DATE ISSUED SEP 24 1984

MARTIN MARIETTA

ORNL
MASTER COPY

ORNL/CSD/TM-210

SKINATH - A Computer Program for Solving the Reactor Point Kinetics Equations with Simple Thermal-Hydraulic Feedback

H. L. Dodds, Jr.
R. M. Westfall

OPERATED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

Printed in the United States of America. Available from
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road, Springfield, Virginia 22161
NTIS price codes—Printed Copy: A04; Microfiche A01

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

ORNL/CSD/TM-210

SKINATH - A Computer Program for Solving the Reactor Point Kinetics Equations with Simple Thermal-Hydraulic Feedback

H. L. Dodds, Jr.
Nuclear Engineering Department
The University of Tennessee
Knoxville, Tennessee 37916

and

R. M. Westfall
COMPUTER SERVICES
at
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee

Date Published - September 1984

Martin Marietta Energy Systems, Inc.
operating the
Oak Ridge National Laboratory
Oak Ridge Y-12 Plant
Oak Ridge Gaseous Diffusion Plant
Paducah Gaseous Diffusion Plant
under Contract No. DE-AC05-84OR21400
for the
DEPARTMENT OF ENERGY

TABLE OF CONTENTS

		Page
	ACKNOWLEDGMENT	v
	ABSTRACT	vii
1.	INTRODUCTION	1
2.	THEORY	1
3.	RESULTS AND CONCLUSIONS	3
4.	RECOMMENDATIONS FOR FUTURE WORK	7
	REFERENCES	8
	APPENDIX A	9
	APPENDIX B	15

ACKNOWLEDGMENT

This work was supported by the Oak Ridge Gaseous Diffusion Plant as part of a multisite study on the plausibility and consequences of low-power criticality events. The authors express their appreciation to D. J. Hamby for the preparation of the manuscript.

ABSTRACT

A FORTRAN computer program named SKINATH has been developed for solving the reactor point kinetics equations with simple thermal-hydraulic feedback. The program utilizes the ordinary differential equation solver, LSODE, developed by Hindmarsh at the Lawrence Livermore National Laboratory. Based on comparisons with both analytical and other numerical solution techniques, the program gives accurate results with impressively short run times.

1. INTRODUCTION

SKINATH, Simple Kinetics and Thermal-Hydraulics, is a FORTRAN computer program developed for the IBM 3033 (double precision) for solving the reactor point kinetics equations[1] coupled with a simple thermal-hydraulic feedback model.[2] SKINATH consists of a main routine which essentially sets up the input for calling LSODE, an ordinary differential equation solver developed by Hindmarsh[3] at the Lawrence Livermore National Laboratory, and one subroutine which is required by LSODE. The entire program consists of about one hundred FORTRAN statements, excluding LSODE, and usually executes in less than two CPU seconds (IBM 3033) for most problems of interest.

Section 2 of this document presents a brief discussion of the equations which are solved and a few comments about the methodology employed in LSODE.

In Section 3, results obtained with SKINATH are compared with results obtained analytically and with other numerical results.

A listing of the program is presented in Appendix A which includes the input for a sample problem. The output for this sample problem is presented in Appendix B.

2. THEORY

SKINATH solves the following equations:

$$\frac{dT}{dt} = \frac{1}{C_p}\left\{\varepsilon P(t) - AHD^{.75}\,[T(t) - T_c]^{1.25}/T(t)^{.25}\right\} \tag{1}$$

$$\frac{dP}{dt} = \left\{\frac{\rho(t) - \beta}{\Lambda}\right\} P(t) + \sum_{i=1}^{M} \lambda_i C_i(t) + S(t) \tag{2}$$

$$\frac{dC_i}{dt} = \frac{\beta_i P(t)}{\Lambda} - \lambda_i C_i(t),\ i = 1, \ldots\ldots, M \tag{3}$$

Equation (1) represents an energy balance for a reactor in the shape of a long horizontal cylinder which is cooled externally by an ideal gas via natural convection.[2] T is the reactor temperature, C_p is the heat capacity of the reactor, H and D are the reactor height and diameter, respectively, T_c is the coolant temperature (which is constant with respect to time, t), and A is a constant determined by

$$A = 1.649K^{.75}(\rho_c{}^2 g\ \hat{C}_p/\mu)^{.25}$$

where K is the coolant thermal conductivity (J/m-sec-°C), ρ_c is the coolant density (Kg/m^3), g is the gravitational constant (m/sec^2), μ is the coolant viscosity (Kg/m-sec), and $\hat{C}_p$ is the coolant specific heat (J/Kg-°C). The value of A (17.52) listed in the sample problem in Appendix A is for air at standard temperature and pressure. The ε in Equation (1) is the fraction of the energy from fission deposited as heat in the system.

Equations (2) and (3) are the standard point kinetics equations where P is the neutron density (neutrons/cm^3), which is proportional to the reactor power, ρ is the system reactivity (dollars), Λ is the system generation time (seconds), and λ_i, C_i, β_i are the decay constant (seconds), precursor concentration (nuclei/cm^3), and delayed neutron fraction, respectively, for precursor group i. The number of delayed precursor groups is M and $\beta = \sum_{i=1}^{M} \beta_i$. S is an extraneous neutron source (neutrons/cm^3) of known magnitude.

The system reactivity, ρ, consists of an external driving function which may be either a step, linear ramp, or a quadratic in time plus a linear feedback component as shown below:

$$\rho(t) = \text{RHOEX}(1) + \text{RHOEX}(2)*t + \text{RHOEX}(3)*t*t + \text{RHOCOF}*[T(t) - T_c] \qquad (4)$$

where t is in seconds and the reactivity feedback coefficient, RHOCOF, has units of dollars per °C.

Most of the applications considered thus far have used six (M = 6) delayed neutron precursor groups so that eight equations are being solved by LSODE. The energy balance equation is the first equation followed by the neutron balance equation and then the six precursor balance equations.

LSODE solves initial value problems for either stiff or non-stiff systems of first order ordinary differential equations, either linear or non-linear. Integration time step sizes are selected automatically by LSODE according to tolerance parameters specified by the user which control the accuracy of the results. LSODE requires the Jacobian matrix[3] in some form which may be either user supplied via an additional user-written subroutine or LSODE will compute it internally using difference

quotients. SKINATH also assumes that the initial condition of the reactor is steady state delayed critical with no thermal-hydraulic feedback. In other words, the feedback is not in equilibrium with the neutronics at time zero. The user specifies the initial neutron density (or power), the coolant temperature (which is set equal to the initial reactor temperature), the edit times (i.e., when results are desired), and values for the other constants appearing in Eqs. (1)-(4) which model the system of interest.

3. RESULTS AND CONCLUSIONS

Evaluation of SKINATH has been accomplished by comparing results obtained with SKINATH with analytical results and with other numerical results.

The first problem considered in the evaluation is a problem that can be solved analytically.[1] Specifically. a step change in reactivity (7 cents) with one delayed neutron group ($M = 1$, $\lambda_1 = 0.1$, $\beta_1 = 0.0065$) and no thermal-hydraulic feedback (RHOCOF = 0.0). The initial relative power is 1.0 and Λ = 5.0E-05 sec.

The numerical evaluation of the analytical solution for this problem is shown in Table I along with SKINATH results and also results obtained via a fourth order Runge-Kutta procedure.[4] The Runge-Kutta solution employed 0.01 sec time steps and required approximately 8 CPU seconds on the IBM 3033 for the 15 minute transient. The SKINATH solution required only 0.12 CPU seconds for 15 minutes of transient time. Thus, it is concluded that SKINATH produces accurate results with very short run times for simple kinetics problems with no thermal-hydraulic feedback.

The next problem considered in the evaluation of SKINATH is a step change in reactivity (4.3 cents) with six delayed neutron groups and thermal-hydraulic feedback present (RHOCOF = -0.306 cents per degree Celcius). The initial relative power and the initial reactor temperature are 0.01 watts and 20 °C, respectively. Other input parameters for this sample problem are presented in Appendix A. The problem output is presented in Appendix B. This problem was originally defined and solved in Reference 2 which (1) assumes a pure exponential behavior for the power, (2) ignores the prompt neutron contribution to reactivity, and (3) uses Euler's method for the time integration. A fourth order Runge-Kutta procedure was also used to obtain a third solution of this problem (with Δt = 0.01 sec). Plots of the power versus time obtained by each of these three solution approaches are presented in Figure 1. Corresponding temperature plots are presented in Figure 2. Additional SKINATH results for this problem out to a final time of 1000 minutes are presented in Appendix B.

TABLE I. STEP RESPONSE FOR ONE DELAY GROUP WITH NO THERMAL-HYDRAULIC FEEDBACK

Time, min.	Relative Power		
	Analytical	SKINATH	Runge-Kutta Fourth Order
0.0	1.0	1.0	1.0
1.0	1.688	1.688	1.687
2.0	2.651	2.651	2.649
3.0	4.162	4.163	4.154
4.0	6.536	6.536	6.510
5.0	10.26	10.26	10.21
6.0	16.11	16.12	16.02
7.0	25.30	25.31	25.14
8.0	39.73	39.74	39.47
9.0	62.39	62.39	61.91
10.0	97.96	97.97	97.02
11.0	153.8	153.8	152.2
12.0	241.5	241.6	238.7
13.0	379.3	379.3	374.6
14.0	595.5	595.6	588.1
15.0	935.1	935.2	922.9
50.0	675.1E+7	675.5E+7	*
100.0	424.0E+17	424.4E+17	*

*Results not computed.

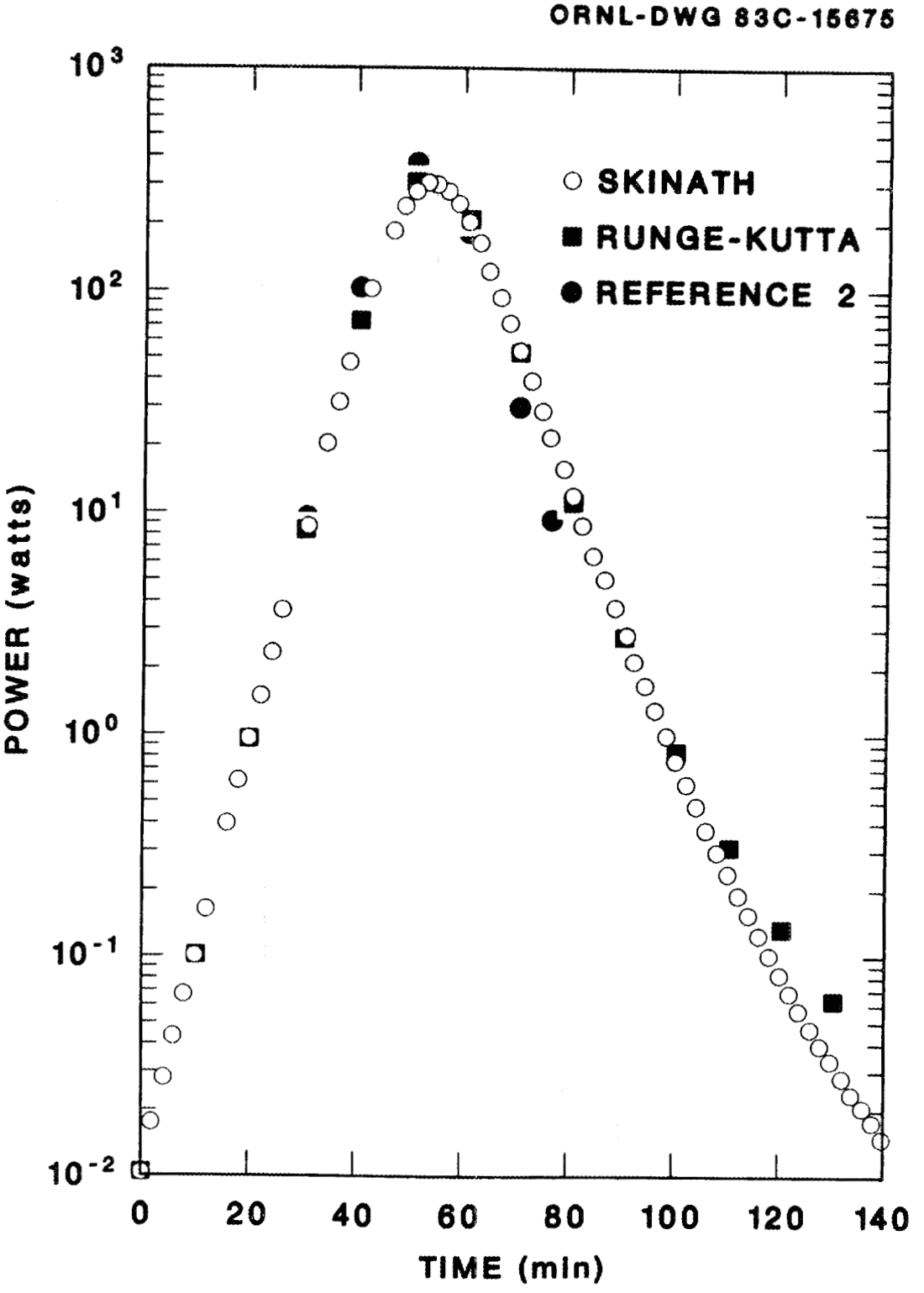

Figure 1. Power Versus Time for Problem No. 2

ORNL-DWG 83C-15678

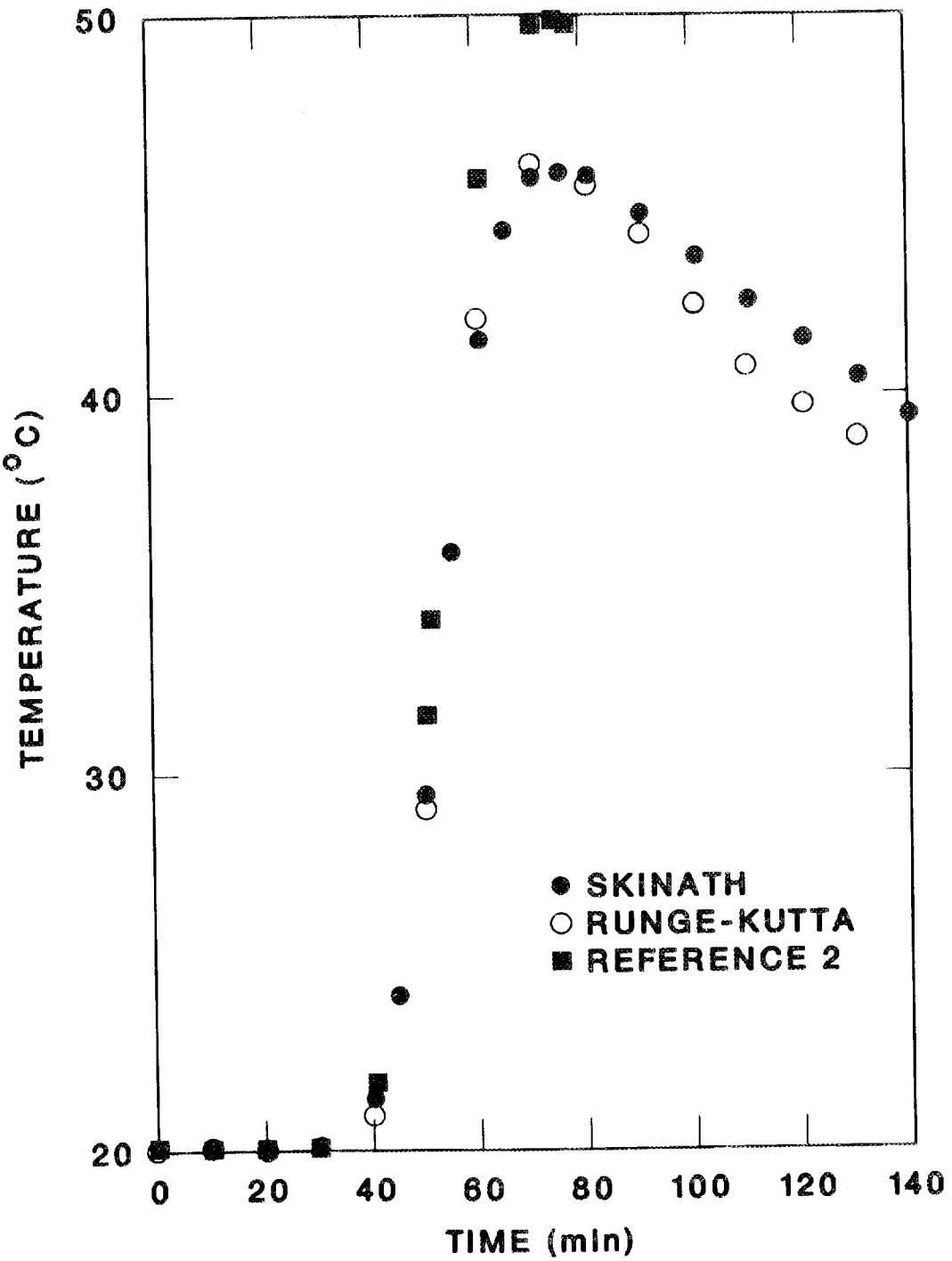

Figure 2. Temperature Versus Time for Problem No. 2

Note that the SKINATH results are similar to the results of Reference 2 which employed several simplifying assumptions. The Runge-Kutta and SKINATH results are also quite similar. More importantly, the Runge-Kutta calculation required 6 minutes of CPU time on the IBM 3033 for a transient time of 130 minutes; whereas, SKINATH required only 1.8 seconds of CPU time for a transient time of 1000 minutes. The Reference 2 results were obtained using a different computer.

Based on these results and other comparisons that were performed but are not presented in this document, we conclude that SKINATH is an accurate and efficient program for solving point kinetics problems with simple thermal-hydraulic feedback.

4. RECOMMENDATIONS FOR FUTURE WORK

The current version of SKINATH employs the LSODE option to calculate the Jacobian internally by difference quotients. An improvement in accuracy and/or computing efficiency might be realized if the Jacobian is calculated by the user as recommended in the LSODE documentation. The improvement may be significant particularly for stiff problems.

The thermal-hydraulic model in SKINATH is really quite crude. Many improvements could be made depending on the system being modeled. One improvement that could be made is to incorporate an energy balance for the coolant. Currently, the coolant is modeled as an isothermal heat sink which is unrealistic for most applications.

As indicated earlier in this document, equilibrium between the neutronics and thermal-hydraulics at time zero does not exist in the current version of SKINATH. Such equilibrium is desirable, although not necessary, for most practical problems of interest and should be implemented in a later version of SKINATH.

Finally, comparing SKINATH results with the results of several transient experiments should be performed in order to better evaluate both the models employed in SKINATH and its solution methodology.

