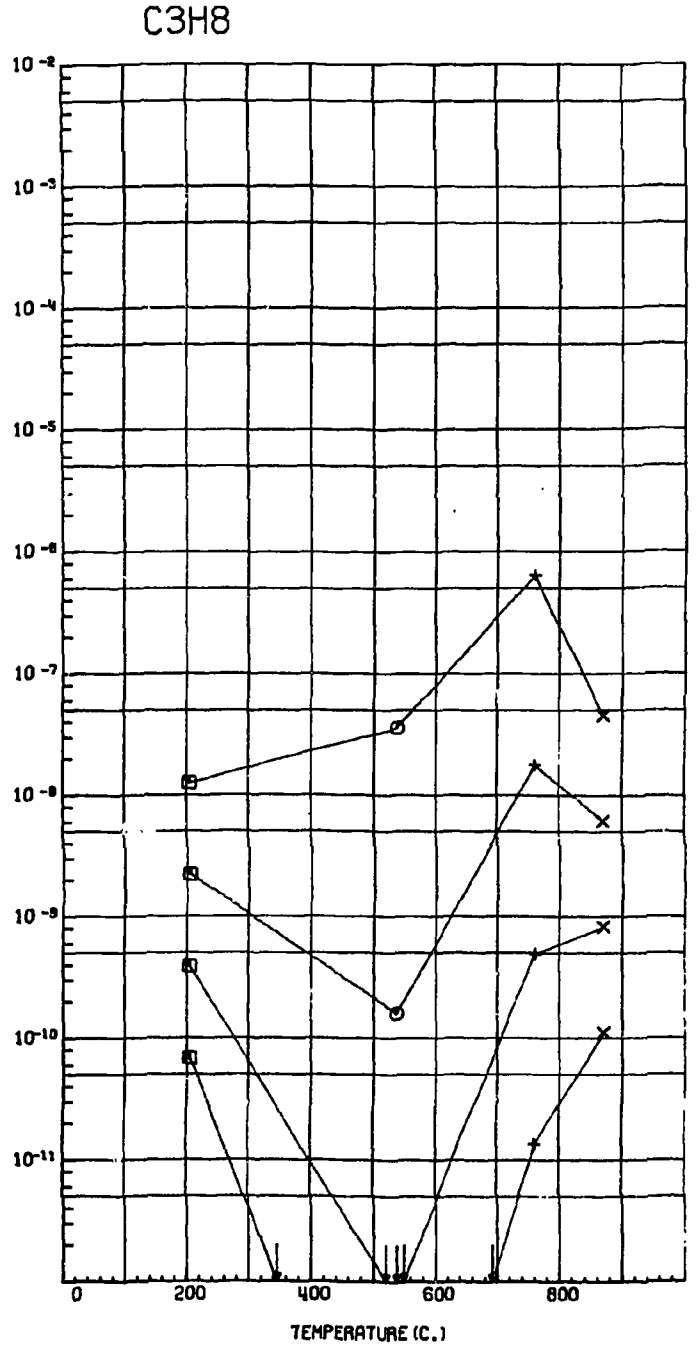
TIME (HRS.)	OUTGASSING RATE
1.0	0.0
10.0	0.0
100.0	0.0
1000.0	0.0

110-760--Y-12-C
TEMPERATURE = 760.30 A = 0.63900E-06 B = -0.15587E 01

TIME (HRS.)	OUTGASSING RATE
1.0	6.39000E-07
10.0	1.76523E-08
100.0	4.87643E-10
1000.0	1.34711E-11

106-4-870--Y-12-D
TEMPERATURE = 870.00 A = 0.45300E-07 B = -0.87082E 00

TIME (HRS.)	OUTGASSING RATE
1.0	4.53000E-08
10.0	6.09928E-09
100.0	8.21218E-10
1000.0	1.10570E-10



HYDROCARBONS

107-205--Y-12-A
TEMPERATURE = 205.00 A = 0.10500E-05 B = -0.55143E 00

TIME (HRS.)	OUTGASSING RATE
1.0	1.05000E-06
10.0	2.94658E-07
100.0	8.28570E-08
1000.0	2.32756E-08

108-538--Y-12-B
TEMPERATURE = 538.20 A = 0.10100E-05 B = -0.12055E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.01000E-06
10.0	6.29248E-08
100.0	3.92033E-09
1000.0	2.44243E-10

109-646--Y-12-C
TEMPERATURE = 646.40 A = 0.16100E-05 B = -0.11982E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.61000E-06
10.0	1.02006E-07
100.0	6.4428CE-09
1000.0	4.0947EE-10