REFERENCES

1. A. F. Henry, Nuclear-Reactor Analysis, MIT Press, Cambridge, Chapter 7, p. 308 (1975).

2. C. E. Newlon et al., "An assessment of the Minimum Criticality Accident of Concern," H & R Technical Associates, H & R 82-2, Oak Ridge, Tenn. (1982).

3. A. C. Hindmarsh, "LSODE and LSODI - Two New Initial Value Ordinary Differential Equation Solvers," ACM-Signum Newsletter, Vol. 15, No. 4 (1980).

4. R. L. Burden et al., Numerical Analysis, Prindle, Weber and Schmidt, Boston, p. 244 (1978).

APPENDIX A

Program Listing and Sample Problem Input

```
          COMPILER OPTIONS - NAME=  MAIN,OPT=02,LINECNT=60,SIZE=0000K,
                             SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,IC,XREF
                C                                                                                  00000060
                C                                                                                  00000070
                C      SSSS  K   K  III  N NNNN          A          TTTTTTT  H       H            00000080
                C     S      K  K    I   NN    N        A A A         T     H       H            00000090
                C     S      K K     I   N     N       A   A          T     H       H            00000100
                C      SSS   KK      I   N     N      AAAAAAAA        T     HHHHHHHH            00000110
                C         S  K K     I   N     N     A         A      T     H       H            00000120
                C         S  K  K    I   N     N    A           A     T     H       H            00000130
                C     SSSS   K   K  III  N     N   A             A    T     H       H            00000140
                C                                                                                  00000150
                C                                                                                  00000160
                C                                                                                  00000161
                C                                                                                  00000162
                C                                                                                  00000163
                C                                                                                  00000164
                C     SIMPLE      KINETICS                AND        THERMAL-HYDRAULICS            00000165
                C                                                                                  00000166
                C                                                                                  00000167
                C                                                                                  00000168
                C                                                                                  00000169
                C     SKINATH  SOLVES SIMPLE POINT KINETICS WITH EVEN SIMPLER FEEDBACK             00000170
                C                                                                                  00000180
                C                                                                                  00000190
                C THE Y-VECTOR CONTAINS TEMP., NEUTRON DENSITY, AND M PRECURSOR CON-               00000200
                C CENTRATIONS.  NOTE THAT THE SYSTEM POWER IS PROPORTIONAL TO THE                  00000210
                C NEUTRON DENSITY.                                                                 00000220
ISN 0002              IMPLICIT REAL*8(A-H,O-Z)                                                     00000230
ISN 0003              DIMENSION AMDA(6),BETA(6),Y(8),RWORK(200),IWORK(200),RHOEX(3)                00000240
ISN 0004              EXTERNAL F                                                                   00000250
                C                                                                                  00000260
                C   NEUTRONIC INPUT                                                                00000270
                C                                                                                  00000280
                                                                                                   00000290
ISN 0005              M = 6                                                                        00000300
ISN 0006              AMDA(1)=.0124D+0                                                             00000310
ISN 0007              AMDA(2)=.0305D+0                                                             00000320
ISN 0008              AMDA(3)=.111D+0                                                              00000330
ISN 0009              AMDA(4)=.301D+0                                                              00000340
ISN 0010              AMDA(5)=1.14D+0                                                              00000350
ISN 0011              AMDA(6)=3.01D+0                                                              00000360
ISN 0012              BETA(1)=.00022D+0                                                            00000370
ISN 0013              BETA(2)=.00142D+0                                                            00000380
ISN 0014              BETA(3)=.00127D+0                                                            00000390
ISN 0015              BETA(4)=.00257D+0                                                            00000400
ISN 0016              BETA(5)=.00075D+0                                                            00000410
ISN 0017              BETA(6)=.00027D+0                                                            00000420
                C   THE INITIAL NEUTRON DENSITY (OR POWER) IS NEXT.                                00000430
ISN 0018              Y(2)=1.0D-02                                                                 00000440
ISN 0019              GEN=5.D-05                                                                   00000450
ISN 0020              BT = 0.D+0                                                                   00000460
ISN 0021              DO 1 I=1,M                                                                   00000470
ISN 0022              BT=BT+BETA(I)                                                                00000480
ISN 0023            1 Y(I+2)=BETA(I)*Y(2)/AMDA(I)/GEN                                              00000490
                C   THE EXTERNAL REACTIVITY PERTURBATION IS NEXT.                                  00000500
ISN 0024              RHOEX(1)=0.043D+0*BT                                                         00000510
ISN 0025              RHOEX(2)= 0.0D+0                                                             00000520
ISN 0026              RHOEX(3)=0.D+0
```

```
                C  THE REACTIVITY FEEDBACK COEFFICIENT IS NEXT.                    00000530
ISN 0027           RHOCOF= -.003060+0*BT                                          00000540
ISN 0028           SOURCE =0.0D+0                                                 00000550
                C                                                                 00000560
                C  THERMAL-HYDRAULIC INPUT                                        00000570
                C                                                                 00000580
                C                                                                 00000590
ISN 0029           EPSIL =1.0D+0                                                  00000600
                C                                                                 00000610
ISN 0030           TC = 20.D+0                                                    00000620
ISN 0031           A = 17.52D+0                                                   00000630
ISN 0032           H =0.23D+0                                                     00000640
ISN 0033           D =0.20D+0                                                     00000650
ISN 0034           AHD75 = A*H*D**.75D+0                                          00000660
ISN 0035           CP = 1300.D+0*3.14159265D+0*D*D/4.D+0*H*1000.D+0               00000670
ISN 0036           Y(1) = TC                                                      00000680
                C                                                                 00000690
                C                                                                 00000700
                C  GENERAL INPUT                                                  00000710
                C                                                                 00000720
                C                                                                 00000730
ISN 0037           NEQ = 8                                                        00000740
ISN 0038           ITOL = 1                                                       00000750
ISN 0039           RTOL = 1.D-05                                                  00000760
ISN 0040           ATOL = 0.D+0                                                   00000770
ISN 0041           ITASK = 1                                                      00000780
ISN 0042           ISTATE = 1                                                     00000790
ISN 0043           IOPT = 1                                                       00000800
ISN 0044           LRW = 200                                                      00000810
ISN 0045           LIW = 200                                                      00000820
ISN 0046           MF = 22                                                        00000830
ISN 0047           ICOUNT = 1                                                     00000840
ISN 0048           T = 0.D+0                                                      00000850
                C  THE TIME STEP SIZE(SECONDS) FOR EDITING OUTPUT IS NEXT.        00000860
ISN 0049           DT = 60.D+0                                                    00000870
ISN 0050           TOUT = DT                                                      00000880
ISN 0051       46  FORMAT(1H0,'LIST 2',6G17.4)                                    00000890
                C   THE FINAL TIME(SECONDS) FOR THE TRANSIENT IS NEXT.            00000900
ISN 0052           TSTOP =60000.D+0                                               00000910
ISN 0053           WRITE(6,44)                                                    00000920
ISN 0054       44  FORMAT(1H0,'THE FOLLOWING TWO LISTS ECHO THE INPUT')           00000930
ISN 0055           WRITE(6,45)EPSIL,AHD75,TC,CP,RHOEX,RHOCOF,AMDA,BETA,GEN,BT     00000940
                  X,SOURCE                                                        00000950
ISN 0056       45  FORMAT(1H0,'LIST 1',6G17.4)                                    00000960
ISN 0057           WRITE(6,46)NEQ,Y,T,TOUT,ITOL,RTOL,ATOL,ITASK,ISTATE,IOPT,      00000970
                  XRWORK,LRW,IWORK,LIW,JEX,MF                                     00000980
                C                                                                 00000990
                C                                                                 00001000
                C    HELLO THERE                                                  00001010
                C                                                                 00001020
                C                                                                 00001030
ISN 0058           WRITE(6,42)                                                    00001040
ISN 0059       42  FORMAT(1H1,' TIME(MIN)','     REACT.($)','TEMP(CELCIUS)',      00001050
                  X' POWER(W)',25X,'PRECURSOR CONCENTRATIONS')                    00001060
ISN 0060           WRITE(6,47)                                                    00001070
ISN 0061       47  FORMAT(1H ,' ________   ___________ _____________ ________  __',00001080
                  X'_____________________________________________________________',00001090
                  X'_______')                                                     00001100
```

```
ISN 0062          CALL F1(EPSIL,AHD75,TC,CP,RHOEX,RHOCOF,AMDA,BETA,GEN,ET,SOURCE)   00001110
ISN 0063     4    CALL LSODE(F,NEQ,Y,T,TOUT,ITOL,RTOL,ATOL,ITASK,ISTATE,IOPT,       00001120
                 XRWORK,LRW,IWORK,LIW,JEX,MF)                                       00001130
ISN 0064          TIMEM = T/60.D+0                                                  00001140
ISN 0065          REAC=(RHOEX(1)+RHOEX(2)*T+RHOEX(3)*T*T+RHOCOF*(Y(1)-TC))/BT       00001150
ISN 0066          WRITE(6,43) TIMEM,REAC,Y                                          00001160
ISN 0067     43   FORMAT(1H0,10G12.4)                                               00001170
             C    CALL ANRESU(RHOEX(1),GEN,T,AMDA(1),BT)                            00001180
ISN 0068          IF(ISTATE.LT.0) GO TO 80                                          00001190
ISN 0070          IF(T.GE.TSTOP) STOP                                               00001200
ISN 0072          ICOUNT = ICOUNT + 1                                               00001210
ISN 0073          TOUT =DFLOAT(ICOUNT)*DT                                           00001220
ISN 0074          IDUM = MOD(ICOUNT,27)                                             00001230
ISN 0075          IF(IDUM.NE.0) GO TO 4                                             00001240
ISN 0077          WRITE(6,42)                                                       00001250
ISN 0078          WRITE(6,47)                                                       00001260
ISN 0079          GO TO 4                                                           00001270
ISN 0080     80   WRITE(6,90) ISTATE                                                00001280
ISN 0081     90   FORMAT(1H0,' ERROR HALT....ISTATE =',I3)                         00001290
ISN 0082          STOP                                                              00001300
ISN 0083          END                                                               00001310
```

```
          COMPILER OPTIONS - NAME=  MAIN,OPT=02,LINECNT=60,SIZE=0000K,
                             SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,XREF
 ISN 0002              SUBROUTINE F(NEQ,T,Y,YDOT)                                00001320
               C     THIS ROUTINE IS REQUIRED BY LSODE.  SEE LSODE DOCUMENTATION.  00001330
 ISN 0003              IMPLICIT REAL*8 (A-H,O-Z)                                 00001340
 ISN 0004              DIMENSION Y(NEQ),YDOT(NEQ),AMDA(6),E(6),RHOEX(3)          00001350
 ISN 0005              YDOT(1) = (EPSIL*Y(2)-AHD75*( Y(1)-TC)**1.25D+0/Y(1)**.25D+0)/CP 00001360
 ISN 0006              SUM = 0.D+0                                               00001370
 ISN 0007              DO 1 I = 3,NEQ                                            00001380
 ISN 0008              YDOT(I) = B(I-2)*Y(2)/GEN-AMDA(I-2)*Y(I)                  00001390
 ISN 0009        1     SUM = SUM + AMDA(I-2)*Y(I)                                00001400
 ISN 0010              YDOT(2) = (RHOEX(1)+RHOEX(2)*T+RHOEX(3)*T*T + RHOCOF*(Y(1)-TC)- 00001410
                      XBT)*Y(2)/GEN + SUM + SOURCE                               00001420
 ISN 0011              RETURN                                                    00001430
 ISN 0012              ENTRY F1(EPSIL,AHD75,TC,CP,RHOEX,RHOCOF,AMDA,B,GEN,BT,SOURCE) 00001440
 ISN 0013              RETURN                                                    00001450
 ISN 0014              END                                                       00001460
```

```
          COMPILER OPTIONS - NAME=  MAIN,OPT=02,LINECNT=60,SIZE=0000K,
                             SOURCE,EBCDIC,NOLIST,NODECK,LOAD,MAP,NOEDIT,ID,XREF
 ISN 0002                SUBROUTINE ANRESU(A1,A2,A3,A4,A5)                          00001470
                   C    THIS ROUTINE IS VALID FOR ONLY ONE DELAYED NEUTRON GROUP WITH NO   00001480
                   C    THERMAL-HYDRAULIC FEEDBACK.  IT PROVIDES THE ANALYTICAL SOLUTION   00001490
                   C    OF THE POINT KINETICS EQUATIONS (ONE DELAY GROUP) DUE TO A STEP    00001500
                   C    CHANGE IN REACTIVITY.  THE INITIAL POWER IS 1.0 AND THE SYSTEM     00001510
                   C    IS ASSUMED TO BE INITIALLY CRITICAL.  THIS ROUTINE IS NOT NECESSARY 00001520
                   C    FOR THE NORMAL OPERATION OF SKINATH.                               00001530
                                                                                           00001540
 ISN 0003                IMPLICIT REAL*8(A-H,O-Z)                                          00001550
 ISN 0004                TZERO = 1.D+0                                                     00001560
 ISN 0005                P = (A1-A5)/A2                                                    00001570
 ISN 0006                RAD = DSQRT(.25D+0*(P-A4)*(P-A4)+A4*A1/A2)                        00001580
 ISN 0007                W1 = .5D+0*(P-A4) + RAD                                           00001590
 ISN 0008                W2 = .5D+0*(P-A4) - RAD                                           00001600
 ISN 0009                T1 = 1.D+0/(W1+A4)                                                00001610
 ISN 0010                T2 = 1.D+0/(W2+A4)                                                00001620
 ISN 0011                C2 = TZERO*(1.D+0/A4-T1)/(T2-T1)                                  00001630
 ISN 0012                C1 = TZERO - C2                                                   00001640
 ISN 0013                E1 = C1*DEXP(W1*A3)                                               00001650
 ISN 0014                E2 = 0.D+0                                                        00001660
 ISN 0015                IF(W2*A3.GT.-150.D+0)                                             00001670
                        XE2 = C2*DEXP(W2*A3)                                               00001680
 ISN 0017                AMP = E1 + E2                                                     00001690
 ISN 0018                PRE = (E1*T1 + E2*T2)*A5/A2                                       00001700
 ISN 0019                WRITE (6,100) AMP,PRE                                             00001710
 ISN 0020          100   FORMAT(1H ,'AMPLITUDE & PRECURSOR DET. ANALYTICALLY =',2G20.4)   00001720
 ISN 0021                RETURN                                                            00001730
 ISN 0022                END
```

APPENDIX B

Sample Problem Output

THE FOLLOWING TWO LISTS ECHO THE INPUT

LIST 1	1.000	1.205	20.00	0.1301D 05	0.2795D-03	0.0
LIST 1	0.0	-0.1989D-04	0.1240D-01	0.3050D-01	0.1110	0.3010
LIST 1	1.140	3.010	0.2200D-03	0.1420D-02	0.1270D-02	0.2570D-02
LIST 1	0.7500D-03	0.2700D-03	0.5000D-04	0.6500D-02	0.0	
LIST 2	8	20.00	0.1000D-01	3.548	9.311	2.288
LIST 2	1.708	0.1316	0.1794D-01	0.0	60.00	1
LIST 2	0.1000D-04	0.0	1	1	1	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0

LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	0.0	0.0	0.0	0.0	0.0
LIST 2	0.0	200	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0

LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	0	0
LIST 2	0	0	0	0	200	0
LIST 2	22					

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
1.000	0.4300D-01	20.00	0.1391D-01	4.018	11.49	3.074	2.345	0.1824	0.2492D-01
2.000	0.4300D-01	20.00	0.1744D-01	4.857	14.45	3.860	2.941	0.2287	0.3124D-01
3.000	0.4300D-01	20.00	0.2180D-01	5.997	18.09	4.827	3.677	0.2859	0.3906D-01
4.000	0.4300D-01	20.00	0.2724D-01	7.459	22.61	6.031	4.594	0.3572	0.4880D-01
5.000	0.4300D-01	20.00	0.3402D-01	9.302	28.24	7.533	5.738	0.4461	0.6095D-01
6.000	0.4300D-01	20.00	0.4248D-01	11.61	35.27	9.407	7.166	0.5572	0.7612D-01
7.000	0.4300D-01	20.00	0.5305D-01	14.50	44.05	11.75	8.949	0.6958	0.9506D-01
8.000	0.4300D-01	20.00	0.6625D-01	18.10	55.01	14.67	11.18	0.8689	0.1187
9.000	0.4300D-01	20.00	0.8273D-01	22.61	68.69	18.32	13.96	1.085	0.1482
10.00	0.4299D-01	20.00	0.1033	28.23	85.78	22.88	17.43	1.355	0.1851
11.00	0.4299D-01	20.00	0.1290	35.25	107.1	28.57	21.76	1.692	0.2312
12.00	0.4299D-01	20.00	0.1611	44.02	133.8	35.67	27.17	2.113	0.2887
13.00	0.4299D-01	20.00	0.2012	54.97	167.0	44.55	33.93	2.638	0.3604
14.00	0.4298D-01	20.00	0.2512	68.64	208.6	55.62	42.37	3.294	0.4501
15.00	0.4298D-01	20.01	0.3136	85.71	260.4	69.46	52.91	4.114	0.5620
16.00	0.4298D-01	20.01	0.3916	107.0	325.2	86.72	66.06	5.136	0.7017
17.00	0.4297D-01	20.01	0.4890	133.6	406.0	108.3	82.49	6.413	0.8761
18.00	0.4296D-01	20.01	0.6105	166.8	507.0	135.2	103.0	8.007	1.094
19.00	0.4295D-01	20.02	0.7622	208.3	632.9	168.8	128.6	9.996	1.366
20.00	0.4294D-01	20.02	0.9515	260.1	790.2	210.7	160.5	12.48	1.705
21.00	0.4293D-01	20.02	1.188	324.7	986.4	263.0	200.4	15.58	2.128
22.00	0.4291D-01	20.03	1.482	405.3	1231.	328.3	250.1	19.44	2.656
23.00	0.4288D-01	20.04	1.850	505.8	1537.	409.7	312.1	24.26	3.315
24.00	0.4285D-01	20.05	2.308	631.2	1917.	511.2	389.4	30.27	4.136
25.00	0.4282D-01	20.06	2.880	787.6	2392.	637.8	485.8	37.77	5.160
26.00	0.4277D-01	20.07	3.591	982.5	2984.	795.5	605.9	47.10	6.435

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
27.00	0.4272D-01	20.09	4.478	1225.	3721.	991.8	755.4	58.73	8.023
28.00	0.4265D-01	20.12	5.580	1528.	4638.	1236.	941.5	73.19	9.999
29.00	0.4256D-01	20.14	6.951	1904.	5779.	1540.	1173.	91.17	12.46
30.00	0.4245D-01	20.18	8.654	2372.	7197.	1917.	1460.	113.5	15.51
31.00	0.4231D-01	20.22	10.76	2952.	8955.	2385.	1816.	141.2	19.29
32.00	0.4215D-01	20.28	13.38	3672.	0.1113D 05	2965.	2257.	175.5	23.97
33.00	0.4194D-01	20.35	16.61	4563.	0.1383D 05	3681.	2802.	217.8	29.75
34.00	0.4168D-01	20.43	20.58	5664.	0.1715D 05	4563.	3473.	270.0	36.88
35.00	0.4136D-01	20.54	25.46	7019.	0.2124D 05	5647.	4298.	334.0	45.63
36.00	0.4096D-01	20.67	31.43	8683.	0.2625D 05	6973.	5306.	412.3	56.32
37.00	0.4047D-01	20.83	38.69	0.1072D 05	0.3235D 05	8587.	6533.	507.6	69.34
38.00	0.3987D-01	21.02	47.47	0.1319D 05	0.3976D 05	0.1054D 05	8016.	622.8	85.07
39.00	0.3914D-01	21.26	58.00	0.1618D 05	0.4868D 05	0.1289D 05	9797.	760.9	103.9
40.00	0.3825D-01	21.55	70.51	0.1976D 05	0.5933D 05	0.1568D 05	0.1191D 05	925.2	126.4
41.00	0.3717D-01	21.91	85.20	0.2402D 05	0.7190D 05	0.1896D 05	0.1440D 05	1118.	152.7
42.00	0.3587D-01	22.33	102.2	0.2902D 05	0.8657D 05	0.2278D 05	0.1728D 05	1341.	183.2
43.00	0.3432D-01	22.84	121.6	0.3482D 05	0.1034D 06	0.2713D 05	0.2057D 05	1596.	217.9
44.00	0.3248D-01	23.44	143.2	0.4141D 05	0.1224D 06	0.3199D 05	0.2423D 05	1879.	256.6
45.00	0.3034D-01	24.14	166.6	0.4876D 05	0.1433D 06	0.3730D 05	0.2822D 05	2188.	298.7
46.00	0.2786D-01	24.95	191.3	0.5677D 05	0.1656D 06	0.4293D 05	0.3244D 05	2513.	343.0
47.00	0.2505D-01	25.87	216.5	0.6524D 05	0.1888D 06	0.4867D 05	0.3673D 05	2843.	388.1
48.00	0.2190D-01	26.90	240.8	0.7388D 05	0.2119D 06	0.5429D 05	0.4090D 05	3164.	431.8
49.00	0.1843D-01	28.03	263.2	0.8233D 05	0.2337D 06	0.5949D 05	0.4474D 05	3459.	471.9
50.00	0.1468D-01	29.25	282.2	0.9018D 05	0.2531D 06	0.6396D 05	0.4802D 05	3709.	506.0
51.00	0.1072D-01	30.55	296.6	0.9698D 05	0.2688D 06	0.6743D 05	0.5053D 05	3900.	531.9
52.00	0.6609D-02	31.89	305.5	0.1023D 06	0.2798D 06	0.6967D 05	0.5211D 05	4018.	548.0
53.00	0.2437D-02	33.26	308.4	0.1059D 06	0.2856D 06	0.7055D 05	0.5267D 05	4058.	553.4

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
54.00	-0.1713D-02	34.61	305.5	0.1075D 06	0.2858D 06	0.7007D 05	0.5221D 05	4020.	548.0
55.00	-0.5760D-02	35.93	296.9	0.1072D 06	0.2807D 06	0.6830D 05	0.5081D 05	3909.	532.8
56.00	-0.9632D-02	37.20	283.8	0.1049D 06	0.2708D 06	0.6543D 05	0.4860D 05	3736.	509.2
57.00	-0.1327D-01	38.39	266.9	0.1010D 06	0.2570D 06	0.6169D 05	0.4575D 05	3515.	479.0
58.00	-0.1664D-01	39.49	247.5	0.9568D 05	0.2402D 06	0.5732D 05	0.4245D 05	3260.	444.2
59.00	-0.1970D-01	40.49	226.6	0.8938D 05	0.2215D 06	0.5258D 05	0.3889D 05	2985.	406.7
60.00	-0.2244D-01	41.39	205.2	0.8243D 05	0.2019D 06	0.4768D 05	0.3524D 05	2704.	368.3
61.00	-0.2487D-01	42.18	184.0	0.7516D 05	0.1821D 06	0.4282D 05	0.3162D 05	2425.	330.3
62.00	-0.2700D-01	42.88	163.7	0.6784D 05	0.1627D 06	0.3814D 05	0.2813D 05	2157.	293.8
63.00	-0.2884D-01	43.48	144.6	0.6069D 05	0.1443D 06	0.3372D 05	0.2486D 05	1906.	259.5
64.00	-0.3040D-01	43.99	126.9	0.5389D 05	0.1272D 06	0.2963D 05	0.2184D 05	1673.	227.9
65.00	-0.3173D-01	44.42	110.9	0.4755D 05	0.1115D 06	0.2591D 05	0.1909D 05	1463.	199.2
66.00	-0.3283D-01	44.78	96.55	0.4173D 05	0.9726D 05	0.2257D 05	0.1662D 05	1273.	173.3
67.00	-0.3373D-01	45.08	83.77	0.3645D 05	0.8454D 05	0.1959D 05	0.1442D 05	1105.	150.4
68.00	-0.3446D-01	45.31	72.49	0.3172D 05	0.7328D 05	0.1696D 05	0.1248D 05	955.8	130.2
69.00	-0.3504D-01	45.50	62.60	0.2752D 05	0.6336D 05	0.1465D 05	0.1078D 05	825.5	112.4
70.00	-0.3549D-01	45.65	53.99	0.2382D 05	0.5469D 05	0.1264D 05	9295.	711.9	96.93
71.00	-0.3581D-01	45.76	46.50	0.2057D 05	0.4714D 05	0.1089D 05	8008.	613.2	83.50
72.00	-0.3604D-01	45.83	40.03	0.1774D 05	0.4060D 05	9371.	6893.	527.9	71.87
73.00	-0.3619D-01	45.88	34.44	0.1529D 05	0.3494D 05	8063.	5931.	454.2	61.84
74.00	-0.3626D-01	45.90	29.63	0.1317D 05	0.3006D 05	6937.	5102.	390.7	53.20
75.00	-0.3626D-01	45.90	25.49	0.1133D 05	0.2586D 05	5968.	4389.	336.1	45.77
76.00	-0.3622D-01	45.89	21.94	9752.	0.2225D 05	5135.	3777.	289.3	39.39
77.00	-0.3612D-01	45.86	18.88	8393.	0.1915D 05	4421.	3252.	249.0	33.91
78.00	-0.3599D-01	45.81	16.27	7225.	0.1649D 05	3807.	2801.	214.5	29.21
79.00	-0.3582D-01	45.76	14.02	6222.	0.1421D 05	3281.	2414.	184.9	25.17
80.00	-0.3563D-01	45.70	12.09	5362.	0.1225D 05	2830.	2082.	159.5	21.71

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
81.00	-0.3541D-01	45.62	10.44	4623.	0.1057D 05	2443.	1798.	137.7	18.75
82.00	-0.3517D-01	45.55	9.022	3990.	9130.	2111.	1553.	119.0	16.20
83.00	-0.3491D-01	45.46	7.804	3446.	7893.	1826.	1343.	102.9	14.01
84.00	-0.3464D-01	45.37	6.758	2979.	6830.	1580.	1163.	89.10	12.13
85.00	-0.3436D-01	45.28	5.858	2578.	5917.	1370.	1008.	77.24	10.52
86.00	-0.3406D-01	45.18	5.083	2233.	5131.	1188.	874.9	67.02	9.127
87.00	-0.3376D-01	45.09	4.416	1937.	4455.	1032.	760.1	58.23	7.929
88.00	-0.3345D-01	44.99	3.842	1681.	3872.	897.8	661.1	50.65	6.897
89.00	-0.3314D-01	44.88	3.346	1461.	3370.	781.7	575.7	44.11	6.006
90.00	-0.3282D-01	44.78	2.917	1272.	2936.	681.5	501.9	38.46	5.237
91.00	-0.3249D-01	44.67	2.547	1108.	2562.	594.8	438.2	33.58	4.572
92.00	-0.3216D-01	44.56	2.226	966.5	2237.	519.9	383.0	29.35	3.997
93.00	-0.3183D-01	44.46	1.948	844.2	1957.	454.9	335.2	25.69	3.498
94.00	-0.3150D-01	44.35	1.707	738.2	1714.	398.6	293.7	22.51	3.065
95.00	-0.3117D-01	44.24	1.498	646.4	1502.	349.7	257.7	19.75	2.690
96.00	-0.3084D-01	44.13	1.316	566.8	1319.	307.1	226.4	17.35	2.363
97.00	-0.3050D-01	44.02	1.158	497.5	1159.	270.1	199.1	15.26	2.079
98.00	-0.3017D-01	43.91	1.020	437.3	1021.	237.9	175.4	13.45	1.831
99.00	-0.2983D-01	43.80	0.8996	384.9	899.4	209.8	154.7	11.86	1.615
100.0	-0.2950D-01	43.69	0.7945	339.2	793.7	185.2	136.6	10.47	1.426
101.0	-0.2916D-01	43.58	0.7025	299.3	701.3	163.8	120.8	9.260	1.261
102.0	-0.2883D-01	43.47	0.6220	264.5	620.5	145.0	106.9	8.199	1.117
103.0	-0.2849D-01	43.36	0.5515	234.0	549.7	128.5	94.80	7.269	0.9900
104.0	-0.2816D-01	43.26	0.4896	207.3	487.6	114.1	84.15	6.453	0.8789
105.0	-0.2783D-01	43.15	0.4352	183.9	433.1	101.4	74.80	5.736	0.7812
106.0	-0.2750D-01	43.04	0.3873	163.3	385.2	90.20	66.57	5.105	0.6953
107.0	-0.2717D-01	42.93	0.3452	145.2	343.0	80.37	59.32	4.549	0.6196

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
108.0	-0.2684D-01	42.82	0.3080	129.3	305.8	71.70	52.93	4.059	0.5529
109.0	-0.2652D-01	42.72	0.2752	115.3	273.1	64.05	47.29	3.627	0.4940
110.0	-0.2619D-01	42.61	0.2462	103.0	244.1	57.29	42.30	3.245	0.4419
111.0	-0.2587D-01	42.51	0.2205	92.04	218.5	51.31	37.89	2.906	0.3959
112.0	-0.2554D-01	42.40	0.1978	82.38	195.8	46.01	33.98	2.607	0.3551
113.0	-0.2522D-01	42.29	0.1776	73.84	175.7	41.31	30.51	2.341	0.3189
114.0	-0.2490D-01	42.19	0.1597	66.26	157.9	37.14	27.44	2.105	0.2867
115.0	-0.2458D-01	42.09	0.1438	59.54	142.1	33.43	24.70	1.895	0.2581
116.0	-0.2427D-01	41.98	0.1296	53.57	128.0	30.13	22.26	1.708	0.2327
117.0	-0.2395D-01	41.88	0.1170	48.25	115.4	27.19	20.09	1.542	0.2100
118.0	-0.2364D-01	41.78	0.1057	43.52	104.2	24.57	18.16	1.393	0.1898
119.0	-0.2332D-01	41.67	0.9569D-01	39.30	94.25	22.23	16.43	1.261	0.1718
120.0	-0.2301D-01	41.57	0.8669D-01	35.54	85.33	20.14	14.89	1.142	0.1556
121.0	-0.2270D-01	41.47	0.7864D-01	32.18	77.35	18.26	13.50	1.036	0.1412
122.0	-0.2240D-01	41.37	0.7143D-01	29.17	70.21	16.58	12.26	0.9412	0.1282
123.0	-0.2209D-01	41.27	0.6496D-01	26.48	63.80	15.08	11.15	0.8559	0.1166
124.0	-0.2178D-01	41.17	0.5914D-01	24.06	58.05	13.73	10.15	0.7793	0.1062
125.0	-0.2148D-01	41.07	0.5392D-01	21.89	52.88	12.51	9.254	0.7104	0.9677D-01
126.0	-0.2118D-01	40.97	0.4921D-01	19.94	48.23	11.42	8.446	0.6484	0.8833D-01
127.0	-0.2088D-01	40.88	0.4497D-01	18.19	44.05	10.43	7.718	0.5925	0.8072D-01
128.0	-0.2058D-01	40.78	0.4115D-01	16.61	40.27	9.542	7.061	0.5421	0.7386D-01
129.0	-0.2028D-01	40.68	0.3769D-01	15.19	36.87	8.740	6.468	0.4966	0.6766D-01
130.0	-0.1999D-01	40.58	0.3457D-01	13.91	33.79	8.015	5.932	0.4555	0.6205D-01
131.0	-0.1969D-01	40.49	0.3175D-01	12.75	31.01	7.358	5.447	0.4182	0.5698D-01
132.0	-0.1940D-01	40.39	0.2919D-01	11.70	28.49	6.764	5.007	0.3845	0.5239D-01
133.0	-0.1911D-01	40.30	0.2687D-01	10.75	26.21	6.225	4.609	0.3539	0.4822D-01
134.0	-0.1882D-01	40.20	0.2476D-01	9.887	24.13	5.736	4.247	0.3262	0.4444D-01

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
135.0	-0.1853D-01	40.11	0.2285D-01	9.106	22.25	5.292	3.919	0.3010	0.4101D-01
136.0	-0.1824D-01	40.01	0.2110D-01	8.397	20.54	4.887	3.620	0.2780	0.3788D-01
137.0	-0.1796D-01	39.92	0.1952D-01	7.752	18.99	4.519	3.348	0.2571	0.3503D-01
138.0	-0.1768D-01	39.83	0.1807D-01	7.166	17.57	4.184	3.100	0.2381	0.3244D-01
139.0	-0.1739D-01	39.74	0.1676D-01	6.631	16.28	3.878	2.873	0.2207	0.3007D-01
140.0	-0.1711D-01	39.64	0.1555D-01	6.144	15.10	3.599	2.667	0.2048	0.2791D-01
141.0	-0.1683D-01	39.55	0.1445D-01	5.699	14.02	3.343	2.478	0.1903	0.2593D-01
142.0	-0.1655D-01	39.46	0.1344D-01	5.292	13.03	3.110	2.305	0.1771	0.2413D-01
143.0	-0.1628D-01	39.37	0.1252D-01	4.920	12.13	2.896	2.146	0.1649	0.2247D-01
144.0	-0.1600D-01	39.28	0.1167D-01	4.580	11.30	2.700	2.001	0.1538	0.2095D-01
145.0	-0.1573D-01	39.19	0.1090D-01	4.268	10.54	2.520	1.868	0.1435	0.1956D-01
146.0	-0.1546D-01	39.10	0.1018D-01	3.982	9.848	2.354	1.746	0.1341	0.1828D-01
147.0	-0.1519D-01	39.02	0.9529D-02	3.719	9.208	2.202	1.633	0.1255	0.1710D-01
148.0	-0.1492D-01	38.93	0.8925D-02	3.478	8.619	2.063	1.530	0.1176	0.1602D-01
149.0	-0.1465D-01	38.84	0.8370D-02	3.256	8.078	1.934	1.434	0.1102	0.1502D-01
150.0	-0.1438D-01	38.75	0.7858D-02	3.052	7.578	1.815	1.346	0.1035	0.1410D-01
151.0	-0.1412D-01	38.67	0.7385D-02	2.863	7.118	1.706	1.265	0.9726D-01	0.1325D-01
152.0	-0.1385D-01	38.58	0.6948D-02	2.690	6.693	1.605	1.191	0.9151D-01	0.1247D-01
153.0	-0.1359D-01	38.49	0.6545D-02	2.529	6.301	1.511	1.121	0.8619D-01	0.1175D-01
154.0	-0.1333D-01	38.41	0.6172D-02	2.381	5.938	1.425	1.057	0.8128D-01	0.1108D-01
155.0	-0.1307D-01	38.32	0.5826D-02	2.244	5.602	1.345	0.9981	0.7673D-01	0.1046D-01
156.0	-0.1281D-01	38.24	0.5506D-02	2.118	5.291	1.271	0.9432	0.7251D-01	0.9882D-02
157.0	-0.1255D-01	38.15	0.5210D-02	2.000	5.003	1.202	0.8923	0.6860D-01	0.9349D-02
158.0	-0.1230D-01	38.07	0.4934D-02	1.892	4.735	1.138	0.8451	0.6498D-01	0.8855D-02
159.0	-0.1204D-01	37.99	0.4678D-02	1.791	4.487	1.079	0.8013	0.6161D-01	0.8396D-02
160.0	-0.1179D-01	37.91	0.4441D-02	1.697	4.256	1.024	0.7605	0.5848D-01	0.7969D-02
161.0	-0.1154D-01	37.82	0.4220D-02	1.610	4.042	0.9730	0.7226	0.5556D-01	0.7572D-02