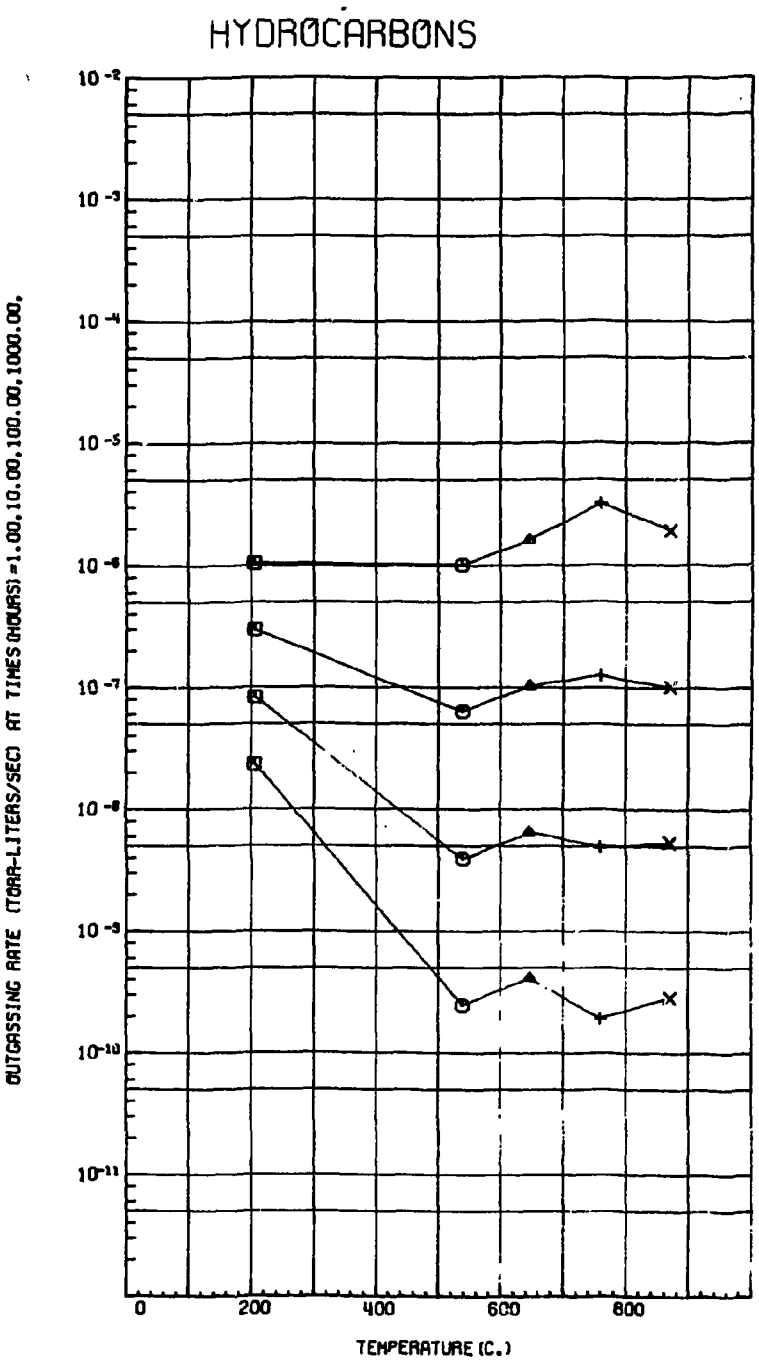
110-760--Y-12-D
TEMPERATURE = 760.30 A = 0.21900E-05 B = -0.14083E 01

TIME (HRS.)	OUTGASSING RATE
1.0	2.19000E-06
10.0	1.24593E-07
100.0	4.86622E-09
1000.0	1.90061E-10

106-4-870--Y-12-D
TEMPERATURE = 870.00 A = 0.19000E-05 B = -0.12743E 01

TIME (HRS.)	OUTGASSING RATE
1.0	1.90000E-06
10.0	1.01031E-07
100.0	5.37223E-09
1000.0	2.85663E-10

IHC0021 STOP 00000



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IEF285I   VOL SER NOS= RRRRRR.
IEF285I   SYS70265.T094821.RV000.CLAC.FJOBLIB          DELETED
IEF285I   VOL SER NOS= CLIB01.
IEF285I   SYS70265.T094821.RV000.CLAC.UT20             DELETED
IEF285I   VOL SER NOS= 222222.
IEF285I   SYS70265.T094821.SV000.CLAC.RC0000037        DELETED
IEF285I   VOL SER NOS= XXXXXX.
IEF285I   SYS70265.T094821.RV000.CLAC.SC0000038        SYSIN
IEF285I   VOL SER NOS= CCCDDC.
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IEF285I   VOL SER NOS= CCCDCC.


CLAC     GO                    18.43.05 10-22-70
     CPU SEC.=  13.91//     I/O REQUESTS=    69//     REGION ALLOC.= 190K//     MACH. USE SEC.=    14.25//     REGION USED= 178K


CLAC     MODEL=75 12523        18.43.05 10-22-70
TOTAL CPU SEC.=  35.47//TOTAL I/O REQUESTS=   875//MAX. REGION ALLOC.= 470K//TOTAL MACH. USE SEC.=    42.75//MAX. REGION USED= 420K
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