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
162.0	-0.1129D-01	37.74	0.4014D-02	1.529	3.843	0.9254	0.6873	0.5285D-01	0.7203D-02
163.0	-0.1104D-01	37.66	0.3822D-02	1.454	3.657	0.8811	0.6545	0.5033D-01	0.6859D-02
164.0	-0.1079D-01	37.58	0.3644D-02	1.384	3.484	0.8398	0.6239	0.4798D-01	0.6539D-02
165.0	-0.1054D-01	37.50	0.3477D-02	1.319	3.323	0.8013	0.5953	0.4578D-01	0.6240D-02
166.0	-0.1030D-01	37.42	0.3322D-02	1.258	3.173	0.7654	0.5687	0.4374D-01	0.5961D-02
167.0	-0.1005D-01	37.34	0.3177D-02	1.201	3.032	0.7318	0.5438	0.4183D-01	0.5701D-02
168.0	-0.9812D-02	37.26	0.3041D-02	1.148	2.901	0.7005	0.5206	0.4004D-01	0.5457D-02
169.0	-0.9570D-02	37.18	0.2914D-02	1.098	2.779	0.6712	0.4988	0.3837D-01	0.5230D-02
170.0	-0.9330D-02	37.10	0.2796D-02	1.052	2.664	0.6438	0.4785	0.3681D-01	0.5017D-02
171.0	-0.9091D-02	37.02	0.2685D-02	1.009	2.557	0.6181	0.4595	0.3535D-01	0.4818D-02
172.0	-0.8853D-02	36.95	0.2581D-02	0.9685	2.456	0.5941	0.4417	0.3398D-01	0.4632D-02
173.0	-0.8617D-02	36.87	0.2484D-02	0.9306	2.362	0.5716	0.4250	0.3270D-01	0.4457D-02
174.0	-0.8381D-02	36.79	0.2393D-02	0.8951	2.274	0.5506	0.4094	0.3150D-01	0.4293D-02
175.0	-0.8147D-02	36.71	0.2307D-02	0.8619	2.192	0.5308	0.3948	0.3037D-01	0.4140D-02
176.0	-0.7914D-02	36.64	0.2227D-02	0.8308	2.115	0.5123	0.3810	0.2932D-01	0.3996D-02
177.0	-0.7682D-02	36.56	0.2152D-02	0.8016	2.042	0.4949	0.3682	0.2833D-01	0.3861D-02
178.0	-0.7452D-02	36.49	0.2081D-02	0.7742	1.974	0.4787	0.3561	0.2740D-01	0.3735D-02
179.0	-0.7223D-02	36.41	0.2015D-02	0.7485	1.910	0.4634	0.3447	0.2653D-01	0.3616D-02
180.0	-0.6994D-02	36.34	0.1953D-02	0.7244	1.850	0.4490	0.3341	0.2571D-01	0.3504D-02
181.0	-0.6767D-02	36.26	0.1895D-02	0.7018	1.794	0.4355	0.3241	0.2494D-01	0.3400D-02
182.0	-0.6542D-02	36.19	0.1840D-02	0.6806	1.741	0.4229	0.3147	0.2422D-01	0.3302D-02
183.0	-0.6317D-02	36.12	0.1789D-02	0.6606	1.692	0.4110	0.3059	0.2354D-01	0.3209D-02
184.0	-0.6094D-02	36.04	0.1740D-02	0.6419	1.645	0.3999	0.2976	0.2291D-01	0.3123D-02
185.0	-0.5871D-02	35.97	0.1695D-02	0.6244	1.602	0.3894	0.2899	0.2231D-01	0.3042D-02
186.0	-0.5650D-02	35.90	0.1653D-02	0.6079	1.561	0.3796	0.2826	0.2175D-01	0.2965D-02
187.0	-0.5430D-02	35.83	0.1613D-02	0.5924	1.522	0.3704	0.2758	0.2123D-01	0.2894D-02
188.0	-0.5211D-02	35.76	0.1576D-02	0.5779	1.486	0.3618	0.2694	0.2074D-01	0.2827D-02

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
189.0	-0.4993D-02	35.68	0.1541D-02	0.5643	1.452	0.3537	0.2634	0.2028D-01	0.2764D-02
190.0	-0.4777D-02	35.61	0.1508D-02	0.5516	1.421	0.3461	0.2578	0.1985D-01	0.2705D-02
191.0	-0.4561D-02	35.54	0.1477D-02	0.5397	1.391	0.3391	0.2525	0.1944D-01	0.2650D-02
192.0	-0.4347D-02	35.47	0.1449D-02	0.5285	1.363	0.3324	0.2476	0.1907D-01	0.2599D-02
193.0	-0.4133D-02	35.40	0.1422D-02	0.5181	1.338	0.3263	0.2430	0.1871D-01	0.2551D-02
194.0	-0.3921D-02	35.33	0.1397D-02	0.5083	1.313	0.3205	0.2388	0.1839D-01	0.2506D-02
195.0	-0.3710D-02	35.26	0.1374D-02	0.4993	1.291	0.3151	0.2348	0.1808D-01	0.2465D-02
196.0	-0.3500D-02	35.20	0.1352D-02	0.4908	1.270	0.3102	0.2311	0.1780D-01	0.2426D-02
197.0	-0.3291D-02	35.13	0.1332D-02	0.4829	1.251	0.3056	0.2277	0.1754D-01	0.2391D-02
198.0	-0.3083D-02	35.06	0.1314D-02	0.4757	1.233	0.3013	0.2246	0.1729D-01	0.2358D-02
199.0	-0.2876D-02	34.99	0.1297D-02	0.4689	1.216	0.2974	0.2216	0.1707D-01	0.2327D-02
200.0	-0.2670D-02	34.92	0.1282D-02	0.4627	1.201	0.2938	0.2190	0.1687D-01	0.2299D-02
201.0	-0.2465D-02	34.86	0.1267D-02	0.4570	1.187	0.2905	0.2166	0.1668D-01	0.2274D-02
202.0	-0.2262D-02	34.79	0.1255D-02	0.4518	1.175	0.2875	0.2143	0.1651D-01	0.2251D-02
203.0	-0.2059D-02	34.73	0.1243D-02	0.4471	1.163	0.2848	0.2124	0.1636D-01	0.2230D-02
204.0	-0.1857D-02	34.66	0.1233D-02	0.4428	1.153	0.2824	0.2106	0.1622D-01	0.2211D-02
205.0	-0.1657D-02	34.59	0.1223D-02	0.4390	1.144	0.2803	0.2090	0.1610D-01	0.2195D-02
206.0	-0.1457D-02	34.53	0.1215D-02	0.4356	1.136	0.2784	0.2076	0.1599D-01	0.2181D-02
207.0	-0.1259D-02	34.46	0.1209D-02	0.4326	1.129	0.2768	0.2064	0.1590D-01	0.2168D-02
208.0	-0.1061D-02	34.40	0.1203D-02	0.4300	1.123	0.2754	0.2055	0.1583D-01	0.2158D-02
209.0	-0.8648D-03	34.33	0.1198D-02	0.4278	1.118	0.2743	0.2047	0.1577D-01	0.2150D-02
210.0	-0.6693D-03	34.27	0.1195D-02	0.4261	1.114	0.2735	0.2040	0.1572D-01	0.2143D-02
211.0	-0.4747D-03	34.21	0.1192D-02	0.4247	1.111	0.2729	0.2036	0.1569D-01	0.2139D-02
212.0	-0.2812D-03	34.14	0.1191D-02	0.4236	1.110	0.2725	0.2034	0.1567D-01	0.2136D-02
213.0	-0.8869D-04	34.08	0.1190D-02	0.4230	1.109	0.2724	0.2033	0.1566D-01	0.2136D-02
214.0	0.1029D-03	34.02	0.1191D-02	0.4227	1.109	0.2725	0.2034	0.1567D-01	0.2137D-02
215.0	0.2934D-03	33.96	0.1193D-02	0.4229	1.110	0.2729	0.2037	0.1569D-01	0.2140D-02

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
216.0	0.4830D-03	33.89	0.1196D-02	0.4233	1.112	0.2735	0.2041	0.1573D-01	0.2145D-02
217.0	0.6717D-03	33.83	0.1199D-02	0.4242	1.115	0.2743	0.2048	0.1578D-01	0.2152D-02
218.0	0.8594D-03	33.77	0.1204D-02	0.4254	1.119	0.2754	0.2056	0.1584D-01	0.2160D-02
219.0	0.1046D-02	33.71	0.1210D-02	0.4270	1.124	0.2767	0.2066	0.1592D-01	0.2171D-02
220.0	0.1232D-02	33.65	0.1217D-02	0.4290	1.130	0.2783	0.2078	0.1601D-01	0.2183D-02
221.0	0.1417D-02	33.59	0.1225D-02	0.4313	1.137	0.2801	0.2091	0.1612D-01	0.2198D-02
222.0	0.1601D-02	33.53	0.1234D-02	0.4341	1.145	0.2821	0.2107	0.1624D-01	0.2214D-02
223.0	0.1784D-02	33.47	0.1245D-02	0.4372	1.154	0.2844	0.2124	0.1637D-01	0.2233D-02
224.0	0.1966D-02	33.41	0.1256D-02	0.4407	1.164	0.2870	0.2144	0.1653D-01	0.2253D-02
225.0	0.2147D-02	33.35	0.1269D-02	0.4446	1.175	0.2899	0.2165	0.1669D-01	0.2276D-02
226.0	0.2327D-02	33.29	0.1282D-02	0.4490	1.187	0.2930	0.2189	0.1687D-01	0.2301D-02
227.0	0.2506D-02	33.23	0.1298D-02	0.4537	1.201	0.2964	0.2214	0.1707D-01	0.2328D-02
228.0	0.2684D-02	33.18	0.1314D-02	0.4589	1.215	0.3001	0.2242	0.1728D-01	0.2357D-02
229.0	0.2862D-02	33.12	0.1331D-02	0.4645	1.231	0.3040	0.2272	0.1751D-01	0.2388D-02
230.0	0.3038D-02	33.06	0.1350D-02	0.4706	1.248	0.3083	0.2304	0.1776D-01	0.2422D-02
231.0	0.3214D-02	33.00	0.1371D-02	0.4772	1.266	0.3129	0.2339	0.1803D-01	0.2459D-02
232.0	0.3389D-02	32.94	0.1392D-02	0.4843	1.286	0.3179	0.2376	0.1832D-01	0.2498D-02
233.0	0.3563D-02	32.89	0.1416D-02	0.4918	1.306	0.3231	0.2415	0.1862D-01	0.2540D-02
234.0	0.3736D-02	32.83	0.1441D-02	0.4999	1.329	0.3288	0.2457	0.1895D-01	0.2584D-02
235.0	0.3908D-02	32.78	0.1467D-02	0.5086	1.353	0.3348	0.2502	0.1930D-01	0.2631D-02
236.0	0.4079D-02	32.72	0.1495D-02	0.5178	1.378	0.3411	0.2550	0.1967D-01	0.2682D-02
237.0	0.4250D-02	32.66	0.1525D-02	0.5275	1.405	0.3479	0.2601	0.2006D-01	0.2735D-02
238.0	0.4419D-02	32.61	0.1557D-02	0.5380	1.433	0.3551	0.2655	0.2048D-01	0.2792D-02
239.0	0.4588D-02	32.55	0.1590D-02	0.5490	1.464	0.3627	0.2712	0.2092D-01	0.2853D-02
240.0	0.4756D-02	32.50	0.1626D-02	0.5607	1.496	0.3708	0.2773	0.2139D-01	0.2917D-02
241.0	0.4923D-02	32.44	0.1664D-02	0.5731	1.530	0.3794	0.2837	0.2188D-01	0.2984D-02
242.0	0.5089D-02	32.39	0.1704D-02	0.5863	1.566	0.3884	0.2905	0.2241D-01	0.3056D-02

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
243.0	0.5254D-02	32.34	0.1746D-02	0.6002	1.604	0.3980	0.2977	0.2296D-01	0.3132D-02
244.0	0.5419D-02	32.28	0.1791D-02	0.6150	1.645	0.4082	0.3053	0.2355D-01	0.3212D-02
245.0	0.5582D-02	32.23	0.1838D-02	0.6306	1.687	0.4189	0.3134	0.2417D-01	0.3297D-02
246.0	0.5745D-02	32.17	0.1888D-02	0.6471	1.732	0.4302	0.3219	0.2483D-01	0.3386D-02
247.0	0.5907D-02	32.12	0.1941D-02	0.6645	1.780	0.4422	0.3309	0.2552D-01	0.3481D-02
248.0	0.6068D-02	32.07	0.1996D-02	0.6829	1.831	0.4549	0.3404	0.2626D-01	0.3581D-02
249.0	0.6229D-02	32.02	0.2055D-02	0.7024	1.884	0.4683	0.3504	0.2703D-01	0.3687D-02
250.0	0.6388D-02	31.96	0.2118D-02	0.7230	1.940	0.4824	0.3610	0.2785D-01	0.3799D-02
251.0	0.6547D-02	31.91	0.2184D-02	0.7448	2.000	0.4974	0.3722	0.2872D-01	0.3917D-02
252.0	0.6705D-02	31.86	0.2253D-02	0.7678	2.063	0.5132	0.3841	0.2963D-01	0.4042D-02
253.0	0.6862D-02	31.81	0.2327D-02	0.7921	2.129	0.5299	0.3966	0.3060D-01	0.4173D-02
254.0	0.7019D-02	31.76	0.2404D-02	0.8177	2.199	0.5475	0.4098	0.3162D-01	0.4313D-02
255.0	0.7174D-02	31.71	0.2487D-02	0.8449	2.274	0.5661	0.4238	0.3270D-01	0.4460D-02
256.0	0.7329D-02	31.66	0.2574D-02	0.8736	2.352	0.5859	0.4386	0.3385D-01	0.4616D-02
257.0	0.7483D-02	31.61	0.2665D-02	0.9039	2.435	0.6067	0.4543	0.3505D-01	0.4781D-02
258.0	0.7636D-02	31.56	0.2763D-02	0.9360	2.523	0.6288	0.4708	0.3633D-01	0.4955D-02
259.0	0.7789D-02	31.51	0.2865D-02	0.9699	2.616	0.6521	0.4883	0.3768D-01	0.5140D-02
260.0	0.7941D-02	31.46	0.2974D-02	1.006	2.714	0.6768	0.5068	0.3911D-01	0.5335D-02
261.0	0.8092D-02	31.41	0.3089D-02	1.044	2.818	0.7029	0.5264	0.4063D-01	0.5541D-02
262.0	0.8242D-02	31.36	0.3211D-02	1.084	2.928	0.7306	0.5472	0.4223D-01	0.5760D-02
263.0	0.8391D-02	31.31	0.3341D-02	1.126	3.045	0.7599	0.5692	0.4393D-01	0.5992D-02
264.0	0.8540D-02	31.26	0.3477D-02	1.172	3.168	0.7909	0.5925	0.4573D-01	0.6237D-02
265.0	0.8688D-02	31.21	0.3622D-02	1.219	3.299	0.8238	0.6172	0.4763D-01	0.6497D-02
266.0	0.8835D-02	31.16	0.3776D-02	1.270	3.438	0.8587	0.6433	0.4965D-01	0.6773D-02
267.0	0.8982D-02	31.12	0.3939D-02	1.324	3.585	0.8957	0.6711	0.5180D-01	0.7065D-02
268.0	0.9128D-02	31.07	0.4112D-02	1.380	3.741	0.9349	0.7005	0.5407D-01	0.7375D-02
269.0	0.9273D-02	31.02	0.4296D-02	1.441	3.907	0.9765	0.7317	0.5648D-01	0.7704D-02

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
270.0	0.9417D-02	30.97	0.4490D-02	1.505	4.082	1.021	0.7649	0.5905D-01	0.8054D-02
271.0	0.9561D-02	30.93	0.4697D-02	1.573	4.269	1.068	0.8001	0.6177D-01	0.8425D-02
272.0	0.9704D-02	30.88	0.4917D-02	1.645	4.467	1.117	0.8375	0.6466D-01	0.8819D-02
273.0	0.9846D-02	30.83	0.5151D-02	1.722	4.678	1.170	0.8773	0.6773D-01	0.9238D-02
274.0	0.9987D-02	30.79	0.5399D-02	1.803	4.902	1.227	0.9196	0.7100D-01	0.9684D-02
275.0	0.1013D-01	30.74	0.5664D-02	1.890	5.140	1.287	0.9646	0.7447D-01	0.1016D-01
276.0	0.1027D-01	30.70	0.5945D-02	1.982	5.393	1.351	1.012	0.7817D-01	0.1066D-01
277.0	0.1041D-01	30.65	0.6245D-02	2.080	5.663	1.418	1.063	0.8211D-01	0.1120D-01
278.0	0.1055D-01	30.61	0.6564D-02	2.184	5.950	1.491	1.118	0.8630D-01	0.1177D-01
279.0	0.1068D-01	30.56	0.6904D-02	2.295	6.256	1.568	1.176	0.9077D-01	0.1238D-01
280.0	0.1082D-01	30.52	0.7266D-02	2.414	6.582	1.650	1.237	0.9553D-01	0.1303D-01
281.0	0.1096D-01	30.47	0.7653D-02	2.540	6.929	1.738	1.303	0.1006	0.1372D-01
282.0	0.1109D-01	30.43	0.8065D-02	2.675	7.300	1.831	1.373	0.1060	0.1446D-01
283.0	0.1123D-01	30.38	0.8505D-02	2.819	7.696	1.931	1.448	0.1118	0.1525D-01
284.0	0.1136D-01	30.34	0.8975D-02	2.972	8.119	2.037	1.528	0.1180	0.1610D-01
285.0	0.1150D-01	30.29	0.9478D-02	3.136	8.570	2.151	1.614	0.1246	0.1700D-01
286.0	0.1163D-01	30.25	0.1001D-01	3.311	9.053	2.273	1.705	0.1317	0.1796D-01
287.0	0.1176D-01	30.21	0.1059D-01	3.498	9.568	2.403	1.803	0.1392	0.1899D-01
288.0	0.1190D-01	30.16	0.1120D-01	3.697	10.12	2.542	1.907	0.1473	0.2009D-01
289.0	0.1203D-01	30.12	0.1186D-01	3.911	10.71	2.691	2.019	0.1559	0.2127D-01
290.0	0.1216D-01	30.08	0.1257D-01	4.140	11.34	2.851	2.139	0.1652	0.2254D-01
291.0	0.1229D-01	30.04	0.1332D-01	4.385	12.02	3.021	2.267	0.1751	0.2389D-01
292.0	0.1242D-01	29.99	0.1413D-01	4.648	12.75	3.205	2.405	0.1857	0.2534D-01
293.0	0.1255D-01	29.95	0.1500D-01	4.930	13.52	3.401	2.552	0.1971	0.2689D-01
294.0	0.1267D-01	29.91	0.1593D-01	5.231	14.36	3.612	2.711	0.2094	0.2856D-01
295.0	0.1280D-01	29.87	0.1693D-01	5.555	15.25	3.838	2.881	0.2225	0.3036D-01
296.0	0.1293D-01	29.83	0.1800D-01	5.903	16.22	4.081	3.063	0.2366	0.3228D-01

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
297.0	0.1305D-01	29.79	0.1915D-01	6.276	17.25	4.342	3.259	0.2518	0.3435D-01
298.0	0.1318D-01	29.75	0.2039D-01	6.677	18.36	4.622	3.470	0.2681	0.3657D-01
299.0	0.1330D-01	29.70	0.2172D-01	7.108	19.55	4.924	3.697	0.2856	0.3896D-01
300.0	0.1343D-01	29.66	0.2316D-01	7.571	20.84	5.249	3.941	0.3044	0.4153D-01
301.0	0.1355D-01	29.62	0.2470D-01	8.070	22.22	5.598	4.203	0.3247	0.4430D-01
302.0	0.1367D-01	29.58	0.2636D-01	8.607	23.71	5.974	4.486	0.3466	0.4728D-01
303.0	0.1380D-01	29.54	0.2816D-01	9.185	25.31	6.380	4.791	0.3701	0.5050D-01
304.0	0.1392D-01	29.50	0.3009D-01	9.808	27.04	6.817	5.119	0.3955	0.5396D-01
305.0	0.1404D-01	29.46	0.3217D-01	10.48	28.90	7.288	5.473	0.4229	0.5770D-01
306.0	0.1416D-01	29.42	0.3442D-01	11.20	30.91	7.797	5.856	0.4524	0.6173D-01
307.0	0.1428D-01	29.39	0.3685D-01	11.98	33.08	8.346	6.268	0.4843	0.6608D-01
308.0	0.1440D-01	29.35	0.3947D-01	12.83	35.42	8.939	6.714	0.5188	0.7078D-01
309.0	0.1452D-01	29.31	0.4230D-01	13.74	37.95	9.580	7.196	0.5560	0.7586D-01
310.0	0.1464D-01	29.27	0.4536D-01	14.72	40.69	10.27	7.717	0.5963	0.8135D-01
311.0	0.1475D-01	29.23	0.4868D-01	15.79	43.65	11.02	8.280	0.6398	0.8729D-01
312.0	0.1487D-01	29.19	0.5226D-01	16.94	46.85	11.83	8.890	0.6870	0.9372D-01
313.0	0.1499D-01	29.15	0.5615D-01	18.18	50.31	12.71	9.550	0.7380	0.1007
314.0	0.1510D-01	29.12	0.6035D-01	19.53	54.06	13.66	10.26	0.7932	0.1082
315.0	0.1522D-01	29.08	0.6491D-01	20.99	58.13	14.69	11.04	0.8531	0.1164
316.0	0.1533D-01	29.04	0.6985D-01	22.57	62.53	15.81	11.88	0.9181	0.1253
317.0	0.1544D-01	29.01	0.7521D-01	24.29	67.31	17.02	12.79	0.9885	0.1349
318.0	0.1556D-01	28.97	0.8102D-01	26.15	72.49	18.33	13.78	1.065	0.1453
319.0	0.1567D-01	28.93	0.8734D-01	28.17	78.12	19.76	14.85	1.148	0.1566
320.0	0.1578D-01	28.90	0.9420D-01	30.36	84.23	21.31	16.02	1.238	0.1689
321.0	0.1589D-01	28.86	0.1017	32.74	90.87	23.00	17.29	1.336	0.1823
322.0	0.1600D-01	28.82	0.1098	35.32	98.09	24.83	18.66	1.443	0.1968
323.0	0.1611D-01	28.79	0.1186	38.14	105.9	26.82	20.16	1.558	0.2126

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
324.0	0.1622D-01	28.75	0.1282	41.19	114.5	28.99	21.79	1.685	0.2298
325.0	0.1633D-01	28.72	0.1386	44.52	123.8	31.35	23.57	1.822	0.2486
326.0	0.1644D-01	28.68	0.1500	48.15	133.9	33.92	25.50	1.971	0.2690
327.0	0.1654D-01	28.65	0.1624	52.09	144.9	36.72	27.61	2.134	0.2912
328.0	0.1665D-01	28.61	0.1759	56.39	157.0	39.78	29.91	2.312	0.3155
329.0	0.1676D-01	28.58	0.1907	61.08	170.1	43.11	32.41	2.506	0.3419
330.0	0.1686D-01	28.54	0.2068	66.19	184.4	46.74	35.15	2.717	0.3708
331.0	0.1697D-01	28.51	0.2243	71.77	200.0	50.71	38.13	2.948	0.4023
332.0	0.1707D-01	28.47	0.2435	77.86	217.0	55.04	41.40	3.200	0.4367
333.0	0.1717D-01	28.44	0.2645	84.51	235.6	59.78	44.96	3.476	0.4743
334.0	0.1727D-01	28.41	0.2874	91.78	256.0	64.95	48.85	3.777	0.5154
335.0	0.1737D-01	28.37	0.3125	99.72	278.2	70.61	53.11	4.106	0.5603
336.0	0.1747D-01	28.34	0.3399	108.4	302.6	76.80	57.77	4.467	0.6095
337.0	0.1757D-01	28.31	0.3699	117.9	329.2	83.58	62.87	4.861	0.6633
338.0	0.1767D-01	28.28	0.4028	128.3	358.4	91.00	68.45	5.293	0.7222
339.0	0.1777D-01	28.25	0.4387	139.7	390.3	99.12	74.57	5.766	0.7867
340.0	0.1787D-01	28.21	0.4782	152.1	425.3	108.0	81.27	6.284	0.8575
341.0	0.1796D-01	28.18	0.5214	165.8	463.6	117.8	88.62	6.852	0.9350
342.0	0.1806D-01	28.15	0.5689	180.8	505.6	128.5	96.67	7.475	1.020
343.0	0.1815D-01	28.12	0.6209	197.2	551.8	140.2	105.5	8.159	1.113
344.0	0.1824D-01	28.09	0.6780	215.2	602.4	153.1	115.2	8.909	1.216
345.0	0.1833D-01	28.06	0.7407	235.0	657.9	167.3	125.9	9.733	1.328
346.0	0.1842D-01	28.03	0.8096	256.7	718.9	182.8	137.6	10.64	1.452
347.0	0.1851D-01	28.00	0.8852	280.5	785.9	199.9	150.4	11.63	1.587
348.0	0.1860D-01	27.98	0.9684	306.7	859.5	218.6	164.5	12.72	1.736
349.0	0.1868D-01	27.95	1.060	335.5	940.5	239.3	180.1	13.93	1.900
350.0	0.1876D-01	27.92	1.160	367.1	1029.	261.9	197.1	15.25	2.081

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
351.0	0.1884D-01	27.89	1.271	401.9	1127.	286.9	215.9	16.70	2.279
352.0	0.1892D-01	27.87	1.393	440.2	1235.	314.3	236.6	18.30	2.497
353.0	0.1900D-01	27.84	1.527	482.3	1354.	344.6	259.4	20.06	2.737
354.0	0.1907D-01	27.82	1.674	528.7	1484.	377.8	284.4	22.00	3.002
355.0	0.1915D-01	27.80	1.836	579.7	1628.	414.4	312.0	24.13	3.293
356.0	0.1921D-01	27.77	2.015	635.9	1786.	454.8	342.4	26.48	3.613
357.0	0.1928D-01	27.75	2.212	697.7	1960.	499.2	375.8	29.07	3.967
358.0	0.1934D-01	27.73	2.429	765.9	2152.	548.2	412.7	31.92	4.356
359.0	0.1940D-01	27.71	2.668	841.0	2363.	602.1	453.3	35.06	4.785
360.0	0.1946D-01	27.69	2.932	923.7	2596.	661.5	498.0	38.52	5.257
361.0	0.1951D-01	27.68	3.222	1015.	2853.	727.0	547.4	42.34	5.778
362.0	0.1956D-01	27.66	3.542	1115.	3136.	799.2	601.7	46.54	6.351
363.0	0.1960D-01	27.65	3.895	1226.	3448.	878.7	661.6	51.18	6.984
364.0	0.1964D-01	27.64	4.283	1348.	3791.	966.3	727.6	56.28	7.680
365.0	0.1967D-01	27.63	4.711	1482.	4170.	1063.	800.3	61.90	8.447
366.0	0.1969D-01	27.62	5.182	1630.	4587.	1169.	880.3	68.09	9.292
367.0	0.1971D-01	27.61	5.701	1793.	5046.	1286.	968.5	74.91	10.22
368.0	0.1972D-01	27.61	6.273	1973.	5551.	1415.	1066.	82.42	11.25
369.0	0.1972D-01	27.61	6.901	2170.	6107.	1557.	1172.	90.68	12.37
370.0	0.1971D-01	27.61	7.592	2388.	6719.	1713.	1290.	99.76	13.61
371.0	0.1969D-01	27.62	8.352	2627.	7392.	1884.	1419.	109.7	14.98
372.0	0.1966D-01	27.63	9.186	2889.	8130.	2072.	1560.	120.7	16.47
373.0	0.1962D-01	27.64	10.10	3178.	8941.	2279.	1716.	132.7	18.11
374.0	0.1956D-01	27.66	11.10	3495.	9831.	2505.	1886.	145.9	19.91
375.0	0.1949D-01	27.68	12.20	3842.	0.1081D 05	2753.	2073.	160.3	21.88
376.0	0.1941D-01	27.71	13.40	4222.	0.1187D 05	3025.	2277.	176.1	24.04
377.0	0.1931D-01	27.74	14.72	4638.	0.1304D 05	3321.	2500.	193.4	26.39

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
378.0	0.1918D-01	27.78	16.15	5092.	0.1431D 05	3644.	2743.	212.2	28.95
379.0	0.1904D-01	27.83	17.70	5587.	0.1569D 05	3996.	3008.	232.6	31.74
380.0	0.1888D-01	27.88	19.39	6126.	0.1720D 05	4378.	3295.	254.8	34.77
381.0	0.1869D-01	27.94	21.22	6712.	0.1883D 05	4792.	3606.	278.9	38.06
382.0	0.1848D-01	28.01	23.20	7346.	0.2060D 05	5240.	3943.	304.9	41.61
383.0	0.1823D-01	28.09	25.34	8032.	0.2251D 05	5722.	4306.	332.9	45.43
384.0	0.1796D-01	28.18	27.63	8772.	0.2456D 05	6241.	4695.	363.0	49.54
385.0	0.1766D-01	28.28	30.08	9566.	0.2676D 05	6796.	5112.	395.2	53.93
386.0	0.1732D-01	28.39	32.69	0.1042D 05	0.2911D 05	7388.	5556.	429.6	58.62
387.0	0.1694D-01	28.51	35.46	0.1132D 05	0.3161D 05	8017.	6028.	466.0	63.59
388.0	0.1653D-01	28.65	38.38	0.1229D 05	0.3426D 05	8681.	6526.	504.5	68.83
389.0	0.1608D-01	28.80	41.46	0.1331D 05	0.3704D 05	9379.	7050.	544.9	74.35
390.0	0.1558D-01	28.96	44.67	0.1438D 05	0.3996D 05	0.1011D 05	7596.	587.1	80.10
391.0	0.1504D-01	29.14	47.99	0.1550D 05	0.4300D 05	0.1087D 05	8163.	630.8	86.07
392.0	0.1446D-01	29.33	51.42	0.1666D 05	0.4614D 05	0.1165D 05	8747.	675.9	92.21
393.0	0.1383D-01	29.53	54.91	0.1785D 05	0.4936D 05	0.1244D 05	9344.	721.8	98.48
394.0	0.1315D-01	29.75	58.45	0.1908D 05	0.5263D 05	0.1325D 05	9947.	768.4	104.8
395.0	0.1243D-01	29.99	61.99	0.2032D 05	0.5592D 05	0.1406D 05	0.1055D 05	815.0	111.2
396.0	0.1166D-01	30.24	65.50	0.2157D 05	0.5921D 05	0.1487D 05	0.1115D 05	861.2	117.5
397.0	0.1085D-01	30.51	68.93	0.2281D 05	0.6244D 05	0.1566D 05	0.1174D 05	906.4	123.6
398.0	0.9991D-02	30.79	72.24	0.2402D 05	0.6558D 05	0.1642D 05	0.1231D 05	949.9	129.6
399.0	0.9092D-02	31.08	75.38	0.2520D 05	0.6859D 05	0.1714D 05	0.1284D 05	991.2	135.2
400.0	0.8155D-02	31.39	78.29	0.2632D 05	0.7142D 05	0.1782D 05	0.1334D 05	1030.	140.4
401.0	0.7184D-02	31.70	80.95	0.2737D 05	0.7402D 05	0.1844D 05	0.1380D 05	1065.	145.2
402.0	0.6182D-02	32.03	83.29	0.2833D 05	0.7635D 05	0.1898D 05	0.1420D 05	1095.	149.4
403.0	0.5155D-02	32.37	85.27	0.2918D 05	0.7838D 05	0.1945D 05	0.1454D 05	1122.	153.0
404.0	0.4107D-02	32.71	86.88	0.2992D 05	0.8007D 05	0.1983D 05	0.1482D 05	1143.	155.8

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
405.0	0.3045D-02	33.06	88.07	0.3053D 05	0.8139D 05	0.2012D 05	0.1503D 05	1159.	158.0
406.0	0.1975D-02	33.41	88.84	0.3099D 05	0.8232D 05	0.2031D 05	0.1516D 05	1169.	159.4
407.0	0.9021D-03	33.76	89.16	0.3131D 05	0.8285D 05	0.2040D 05	0.1522D 05	1173.	160.0
408.0	-0.1666D-03	34.11	89.05	0.3148D 05	0.8296D 05	0.2039D 05	0.1521D 05	1172.	159.8
409.0	-0.1225D-02	34.45	88.50	0.3149D 05	0.8268D 05	0.2028D 05	0.1512D 05	1165.	158.8
410.0	-0.2268D-02	34.79	87.55	0.3135D 05	0.8199D 05	0.2007D 05	0.1496D 05	1152.	157.1
411.0	-0.3288D-02	35.13	86.20	0.3107D 05	0.8094D 05	0.1978D 05	0.1473D 05	1134.	154.7
412.0	-0.4283D-02	35.45	84.49	0.3064D 05	0.7953D 05	0.1940D 05	0.1445D 05	1112.	151.6
413.0	-0.5245D-02	35.77	82.47	0.3009D 05	0.7781D 05	0.1894D 05	0.1410D 05	1086.	148.0
414.0	-0.6172D-02	36.07	80.16	0.2942D 05	0.7581D 05	0.1843D 05	0.1371D 05	1055.	143.8
415.0	-0.7061D-02	36.36	77.61	0.2864D 05	0.7356D 05	0.1785D 05	0.1328D 05	1022.	139.3
416.0	-0.7907D-02	36.64	74.87	0.2778D 05	0.7110D 05	0.1723D 05	0.1281D 05	985.6	134.3
417.0	-0.8709D-02	36.90	71.97	0.2684D 05	0.6848D 05	0.1657D 05	0.1232D 05	947.5	129.1
418.0	-0.9465D-02	37.15	68.95	0.2584D 05	0.6573D 05	0.1588D 05	0.1180D 05	907.8	123.7
419.0	-0.1017D-01	37.38	65.86	0.2480D 05	0.6289D 05	0.1518D 05	0.1128D 05	867.2	118.2
420.0	-0.1084D-01	37.59	62.73	0.2372D 05	0.6000D 05	0.1446D 05	0.1074D 05	826.0	112.6
421.0	-0.1145D-01	37.79	59.59	0.2263D 05	0.5709D 05	0.1374D 05	0.1021D 05	784.7	106.9
422.0	-0.1202D-01	37.98	56.48	0.2152D 05	0.5417D 05	0.1303D 05	9673.	743.7	101.4
423.0	-0.1254D-01	38.15	53.41	0.2042D 05	0.5129D 05	0.1233D 05	9148.	703.3	95.84
424.0	-0.1301D-01	38.30	50.40	0.1933D 05	0.4846D 05	0.1164D 05	8635.	663.7	90.45
425.0	-0.1344D-01	38.45	47.48	0.1827D 05	0.4570D 05	0.1096D 05	8135.	625.3	85.20
426.0	-0.1383D-01	38.57	44.65	0.1722D 05	0.4302D 05	0.1031D 05	7651.	588.1	80.14
427.0	-0.1418D-01	38.69	41.94	0.1621D 05	0.4043D 05	9686.	7186.	552.3	75.26
428.0	-0.1449D-01	38.79	39.33	0.1524D 05	0.3795D 05	9089.	6741.	518.0	70.59
429.0	-0.1476D-01	38.87	36.85	0.1431D 05	0.3558D 05	8517.	6316.	485.4	66.14
430.0	-0.1499D-01	38.95	34.49	0.1341D 05	0.3332D 05	7973.	5912.	454.3	61.90
431.0	-0.1519D-01	39.02	32.26	0.1256D 05	0.3118D 05	7457.	5529.	424.9	57.90

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
432.0	-0.1536D-01	39.07	30.15	0.1175D 05	0.2915D 05	6970.	5168.	397.1	54.11
433.0	-0.1550D-01	39.12	28.16	0.1099D 05	0.2724D 05	6511.	4827.	370.9	50.54
434.0	-0.1561D-01	39.15	26.29	0.1027D 05	0.2544D 05	6079.	4507.	346.3	47.19
435.0	-0.1570D-01	39.18	24.54	9591.	0.2374D 05	5674.	4207.	323.2	44.04
436.0	-0.1576D-01	39.20	22.90	8954.	0.2216D 05	5295.	3925.	301.6	41.09
437.0	-0.1580D-01	39.22	21.36	8357.	0.2068D 05	4940.	3662.	281.4	38.34
438.0	-0.1582D-01	39.22	19.93	7798.	0.1929D 05	4609.	3416.	262.5	35.77
439.0	-0.1582D-01	39.22	18.59	7276.	0.1800D 05	4300.	3187.	244.9	33.37
440.0	-0.1580D-01	39.21	17.35	6788.	0.1679D 05	4011.	2974.	228.5	31.14
441.0	-0.1576D-01	39.20	16.19	6334.	0.1567D 05	3743.	2775.	213.2	29.05
442.0	-0.1571D-01	39.19	15.11	5911.	0.1462D 05	3494.	2590.	199.0	27.12
443.0	-0.1564D-01	39.16	14.11	5517.	0.1365D 05	3262.	2418.	185.8	25.32
444.0	-0.1556D-01	39.14	13.18	5151.	0.1275D 05	3047.	2259.	173.6	23.65
445.0	-0.1547D-01	39.11	12.31	4810.	0.1191D 05	2846.	2111.	162.2	22.10
446.0	-0.1536D-01	39.07	11.51	4494.	0.1113D 05	2661.	1973.	151.6	20.66
447.0	-0.1525D-01	39.04	10.76	4200.	0.1040D 05	2488.	1845.	141.8	19.32
448.0	-0.1513D-01	39.00	10.07	3927.	9733.	2328.	1726.	132.7	18.08
449.0	-0.1500D-01	38.95	9.431	3674.	9110.	2180.	1616.	124.2	16.93
450.0	-0.1486D-01	38.91	8.835	3439.	8531.	2042.	1514.	116.4	15.86
451.0	-0.1471D-01	38.86	8.282	3221.	7994.	1914.	1419.	109.1	14.86
452.0	-0.1455D-01	38.81	7.769	3019.	7496.	1795.	1331.	102.3	13.94
453.0	-0.1439D-01	38.76	7.292	2831.	7034.	1685.	1250.	96.04	13.09
454.0	-0.1423D-01	38.70	6.850	2656.	6604.	1582.	1174.	90.21	12.29
455.0	-0.1406D-01	38.65	6.439	2495.	6206.	1487.	1103.	84.80	11.56
456.0	-0.1388D-01	38.59	6.057	2344.	5835.	1399.	1038.	79.77	10.87
457.0	-0.1370D-01	38.53	5.703	2204.	5491.	1317.	977.0	75.10	10.23
458.0	-0.1352D-01	38.47	5.373	2075.	5171.	1241.	920.5	70.76	9.642

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
459.0	-0.1333D-01	38.41	5.066	1954.	4874.	1170.	867.9	66.72	9.092
460.0	-0.1314D-01	38.35	4.781	1842.	4598.	1104.	819.0	62.96	8.580
461.0	-0.1295D-01	38.28	4.516	1738.	4340.	1042.	773.5	59.46	8.104
462.0	-0.1275D-01	38.22	4.268	1640.	4101.	985.0	731.2	56.21	7.660
463.0	-0.1255D-01	38.15	4.038	1550.	3878.	931.8	691.7	53.18	7.247
464.0	-0.1235D-01	38.09	3.824	1466.	3670.	882.2	654.9	50.35	6.862
465.0	-0.1215D-01	38.02	3.624	1388.	3476.	835.9	620.6	47.72	6.503
466.0	-0.1194D-01	37.96	3.437	1314.	3296.	792.8	588.7	45.26	6.168
467.0	-0.1174D-01	37.89	3.263	1246.	3128.	752.6	558.9	42.97	5.856
468.0	-0.1153D-01	37.82	3.101	1183.	2970.	715.0	531.0	40.83	5.565
469.0	-0.1132D-01	37.75	2.949	1123.	2824.	679.9	505.0	38.83	5.292
470.0	-0.1111D-01	37.68	2.807	1068.	2686.	647.2	480.7	36.97	5.038
471.0	-0.1091D-01	37.62	2.675	1016.	2558.	616.5	458.0	35.22	4.800
472.0	-0.1069D-01	37.55	2.551	968.0	2439.	587.9	436.7	33.59	4.577
473.0	-0.1048D-01	37.48	2.435	922.8	2326.	561.1	416.9	32.06	4.369
474.0	-0.1027D-01	37.41	2.326	880.5	2222.	536.0	398.2	30.63	4.174
475.0	-0.1006D-01	37.34	2.225	840.9	2123.	512.5	380.8	29.29	3.992
476.0	-0.9848D-02	37.27	2.129	803.8	2031.	490.4	364.5	28.03	3.821
477.0	-0.9635D-02	37.20	2.040	769.0	1945.	469.8	349.2	26.86	3.660
478.0	-0.9423D-02	37.13	1.956	736.5	1864.	450.4	334.8	25.75	3.510
479.0	-0.9210D-02	37.06	1.877	705.9	1788.	432.3	321.3	24.72	3.369
480.0	-0.8998D-02	36.99	1.804	677.3	1717.	415.2	308.7	23.75	3.237
481.0	-0.8785D-02	36.92	1.734	650.4	1650.	399.2	296.8	22.83	3.112
482.0	-0.8573D-02	36.85	1.669	625.2	1588.	384.2	285.7	21.98	2.995
483.0	-0.8361D-02	36.78	1.608	601.5	1529.	370.1	275.2	21.17	2.886
484.0	-0.8149D-02	36.72	1.551	579.3	1473.	356.8	265.3	20.42	2.783
485.0	-0.7937D-02	36.65	1.497	558.3	1421.	344.3	256.1	19.70	2.686

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
486.0	-0.7726D-02	36.58	1.446	538.7	1372.	332.6	247.4	19.03	2.594
487.0	-0.7515D-02	36.51	1.398	520.2	1326.	321.5	239.2	18.41	2.509
488.0	-0.7305D-02	36.44	1.353	502.8	1283.	311.2	231.5	17.81	2.428
489.0	-0.7095D-02	36.37	1.311	486.5	1242.	301.4	224.2	17.26	2.352
490.0	-0.6886D-02	36.30	1.271	471.1	1204.	292.2	217.4	16.73	2.281
491.0	-0.6677D-02	36.23	1.234	456.6	1168.	283.5	211.0	16.24	2.213
492.0	-0.6469D-02	36.17	1.198	443.0	1134.	275.4	205.0	15.77	2.150
493.0	-0.6261D-02	36.10	1.165	430.1	1102.	267.7	199.3	15.34	2.091
494.0	-0.6054D-02	36.03	1.134	418.1	1072.	260.5	193.9	14.93	2.035
495.0	-0.5848D-02	35.96	1.105	406.7	1043.	253.7	188.9	14.54	1.982
496.0	-0.5642D-02	35.90	1.077	396.0	1017.	247.3	184.1	14.17	1.932
497.0	-0.5437D-02	35.83	1.051	386.0	991.8	241.3	179.7	13.83	1.886
498.0	-0.5233D-02	35.76	1.026	376.5	968.2	235.7	175.5	13.51	1.842
499.0	-0.5029D-02	35.70	1.003	367.7	946.1	230.4	171.6	13.21	1.801
500.0	-0.4826D-02	35.63	0.9819	359.3	925.3	225.4	167.9	12.92	1.762
501.0	-0.4624D-02	35.56	0.9617	351.5	905.8	220.7	164.4	12.66	1.726
502.0	-0.4422D-02	35.50	0.9427	344.1	887.5	216.4	161.2	12.41	1.691
503.0	-0.4222D-02	35.43	0.9250	337.2	870.4	212.3	158.1	12.17	1.660
504.0	-0.4022D-02	35.37	0.9084	330.7	854.3	208.4	155.3	11.96	1.630
505.0	-0.3823D-02	35.30	0.8929	324.7	839.3	204.8	152.6	11.75	1.602
506.0	-0.3625D-02	35.24	0.8784	319.0	825.3	201.5	150.1	11.56	1.576
507.0	-0.3427D-02	35.17	0.8649	313.8	812.3	198.4	147.8	11.38	1.552
508.0	-0.3231D-02	35.11	0.8524	308.8	800.1	195.5	145.7	11.22	1.529
509.0	-0.3035D-02	35.04	0.8408	304.3	788.9	192.8	143.7	11.07	1.509
510.0	-0.2840D-02	34.98	0.8301	300.0	778.4	190.3	141.9	10.92	1.489
511.0	-0.2646D-02	34.92	0.8203	296.1	768.8	188.0	140.2	10.79	1.472
512.0	-0.2453D-02	34.85	0.8112	292.5	760.0	185.9	138.6	10.68	1.455

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
513.0	-0.2261D-02	34.79	0.8030	289.2	751.9	184.0	137.2	10.57	1.441
514.0	-0.2069D-02	34.73	0.7956	286.2	744.6	182.3	135.9	10.47	1.427
515.0	-0.1879D-02	34.67	0.7888	283.4	738.0	180.7	134.8	10.38	1.415
516.0	-0.1689D-02	34.60	0.7829	280.9	732.0	179.3	133.7	10.30	1.405
517.0	-0.1500D-02	34.54	0.7776	278.7	726.7	178.1	132.8	10.23	1.395
518.0	-0.1313D-02	34.48	0.7730	276.8	722.1	177.0	132.0	10.17	1.387
519.0	-0.1126D-02	34.42	0.7691	275.1	718.2	176.1	131.4	10.12	1.380
520.0	-0.9396D-03	34.36	0.7659	273.6	714.8	175.4	130.8	10.08	1.374
521.0	-0.7545D-03	34.30	0.7633	272.4	712.1	174.8	130.4	10.04	1.369
522.0	-0.5702D-03	34.24	0.7614	271.4	710.0	174.3	130.0	10.02	1.366
523.0	-0.3869D-03	34.18	0.7601	270.6	708.5	174.0	129.8	10.00	1.364
524.0	-0.2045D-03	34.12	0.7595	270.1	707.5	173.8	129.7	9.993	1.363
525.0	-0.2308D-04	34.06	0.7595	269.8	707.2	173.8	129.7	9.993	1.363
526.0	0.1575D-03	34.00	0.7601	269.7	707.5	173.9	129.8	10.00	1.364
527.0	0.3371D-03	33.94	0.7613	269.8	708.3	174.2	130.0	10.02	1.366
528.0	0.5157D-03	33.88	0.7632	270.2	709.7	174.6	130.3	10.04	1.369
529.0	0.6935D-03	33.83	0.7657	270.8	711.7	175.1	130.7	10.07	1.374
530.0	0.8702D-03	33.77	0.7688	271.6	714.3	175.8	131.3	10.12	1.379
531.0	0.1046D-02	33.71	0.7726	272.6	717.5	176.7	131.9	10.17	1.386
532.0	0.1221D-02	33.65	0.7770	273.9	721.3	177.6	132.6	10.22	1.394
533.0	0.1395D-02	33.60	0.7821	275.4	725.7	178.8	133.5	10.29	1.403
534.0	0.1568D-02	33.54	0.7878	277.1	730.7	180.1	134.5	10.36	1.413
535.0	0.1740D-02	33.48	0.7942	279.0	736.3	181.5	135.6	10.45	1.425
536.0	0.1911D-02	33.43	0.8013	281.2	742.5	183.1	136.8	10.54	1.437
537.0	0.2081D-02	33.37	0.8091	283.7	749.4	184.9	138.1	10.64	1.451
538.0	0.2250D-02	33.32	0.8176	286.3	757.0	186.8	139.5	10.76	1.467
539.0	0.2418D-02	33.26	0.8268	289.3	765.2	188.9	141.1	10.88	1.483

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
540.0	0.2585D-02	33.21	0.8368	292.5	774.1	191.1	142.8	11.01	1.501
541.0	0.2751D-02	33.15	0.8476	295.9	783.8	193.6	144.6	11.15	1.520
542.0	0.2916D-02	33.10	0.8592	299.7	794.1	196.2	146.6	11.30	1.541
543.0	0.3081D-02	33.05	0.8716	303.7	805.3	199.0	149.7	11.47	1.563
544.0	0.3244D-02	32.99	0.8848	308.0	817.2	202.0	151.0	11.64	1.587
545.0	0.3406D-02	32.94	0.8989	312.6	829.9	205.2	153.4	11.83	1.613
546.0	0.3567D-02	32.89	0.9139	317.5	843.4	208.6	155.9	12.02	1.639
547.0	0.3727D-02	32.83	0.9299	322.7	857.8	212.2	158.6	12.23	1.668
548.0	0.3886D-02	32.78	0.9469	328.3	873.1	216.1	161.5	12.46	1.699
549.0	0.4044D-02	32.73	0.9649	334.2	889.3	220.2	164.6	12.69	1.731
550.0	0.4201D-02	32.68	0.9839	340.5	906.5	224.5	167.8	12.94	1.765
551.0	0.4357D-02	32.63	1.004	347.1	924.7	229.1	171.3	13.21	1.801
552.0	0.4511D-02	32.58	1.025	354.1	944.0	233.9	174.9	13.49	1.839
553.0	0.4665D-02	32.53	1.048	361.6	964.3	239.0	178.7	13.78	1.880
554.0	0.4817D-02	32.48	1.072	369.4	985.8	244.4	182.8	14.10	1.922
555.0	0.4969D-02	32.43	1.097	377.7	1009.	250.1	187.1	14.43	1.967
556.0	0.5119D-02	32.38	1.123	386.5	1033.	256.1	191.6	14.78	2.015
557.0	0.5268D-02	32.33	1.151	395.7	1058.	262.5	196.3	15.14	2.065
558.0	0.5416D-02	32.28	1.181	405.5	1084.	269.2	201.3	15.53	2.118
559.0	0.5563D-02	32.23	1.212	415.8	1113.	276.2	206.6	15.94	2.174
560.0	0.5709D-02	32.19	1.244	426.6	1142.	283.6	212.2	16.37	2.232
561.0	0.5853D-02	32.14	1.279	438.1	1173.	291.5	218.1	16.82	2.294
562.0	0.5997D-02	32.09	1.315	450.1	1206.	299.7	224.3	17.30	2.359
563.0	0.6139D-02	32.05	1.354	462.8	1241.	308.4	230.8	17.80	2.428
564.0	0.6279D-02	32.00	1.394	476.2	1277.	317.6	237.6	18.33	2.500
565.0	0.6419D-02	31.95	1.436	490.3	1316.	327.2	244.9	18.89	2.576
566.0	0.6557D-02	31.91	1.481	505.1	1356.	337.3	252.5	19.48	2.657

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
567.0	0.6694D-02	31.86	1.528	520.7	1399.	348.0	260.5	20.10	2.741
568.0	0.6829D-02	31.82	1.578	537.2	1444.	359.3	269.0	20.75	2.830
569.0	0.6963D-02	31.78	1.630	554.5	1491.	371.2	277.9	21.44	2.924
570.0	0.7096D-02	31.73	1.685	572.8	1541.	383.7	287.2	22.16	3.023
571.0	0.7227D-02	31.69	1.743	592.0	1594.	396.9	297.1	22.93	3.127
572.0	0.7356D-02	31.65	1.804	612.3	1649.	410.7	307.5	23.73	3.236
573.0	0.7484D-02	31.61	1.869	633.6	1707.	425.4	318.5	24.58	3.352
574.0	0.7611D-02	31.57	1.937	656.1	1769.	440.8	330.1	25.47	3.474
575.0	0.7736D-02	31.52	2.008	679.9	1834.	457.0	342.2	26.41	3.602
576.0	0.7859D-02	31.48	2.084	704.9	1902.	474.2	355.1	27.40	3.737
577.0	0.7981D-02	31.44	2.163	731.2	1974.	492.2	368.6	28.45	3.880
578.0	0.8101D-02	31.41	2.247	759.0	2050.	511.2	382.9	29.55	4.030
579.0	0.8219D-02	31.37	2.335	788.3	2130.	531.3	397.9	30.71	4.189
580.0	0.8335D-02	31.33	2.429	819.2	2214.	552.5	413.8	31.94	4.356
581.0	0.8449D-02	31.29	2.527	851.7	2303.	574.8	430.6	33.23	4.532
582.0	0.8561D-02	31.25	2.631	886.1	2397.	598.3	448.2	34.59	4.718
583.0	0.8671D-02	31.22	2.740	922.3	2496.	623.2	466.9	36.03	4.915
584.0	0.8779D-02	31.18	2.856	960.5	2600.	649.4	486.5	37.55	5.122
585.0	0.8885D-02	31.15	2.977	1001.	2711.	677.1	507.3	39.15	5.340
586.0	0.8988D-02	31.11	3.106	1043.	2827.	706.3	529.2	40.84	5.571
587.0	0.9090D-02	31.08	3.242	1088.	2950.	737.1	552.3	42.63	5.814
588.0	0.9188D-02	31.05	3.385	1136.	3079.	769.6	576.7	44.51	6.071
589.0	0.9284D-02	31.02	3.536	1186.	3216.	803.9	602.4	46.50	6.343
590.0	0.9378D-02	30.99	3.696	1239.	3360.	840.1	629.6	48.60	6.629
591.0	0.9468D-02	30.96	3.864	1294.	3513.	878.4	658.3	50.81	6.931
592.0	0.9556D-02	30.93	4.042	1353.	3674.	918.8	688.6	53.15	7.250
593.0	0.9641D-02	30.90	4.230	1415.	3844.	961.4	720.6	55.62	7.587

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
594.0	0.9723D-02	30.87	4.429	1481.	4023.	1006.	754.3	58.23	7.943
595.0	0.9801D-02	30.85	4.638	1550.	4212.	1054.	790.0	60.98	8.318
596.0	0.9876D-02	30.82	4.859	1623.	4412.	1104.	827.6	63.89	8.715
597.0	0.9947D-02	30.80	5.092	1700.	4623.	1157.	867.3	66.96	9.133
598.0	0.1001D-01	30.78	5.339	1782.	4846.	1213.	909.3	70.20	9.575
599.0	0.1008D-01	30.76	5.598	1868.	5081.	1272.	953.5	73.61	10.04
600.0	0.1014D-01	30.74	5.873	1959.	5329.	1334.	1000.	77.22	10.53
601.0	0.1019D-01	30.72	6.162	2054.	5591.	1400.	1049.	81.02	11.05
602.0	0.1024D-01	30.70	6.467	2155.	5867.	1469.	1101.	85.04	11.60
603.0	0.1029D-01	30.69	6.789	2262.	6158.	1542.	1156.	89.27	12.18
604.0	0.1033D-01	30.68	7.128	2374.	6465.	1619.	1214.	93.73	12.78
605.0	0.1037D-01	30.66	7.486	2493.	6789.	1700.	1275.	98.43	13.43
606.0	0.1040D-01	30.65	7.862	2618.	7130.	1786.	1339.	103.4	14.10
607.0	0.1042D-01	30.65	8.259	2749.	7489.	1876.	1406.	108.6	14.81
608.0	0.1044D-01	30.64	8.676	2888.	7867.	1971.	1478.	114.1	15.56
609.0	0.1046D-01	30.63	9.115	3033.	8265.	2070.	1552.	119.8	16.35
610.0	0.1046D-01	30.63	9.577	3187.	8683.	2175.	1631.	125.9	17.18
611.0	0.1046D-01	30.63	10.06	3348.	9123.	2285.	1713.	132.3	18.05
612.0	0.1046D-01	30.63	10.57	3518.	9584.	2401.	1800.	139.0	18.96
613.0	0.1044D-01	30.64	11.10	3695.	0.1007D 05	2522.	1891.	146.0	19.92
614.0	0.1042D-01	30.65	11.66	3882.	0.1058D 05	2650.	1986.	153.4	20.92
615.0	0.1039D-01	30.66	12.25	4078.	0.1111D 05	2783.	2086.	161.1	21.97
616.0	0.1035D-01	30.67	12.86	4283.	0.1167D 05	2922.	2191.	169.1	23.07
617.0	0.1031D-01	30.68	13.50	4497.	0.1225D 05	3068.	2300.	177.6	24.22
618.0	0.1025D-01	30.70	14.17	4721.	0.1286D 05	3220.	2414.	186.4	25.42
619.0	0.1019D-01	30.72	14.87	4956.	0.1349D 05	3379.	2533.	195.5	26.67
620.0	0.1011D-01	30.75	15.60	5200.	0.1415D 05	3544.	2656.	205.1	27.97

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
621.0	0.1003D-01	30.78	16.35	5454.	0.1484D 05	3716.	2785.	215.0	29.33
622.0	0.9933D-02	30.81	17.14	5718.	0.1556D 05	3894.	2919.	225.3	30.73
623.0	0.9827D-02	30.84	17.95	5993.	0.1630D 05	4079.	3057.	236.0	32.19
624.0	0.9710D-02	30.88	18.79	6277.	0.1707D 05	4270.	3200.	247.0	33.69
625.0	0.9582D-02	30.92	19.65	6571.	0.1786D 05	4467.	3348.	258.4	35.25
626.0	0.9442D-02	30.97	20.54	6875.	0.1868D 05	4670.	3500.	270.1	36.85
627.0	0.9290D-02	31.02	21.46	7188.	0.1952D 05	4879.	3656.	282.2	38.49
628.0	0.9125D-02	31.07	22.40	7510.	0.2038D 05	5093.	3816.	294.6	40.18
629.0	0.8948D-02	31.13	23.36	7841.	0.2127D 05	5313.	3980.	307.2	41.90
630.0	0.8759D-02	31.19	24.34	8179.	0.2217D 05	5536.	4147.	320.1	43.66
631.0	0.8556D-02	31.26	25.34	8523.	0.2309D 05	5764.	4317.	333.2	45.45
632.0	0.8340D-02	31.33	26.35	8874.	0.2402D 05	5994.	4490.	346.5	47.26
633.0	0.8111D-02	31.40	27.37	9230.	0.2496D 05	6227.	4664.	359.9	49.09
634.0	0.7868D-02	31.48	28.39	9590.	0.2592D 05	6462.	4839.	373.4	50.93
635.0	0.7613D-02	31.56	29.42	9952.	0.2687D 05	6697.	5014.	386.9	52.77
636.0	0.7344D-02	31.65	30.45	0.1032D 05	0.2783D 05	6932.	5190.	400.4	54.61
637.0	0.7062D-02	31.74	31.47	0.1068D 05	0.2878D 05	7166.	5364.	413.8	56.44
638.0	0.6767D-02	31.84	32.47	0.1104D 05	0.2973D 05	7397.	5536.	427.1	58.25
639.0	0.6460D-02	31.94	33.46	0.1140D 05	0.3066D 05	7624.	5705.	440.1	60.03
640.0	0.6140D-02	32.05	34.43	0.1175D 05	0.3157D 05	7846.	5871.	452.9	61.76
641.0	0.5809D-02	32.15	35.37	0.1209D 05	0.3246D 05	8063.	6032.	465.3	63.45
642.0	0.5466D-02	32.27	36.28	0.1243D 05	0.3332D 05	8271.	6187.	477.2	65.08
643.0	0.5112D-02	32.38	37.15	0.1275D 05	0.3415D 05	8471.	6336.	488.6	66.64
644.0	0.4749D-02	32.50	37.97	0.1307D 05	0.3494D 05	8661.	6477.	499.5	68.11
645.0	0.4376D-02	32.62	38.75	0.1336D 05	0.3568D 05	8840.	6609.	509.7	69.50
646.0	0.3994D-02	32.75	39.46	0.1364D 05	0.3638D 05	9006.	6732.	519.1	70.79
647.0	0.3604D-02	32.87	40.12	0.1390D 05	0.3702D 05	9159.	6845.	527.8	71.97

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
648.0	0.3208D-02	33.00	40.72	0.1414D 05	0.3761D 05	9297.	6947.	535.6	73.04
649.0	0.2806D-02	33.14	41.24	0.1436D 05	0.3813D 05	9420.	7038.	542.5	73.98
650.0	0.2399D-02	33.27	41.69	0.1455D 05	0.3859D 05	9526.	7116.	548.5	74.79
651.0	0.1988D-02	33.40	42.07	0.1472D 05	0.3898D 05	9614.	7181.	553.5	75.47
652.0	0.1574D-02	33.54	42.37	0.1486D 05	0.3930D 05	9685.	7232.	557.4	76.00
653.0	0.1159D-02	33.67	42.59	0.1498D 05	0.3954D 05	9738.	7270.	560.3	76.40
654.0	0.7438D-03	33.81	42.72	0.1506D 05	0.3971D 05	9773.	7295.	562.1	76.65
655.0	0.3291D-03	33.94	42.78	0.1512D 05	0.3980D 05	9788.	7305.	562.9	76.75
656.0	-0.8373D-04	34.08	42.76	0.1515D 05	0.3982D 05	9785.	7302.	562.6	76.70
657.0	-0.4936D-03	34.21	42.65	0.1515D 05	0.3976D 05	9764.	7284.	561.2	76.52
658.0	-0.8993D-03	34.35	42.47	0.1512D 05	0.3963D 05	9725.	7254.	558.8	76.19
659.0	-0.1300D-02	34.48	42.21	0.1507D 05	0.3943D 05	9668.	7210.	555.4	75.72
660.0	-0.1694D-02	34.61	41.87	0.1499D 05	0.3916D 05	9594.	7154.	551.0	75.12
661.0	-0.2081D-02	34.73	41.47	0.1488D 05	0.3882D 05	9504.	7085.	545.7	74.40
662.0	-0.2460D-02	34.86	41.00	0.1474D 05	0.3841D 05	9398.	7006.	539.5	73.56
663.0	-0.2830D-02	34.98	40.47	0.1459D 05	0.3795D 05	9279.	6915.	532.5	72.60
664.0	-0.3190D-02	35.09	39.87	0.1441D 05	0.3743D 05	9145.	6815.	524.8	71.54
665.0	-0.3539D-02	35.21	39.23	0.1420D 05	0.3686D 05	9000.	6706.	516.3	70.39
666.0	-0.3878D-02	35.32	38.54	0.1398D 05	0.3624D 05	8843.	6588.	507.2	69.15
667.0	-0.4204D-02	35.43	37.81	0.1375D 05	0.3557D 05	8677.	6463.	497.6	67.83
668.0	-0.4519D-02	35.53	37.03	0.1349D 05	0.3487D 05	8501.	6331.	487.4	66.45
669.0	-0.4820D-02	35.63	36.23	0.1322D 05	0.3414D 05	8318.	6194.	476.8	65.00
670.0	-0.5109D-02	35.72	35.39	0.1294D 05	0.3338D 05	8128.	6052.	465.9	63.51
671.0	-0.5384D-02	35.81	34.54	0.1265D 05	0.3259D 05	7933.	5906.	454.6	61.97
672.0	-0.5645D-02	35.90	33.66	0.1235D 05	0.3179D 05	7733.	5757.	443.1	60.40
673.0	-0.5893D-02	35.98	32.78	0.1205D 05	0.3097D 05	7531.	5605.	431.4	58.81
674.0	-0.6127D-02	36.05	31.88	0.1173D 05	0.3014D 05	7326.	5452.	419.6	57.20

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
675.0	-0.6347D-02	36.13	30.98	0.1142D 05	0.2930D 05	7119.	5298.	407.7	55.58
676.0	-0.6553D-02	36.19	30.07	0.1110D 05	0.2846D 05	6912.	5144.	395.8	53.96
677.0	-0.6745D-02	36.26	29.17	0.1078D 05	0.2762D 05	6706.	4989.	384.0	52.34
678.0	-0.6924D-02	36.31	28.27	0.1046D 05	0.2678D 05	6500.	4836.	372.2	50.73
679.0	-0.7089D-02	36.37	27.38	0.1014D 05	0.2595D 05	6296.	4684.	360.5	49.13
680.0	-0.7241D-02	36.42	26.50	9826.	0.2512D 05	6094.	4534.	348.9	47.55
681.0	-0.7379D-02	36.46	25.64	9514.	0.2431D 05	5896.	4386.	337.5	46.00
682.0	-0.7505D-02	36.50	24.78	9206.	0.2351D 05	5700.	4240.	326.3	44.47
683.0	-0.7619D-02	36.54	23.95	8902.	0.2273D 05	5509.	4097.	315.3	42.97
684.0	-0.7720D-02	36.58	23.13	8604.	0.2196D 05	5321.	3958.	304.5	41.51
685.0	-0.7809D-02	36.60	22.33	8313.	0.2120D 05	5138.	3821.	294.0	40.08
686.0	-0.7887D-02	36.63	21.56	8028.	0.2047D 05	4959.	3688.	283.8	38.68
687.0	-0.7953D-02	36.65	20.80	7750.	0.1975D 05	4785.	3559.	273.9	37.32
688.0	-0.8009D-02	36.67	20.07	7479.	0.1906D 05	4617.	3433.	264.2	36.01
689.0	-0.8054D-02	36.68	19.35	7216.	0.1838D 05	4453.	3311.	254.8	34.73
690.0	-0.8090D-02	36.70	18.66	6960.	0.1773D 05	4294.	3193.	245.7	33.49
691.0	-0.8115D-02	36.70	18.00	6713.	0.1710D 05	4141.	3079.	236.9	32.29
692.0	-0.8131D-02	36.71	17.35	6473.	0.1649D 05	3992.	2969.	228.4	31.14
693.0	-0.8138D-02	36.71	16.73	6242.	0.1589D 05	3849.	2863.	220.2	30.02
694.0	-0.8136D-02	36.71	16.13	6019.	0.1533D 05	3711.	2760.	212.4	28.94
695.0	-0.8127D-02	36.71	15.55	5803.	0.1478D 05	3579.	2661.	204.8	27.91
696.0	-0.8109D-02	36.70	15.00	5596.	0.1425D 05	3451.	2566.	197.4	26.91
697.0	-0.8084D-02	36.69	14.46	5396.	0.1374D 05	3328.	2475.	190.4	25.95
698.0	-0.8051D-02	36.68	13.95	5204.	0.1325D 05	3210.	2387.	183.7	25.03
699.0	-0.8012D-02	36.67	13.46	5019.	0.1278D 05	3097.	2303.	177.2	24.15
700.0	-0.7966D-02	36.66	12.99	4842.	0.1233D 05	2988.	2222.	171.0	23.30
701.0	-0.7913D-02	36.64	12.54	4672.	0.1190D 05	2884.	2145.	165.0	22.49

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
702.0	-0.7855D-02	36.62	12.10	4509.	0.1149D 05	2784.	2071.	159.3	21.71
703.0	-0.7791D-02	36.60	11.69	4352.	0.1109D 05	2688.	1999.	153.8	20.97
704.0	-0.7721D-02	36.58	11.29	4203.	0.1071D 05	2597.	1931.	148.6	20.26
705.0	-0.7647D-02	36.55	10.91	4059.	0.1035D 05	2509.	1866.	143.6	19.57
706.0	-0.7567D-02	36.53	10.54	3922.	0.1000D 05	2425.	1804.	138.8	18.92
707.0	-0.7483D-02	36.50	10.20	3791.	9672.	2345.	1744.	134.2	18.30
708.0	-0.7395D-02	36.47	9.864	3665.	9354.	2268.	1687.	129.8	17.70
709.0	-0.7303D-02	36.44	9.546	3545.	9051.	2195.	1633.	125.7	17.13
710.0	-0.7206D-02	36.41	9.242	3430.	8761.	2125.	1581.	121.7	16.58
711.0	-0.7106D-02	36.37	8.952	3321.	8484.	2058.	1531.	117.8	16.06
712.0	-0.7003D-02	36.34	8.675	3216.	8219.	1995.	1484.	114.2	15.57
713.0	-0.6896D-02	36.31	8.411	3116.	7967.	1934.	1439.	110.7	15.09
714.0	-0.6786D-02	36.27	8.159	3020.	7726.	1875.	1396.	107.4	14.64
715.0	-0.6673D-02	36.23	7.918	2929.	7495.	1820.	1354.	104.2	14.21
716.0	-0.6558D-02	36.20	7.683	2842.	7276.	1767.	1315.	101.2	13.79
717.0	-0.6440D-02	36.16	7.469	2759.	7066.	1716.	1277.	98.31	13.40
718.0	-0.6319D-02	36.12	7.260	2680.	6867.	1668.	1242.	95.56	13.03
719.0	-0.6196D-02	36.08	7.060	2604.	6676.	1622.	1207.	92.94	12.67
720.0	-0.6072D-02	36.04	6.870	2532.	6494.	1579.	1175.	90.43	12.33
721.0	-0.5945D-02	36.00	6.689	2464.	6321.	1537.	1144.	88.05	12.00
722.0	-0.5816D-02	35.95	6.516	2398.	6156.	1497.	1114.	85.77	11.69
723.0	-0.5686D-02	35.91	6.352	2336.	5998.	1459.	1086.	83.61	11.40
724.0	-0.5554D-02	35.87	6.195	2276.	5848.	1423.	1059.	81.54	11.12
725.0	-0.5420D-02	35.82	6.046	2220.	5706.	1388.	1034.	79.58	10.85
726.0	-0.5286D-02	35.78	5.903	2166.	5569.	1356.	1009.	77.70	10.59
727.0	-0.5150D-02	35.74	5.768	2114.	5440.	1324.	986.2	75.92	10.35
728.0	-0.5012D-02	35.69	5.639	2065.	5317.	1295.	964.2	74.22	10.12

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
729.0	-0.4874D-02	35.65	5.517	2019.	5199.	1267.	943.2	72.61	9.898
730.0	-0.4735D-02	35.60	5.400	1974.	5088.	1240.	923.2	71.08	9.689
731.0	-0.4595D-02	35.55	5.289	1932.	4982.	1214.	904.3	69.62	9.490
732.0	-0.4454D-02	35.51	5.184	1892.	4881.	1190.	886.2	68.23	9.302
733.0	-0.4312D-02	35.46	5.084	1854.	4785.	1167.	869.1	66.92	9.122
734.0	-0.4170D-02	35.42	4.990	1818.	4694.	1145.	852.9	65.67	8.952
735.0	-0.4027D-02	35.37	4.900	1784.	4608.	1124.	837.5	64.49	8.791
736.0	-0.3884D-02	35.32	4.814	1751.	4526.	1105.	822.9	63.36	8.638
737.0	-0.3740D-02	35.27	4.734	1720.	4449.	1086.	809.1	62.30	8.493
738.0	-0.3596D-02	35.23	4.658	1691.	4376.	1068.	796.1	61.30	8.357
739.0	-0.3451D-02	35.18	4.586	1663.	4307.	1052.	783.7	60.35	8.227
740.0	-0.3307D-02	35.13	4.518	1637.	4241.	1036.	772.1	59.45	8.105
741.0	-0.3162D-02	35.09	4.453	1612.	4179.	1021.	761.1	58.61	7.990
742.0	-0.3017D-02	35.04	4.393	1589.	4121.	1007.	750.7	57.81	7.882
743.0	-0.2872D-02	34.99	4.336	1567.	4067.	994.2	741.0	57.07	7.780
744.0	-0.2727D-02	34.94	4.283	1547.	4015.	981.9	731.9	56.37	7.685
745.0	-0.2582D-02	34.90	4.234	1527.	3967.	970.4	723.4	55.71	7.596
746.0	-0.2437D-02	34.85	4.187	1509.	3923.	959.7	715.4	55.10	7.512
747.0	-0.2292D-02	34.80	4.144	1492.	3881.	949.7	708.0	54.53	7.435
748.0	-0.2147D-02	34.75	4.104	1477.	3842.	940.4	701.2	54.01	7.363
749.0	-0.2002D-02	34.71	4.067	1462.	3806.	931.9	694.8	53.52	7.297
750.0	-0.1858D-02	34.66	4.033	1448.	3773.	924.0	689.0	53.07	7.236
751.0	-0.1714D-02	34.61	4.002	1436.	3742.	916.8	683.7	52.66	7.180
752.0	-0.1570D-02	34.57	3.974	1425.	3714.	910.2	678.8	52.29	7.129
753.0	-0.1427D-02	34.52	3.948	1414.	3689.	904.3	674.4	51.95	7.083
754.0	-0.1284D-02	34.47	3.925	1405.	3667.	899.0	670.5	51.65	7.042
755.0	-0.1141D-02	34.43	3.905	1396.	3647.	894.3	667.0	51.39	7.006

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
756.0	-0.9993D-03	34.38	3.888	1389.	3629.	890.2	664.0	51.16	6.975
757.0	-0.8577D-03	34.33	3.873	1382.	3614.	886.7	661.4	50.96	6.948
758.0	-0.7166D-03	34.29	3.860	1377.	3601.	883.7	659.3	50.79	6.925
759.0	-0.5761D-03	34.24	3.850	1372.	3590.	881.4	657.6	50.66	6.908
760.0	-0.4362D-03	34.19	3.843	1368.	3582.	879.6	656.3	50.57	6.894
761.0	-0.2970D-03	34.15	3.838	1365.	3576.	878.4	655.4	50.50	6.885
762.0	-0.1584D-03	34.10	3.835	1363.	3573.	877.7	655.0	50.47	6.881
763.0	-0.2043D-04	34.06	3.835	1362.	3571.	877.6	654.9	50.46	6.881
764.0	0.1168D-03	34.01	3.838	1362.	3572.	878.1	655.3	50.49	6.885
765.0	0.2532D-03	33.97	3.842	1362.	3575.	879.1	656.1	50.56	6.893
766.0	0.3889D-03	33.93	3.849	1364.	3581.	880.6	657.3	50.65	6.906
767.0	0.5238D-03	33.88	3.859	1366.	3589.	882.7	658.9	50.77	6.923
768.0	0.6578D-03	33.84	3.871	1369.	3598.	885.3	660.9	50.93	6.944
769.0	0.7910D-03	33.79	3.885	1373.	3611.	888.5	663.3	51.12	6.970
770.0	0.9232D-03	33.75	3.902	1378.	3625.	892.3	666.2	51.34	7.000
771.0	0.1055D-02	33.71	3.921	1383.	3642.	896.6	669.4	51.59	7.035
772.0	0.1185D-02	33.67	3.943	1390.	3660.	901.5	673.1	51.88	7.074
773.0	0.1314D-02	33.62	3.967	1397.	3682.	906.9	677.2	52.19	7.117
774.0	0.1443D-02	33.58	3.994	1405.	3705.	912.9	681.7	52.54	7.165
775.0	0.1570D-02	33.54	4.023	1415.	3731.	919.5	686.7	52.93	7.217
776.0	0.1696D-02	33.50	4.055	1425.	3759.	926.7	692.1	53.35	7.274
777.0	0.1821D-02	33.46	4.089	1436.	3790.	934.5	698.0	53.80	7.336
778.0	0.1945D-02	33.42	4.126	1448.	3823.	942.9	704.3	54.29	7.402
779.0	0.2068D-02	33.38	4.166	1460.	3859.	951.9	711.0	54.81	7.474
780.0	0.2190D-02	33.34	4.209	1474.	3897.	961.6	718.3	55.37	7.550
781.0	0.2310D-02	33.30	4.254	1489.	3938.	971.8	726.0	55.96	7.631
782.0	0.2430D-02	33.26	4.302	1505.	3981.	982.8	734.2	56.60	7.718

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
783.0	0.2547D-02	33.22	4.353	1521.	4028.	994.4	742.9	57.27	7.809
784.0	0.2664D-02	33.18	4.407	1539.	4076.	1007.	752.1	57.98	7.906
785.0	0.2779D-02	33.14	4.465	1558.	4128.	1020.	761.8	58.73	8.009
786.0	0.2893D-02	33.11	4.525	1578.	4183.	1033.	772.1	59.53	8.117
787.0	0.3005D-02	33.07	4.588	1599.	4240.	1048.	782.9	60.36	8.231
788.0	0.3116D-02	33.03	4.655	1621.	4301.	1063.	794.3	61.24	8.351
789.0	0.3225D-02	33.00	4.725	1645.	4364.	1079.	806.3	62.16	8.477
790.0	0.3333D-02	32.96	4.799	1669.	4431.	1096.	818.8	63.13	8.609
791.0	0.3439D-02	32.93	4.876	1695.	4501.	1113.	832.0	64.15	8.747
792.0	0.3543D-02	32.89	4.957	1722.	4575.	1132.	845.7	65.21	8.893
793.0	0.3646D-02	32.86	5.042	1750.	4652.	1151.	860.2	66.32	9.044
794.0	0.3747D-02	32.83	5.130	1780.	4732.	1171.	875.2	67.49	9.203
795.0	0.3846D-02	32.80	5.223	1811.	4816.	1192.	891.0	68.70	9.369
796.0	0.3943D-02	32.76	5.319	1843.	4904.	1214.	907.4	69.97	9.542
797.0	0.4039D-02	32.73	5.420	1877.	4996.	1237.	924.6	71.30	9.723
798.0	0.4133D-02	32.70	5.525	1912.	5092.	1261.	942.5	72.68	9.911
799.0	0.4224D-02	32.67	5.635	1949.	5191.	1286.	961.2	74.12	10.11
800.0	0.4314D-02	32.64	5.749	1987.	5295.	1312.	980.6	75.62	10.31
801.0	0.4401D-02	32.61	5.868	2027.	5403.	1339.	1001.	77.18	10.53
802.0	0.4486D-02	32.59	5.992	2069.	5516.	1367.	1022.	78.81	10.75
803.0	0.4570D-02	32.56	6.120	2112.	5633.	1396.	1044.	80.50	10.98
804.0	0.4650D-02	32.53	6.254	2157.	5755.	1426.	1067.	82.26	11.22
805.0	0.4729D-02	32.51	6.393	2204.	5882.	1458.	1090.	84.09	11.47
806.0	0.4805D-02	32.48	6.538	2253.	6014.	1491.	1115.	85.99	11.73
807.0	0.4879D-02	32.46	6.688	2304.	6151.	1525.	1141.	87.97	12.00
808.0	0.4950D-02	32.43	6.844	2356.	6293.	1561.	1167.	90.02	12.28
809.0	0.5018D-02	32.41	7.005	2411.	6441.	1597.	1195.	92.14	12.57

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
810.0	0.5084D-02	32.39	7.173	2468.	6594.	1636.	1223.	94.35	12.87
811.0	0.5147D-02	32.37	7.347	2526.	6753.	1675.	1253.	96.64	13.18
812.0	0.5208D-02	32.35	7.527	2588.	6917.	1716.	1284.	99.01	13.50
813.0	0.5265D-02	32.33	7.714	2651.	7088.	1759.	1316.	101.5	13.84
814.0	0.5320D-02	32.31	7.908	2716.	7265.	1803.	1348.	104.0	14.18
815.0	0.5371D-02	32.30	8.108	2784.	7448.	1848.	1383.	106.6	14.54
816.0	0.5419D-02	32.28	8.315	2854.	7637.	1896.	1418.	109.4	14.92
817.0	0.5464D-02	32.27	8.530	2927.	7833.	1944.	1454.	112.2	15.30
818.0	0.5506D-02	32.25	8.751	3002.	8036.	1995.	1492.	115.1	15.70
819.0	0.5545D-02	32.24	8.980	3080.	8245.	2047.	1531.	118.1	16.11
820.0	0.5580D-02	32.23	9.217	3161.	8462.	2101.	1572.	121.2	16.53
821.0	0.5611D-02	32.22	9.461	3244.	8685.	2156.	1613.	124.4	16.97
822.0	0.5639D-02	32.21	9.713	3329.	8916.	2214.	1656.	127.7	17.42
823.0	0.5663D-02	32.20	9.972	3418.	9154.	2273.	1700.	131.2	17.89
824.0	0.5683D-02	32.20	10.24	3509.	9399.	2334.	1746.	134.7	18.37
825.0	0.5699D-02	32.19	10.52	3603.	9651.	2397.	1793.	138.3	18.86
826.0	0.5711D-02	32.19	10.80	3700.	9911.	2461.	1841.	142.0	19.37
827.0	0.5719D-02	32.18	11.09	3799.	0.1318D 05	2528.	1891.	145.9	19.89
828.0	0.5723D-02	32.18	11.39	3902.	0.1045D 05	2596.	1942.	149.8	20.43
829.0	0.5723D-02	32.18	11.70	4007.	0.1074D 05	2666.	1995.	153.9	20.98
830.0	0.5718D-02	32.18	12.01	4116.	0.1103D 05	2738.	2048.	158.0	21.55
831.0	0.5709D-02	32.19	12.34	4227.	0.1132D 05	2812.	2104.	162.3	22.13
832.0	0.5695D-02	32.19	12.67	4340.	0.1163D 05	2888.	2160.	166.6	22.72
833.0	0.5677D-02	32.20	13.01	4457.	0.1194D 05	2965.	2218.	171.1	23.33
834.0	0.5653D-02	32.20	13.36	4577.	0.1226D 05	3044.	2277.	175.7	23.96
835.0	0.5625D-02	32.21	13.71	4699.	0.1259D 05	3125.	2338.	180.3	24.59
836.0	0.5592D-02	32.22	14.07	4823.	0.1292D 05	3207.	2399.	185.1	25.24

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
837.0	0.5554D-02	32.24	14.44	4951.	0.1326D 05	3291.	2462.	189.9	25.90
838.0	0.5511D-02	32.25	14.81	5081.	0.1360D 05	3377.	2526.	194.9	26.57
839.0	0.5463D-02	32.27	15.20	5213.	0.1396D 05	3464.	2591.	199.9	27.26
840.0	0.5410D-02	32.28	15.58	5347.	0.1431D 05	3552.	2657.	205.0	27.95
841.0	0.5352D-02	32.30	15.98	5484.	0.1468D 05	3642.	2724.	210.1	28.66
842.0	0.5288D-02	32.32	16.37	5622.	0.1504D 05	3733.	2792.	215.4	29.37
843.0	0.5219D-02	32.35	16.78	5763.	0.1542D 05	3825.	2861.	220.6	30.09
844.0	0.5145D-02	32.37	17.18	5905.	0.1579D 05	3917.	2930.	226.0	30.82
845.0	0.5065D-02	32.40	17.59	6048.	0.1617D 05	4011.	3000.	231.4	31.55
846.0	0.4980D-02	32.42	18.00	6193.	0.1655D 05	4105.	3070.	236.8	32.29
847.0	0.4899D-02	32.45	18.41	6338.	0.1694D 05	4199.	3141.	242.2	33.03
848.0	0.4793D-02	32.49	18.83	6484.	0.1732D 05	4294.	3211.	247.7	33.77
849.0	0.4692D-02	32.52	19.24	6631.	0.1771D 05	4389.	3282.	253.1	34.52
850.0	0.4586D-02	32.55	19.66	6777.	0.1809D 05	4484.	3353.	258.5	35.26
851.0	0.4474D-02	32.59	20.07	6924.	0.1848D 05	4578.	3423.	264.0	36.00
852.0	0.4357D-02	32.63	20.48	7070.	0.1886D 05	4672.	3493.	269.3	36.73
853.0	0.4235D-02	32.67	20.88	7215.	0.1924D 05	4764.	3562.	274.7	37.46
854.0	0.4108D-02	32.71	21.28	7359.	0.1961D 05	4856.	3630.	280.0	38.18
855.0	0.3975D-02	32.75	21.68	7502.	0.1998D 05	4947.	3698.	285.1	38.88
856.0	0.3838D-02	32.80	22.06	7642.	0.2035D 05	5036.	3764.	290.3	39.58
857.0	0.3697D-02	32.84	22.44	7780.	0.2071D 05	5123.	3829.	295.3	40.26
858.0	0.3550D-02	32.89	22.82	7916.	0.2106D 05	5208.	3893.	300.1	40.93
859.0	0.3400D-02	32.94	23.18	8048.	0.2140D 05	5291.	3954.	304.9	41.57
860.0	0.3245D-02	32.99	23.52	8177.	0.2173D 05	5371.	4014.	309.5	42.20
861.0	0.3086D-02	33.04	23.86	8302.	0.2205D 05	5449.	4072.	313.9	42.80
862.0	0.2923D-02	33.10	24.18	8423.	0.2235D 05	5523.	4127.	318.2	43.38
863.0	0.2756D-02	33.15	24.49	8539.	0.2265D 05	5594.	4180.	322.2	43.94

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
864.0	0.2587D-02	33.21	24.79	8649.	0.2293D 05	5662.	4230.	326.1	44.46
865.0	0.2414D-02	33.26	25.06	8755.	0.2320D 05	5725.	4277.	329.7	44.96
866.0	0.2238D-02	33.32	25.32	8855.	0.2344D 05	5785.	4321.	333.1	45.42
867.0	0.2059D-02	33.38	25.56	8948.	0.2368D 05	5841.	4362.	336.3	45.85
868.0	0.1878D-02	33.44	25.78	9035.	0.2389D 05	5892.	4400.	339.2	46.25
869.0	0.1695D-02	33.50	25.98	9115.	0.2409D 05	5938.	4435.	341.8	46.61
870.0	0.1511D-02	33.56	26.16	9189.	0.2427D 05	5980.	4465.	344.2	46.93
871.0	0.1325D-02	33.62	26.32	9255.	0.2442D 05	6017.	4493.	346.2	47.21
872.0	0.1138D-02	33.68	26.45	9313.	0.2456D 05	6049.	4516.	348.0	47.45
873.0	0.9497D-03	33.74	26.57	9364.	0.2468D 05	6075.	4536.	349.5	47.66
874.0	0.7613D-03	33.80	26.66	9407.	0.2477D 05	6097.	4551.	350.7	47.82
875.0	0.5727D-03	33.87	26.72	9441.	0.2485D 05	6113.	4563.	351.6	47.94
876.0	0.3842D-03	33.93	26.77	9468.	0.2490D 05	6124.	4571.	352.2	48.02
877.0	0.1963D-03	33.99	26.79	9487.	0.2493D 05	6130.	4575.	352.5	48.06
878.0	0.9126D-05	34.05	26.79	9497.	0.2495D 05	6131.	4575.	352.5	48.06
879.0	-0.1769D-03	34.11	26.77	9500.	0.2493D 05	6126.	4571.	352.2	48.02
880.0	-0.3614D-03	34.17	26.72	9494.	0.2490D 05	6116.	4563.	351.6	47.93
881.0	-0.5442D-03	34.23	26.65	9480.	0.2485D 05	6101.	4552.	350.7	47.81
882.0	-0.7250D-03	34.29	26.56	9459.	0.2478D 05	6081.	4536.	349.5	47.65
883.0	-0.9034D-03	34.35	26.45	9429.	0.2468D 05	6056.	4517.	348.0	47.45
884.0	-0.1079D-02	34.40	26.31	9392.	0.2457D 05	6026.	4495.	346.3	47.21
885.0	-0.1252D-02	34.46	26.16	9348.	0.2444D 05	5992.	4469.	344.3	46.94
886.0	-0.1422D-02	34.52	25.99	9296.	0.2429D 05	5954.	4440.	342.0	46.63
887.0	-0.1588D-02	34.57	25.80	9238.	0.2412D 05	5911.	4408.	339.5	46.29
888.0	-0.1751D-02	34.62	25.59	9173.	0.2394D 05	5864.	4372.	336.8	45.92
889.0	-0.1909D-02	34.68	25.37	9102.	0.2374D 05	5813.	4334.	333.8	45.51
890.0	-0.2064D-02	34.73	25.13	9024.	0.2352D 05	5759.	4293.	330.7	45.08

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
891.0	-0.2214D-02	34.78	24.87	8942.	0.2329D 05	5701.	4250.	327.3	44.63
892.0	-0.2360D-02	34.82	24.61	8853.	0.2305D 05	5640.	4205.	323.8	44.15
893.0	-0.2502D-02	34.87	24.33	8760.	0.2279D 05	5576.	4157.	320.1	43.64
894.0	-0.2638D-02	34.91	24.03	8662.	0.2253D 05	5510.	4107.	316.3	43.12
895.0	-0.2770D-02	34.96	23.73	8560.	0.2225D 05	5441.	4055.	312.3	42.58
896.0	-0.2897D-02	35.00	23.42	8455.	0.2196D 05	5370.	4002.	308.2	42.02
897.0	-0.3018D-02	35.04	23.10	8345.	0.2167D 05	5297.	3947.	304.0	41.44
898.0	-0.3135D-02	35.08	22.77	8233.	0.2137D 05	5222.	3891.	299.7	40.85
899.0	-0.3246D-02	35.11	22.43	8117.	0.2106D 05	5145.	3834.	295.3	40.25
900.0	-0.3352D-02	35.15	22.09	8000.	0.2075D 05	5068.	3776.	290.8	39.64
901.0	-0.3452D-02	35.18	21.75	7880.	0.2043D 05	4989.	3717.	286.2	39.02
902.0	-0.3547D-02	35.21	21.40	7758.	0.2010D 05	4909.	3658.	281.7	38.40
903.0	-0.3637D-02	35.24	21.05	7635.	0.1978D 05	4829.	3598.	277.0	37.77
904.0	-0.3721D-02	35.27	20.70	7511.	0.1945D 05	4748.	3537.	272.4	37.13
905.0	-0.3799D-02	35.29	20.34	7386.	0.1912D 05	4667.	3477.	267.7	36.50
906.0	-0.3873D-02	35.32	19.99	7261.	0.1879D 05	4586.	3416.	263.0	35.86
907.0	-0.3941D-02	35.34	19.63	7135.	0.1846D 05	4504.	3356.	258.4	35.22
908.0	-0.4003D-02	35.36	19.28	7009.	0.1813D 05	4423.	3295.	253.7	34.59
909.0	-0.4061D-02	35.38	18.93	6884.	0.1780D 05	4343.	3235.	249.1	33.96
910.0	-0.4113D-02	35.40	18.58	6759.	0.1747D 05	4262.	3175.	244.5	33.33
911.0	-0.4160D-02	35.41	18.23	6634.	0.1715D 05	4183.	3116.	239.9	32.70
912.0	-0.4202D-02	35.43	17.88	6511.	0.1683D 05	4104.	3057.	235.4	32.09
913.0	-0.4238D-02	35.44	17.54	6389.	0.1651D 05	4026.	2999.	230.9	31.48
914.0	-0.4270D-02	35.45	17.21	6267.	0.1619D 05	3949.	2941.	226.5	30.87
915.0	-0.4297D-02	35.46	16.87	6148.	0.1588D 05	3873.	2885.	222.1	30.28
916.0	-0.4319D-02	35.46	16.55	6029.	0.1557D 05	3798.	2829.	217.8	29.69
917.0	-0.4337D-02	35.47	16.22	5913.	0.1527D 05	3724.	2774.	213.5	29.11

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
918.0	-0.4350D-02	35.47	15.91	5798.	0.1497D 05	3651.	2720.	209.4	28.54
919.0	-0.4358D-02	35.48	15.60	5685.	0.1468D 05	3580.	2666.	205.3	27.98
920.0	-0.4362D-02	35.48	15.29	5574.	0.1439D 05	3510.	2614.	201.3	27.44
921.0	-0.4362D-02	35.48	14.99	5465.	0.1411D 05	3441.	2563.	197.3	26.90
922.0	-0.4357D-02	35.48	14.70	5358.	0.1384D 05	3374.	2513.	193.5	26.37
923.0	-0.4349D-02	35.47	14.41	5254.	0.1357D 05	3308.	2464.	189.7	25.86
924.0	-0.4336D-02	35.47	14.13	5151.	0.1330D 05	3244.	2416.	186.0	25.36
925.0	-0.4320D-02	35.46	13.86	5051.	0.1304D 05	3181.	2369.	182.4	24.87
926.0	-0.4300D-02	35.46	13.59	4953.	0.1279D 05	3119.	2323.	178.9	24.39
927.0	-0.4277D-02	35.45	13.33	4857.	0.1255D 05	3059.	2279.	175.5	23.92
928.0	-0.4249D-02	35.44	13.08	4764.	0.1231D 05	3001.	2235.	172.1	23.46
929.0	-0.4219D-02	35.43	12.83	4673.	0.1207D 05	2944.	2193.	168.9	23.02
930.0	-0.4185D-02	35.42	12.59	4585.	0.1184D 05	2889.	2152.	165.7	22.59
931.0	-0.4148D-02	35.41	12.35	4498.	0.1162D 05	2835.	2112.	162.6	22.17
932.0	-0.4108D-02	35.39	12.13	4414.	0.1141D 05	2783.	2073.	159.6	21.76
933.0	-0.4065D-02	35.38	11.91	4333.	0.1120D 05	2732.	2035.	156.7	21.36
934.0	-0.4020D-02	35.37	11.69	4253.	0.1100D 05	2683.	1998.	153.9	20.98
935.0	-0.3971D-02	35.35	11.48	4176.	0.1080D 05	2635.	1963.	151.1	20.60
936.0	-0.3920D-02	35.33	11.28	4102.	0.1061D 05	2588.	1928.	148.5	20.24
937.0	-0.3866D-02	35.32	11.08	4029.	0.1042D 05	2543.	1895.	145.9	19.89
938.0	-0.3810D-02	35.30	10.90	3959.	0.1024D 05	2500.	1862.	143.4	19.55
939.0	-0.3751D-02	35.28	10.71	3891.	0.1007D 05	2457.	1831.	141.0	19.22
940.0	-0.3691D-02	35.26	10.53	3825.	9899.	2417.	1801.	138.6	18.90
941.0	-0.3628D-02	35.24	10.36	3761.	9736.	2377.	1771.	136.4	18.59
942.0	-0.3563D-02	35.22	10.20	3700.	9579.	2339.	1743.	134.2	18.29
943.0	-0.3496D-02	35.19	10.04	3640.	9427.	2302.	1715.	132.1	18.01
944.0	-0.3427D-02	35.17	9.882	3582.	9280.	2266.	1689.	130.1	17.73

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
945.0	-0.3357D-02	35.15	9.732	3527.	9138.	2232.	1663.	128.1	17.46
946.0	-0.3284D-02	35.13	9.589	3473.	9002.	2199.	1639.	126.2	17.20
947.0	-0.3210D-02	35.10	9.450	3422.	8870.	2167.	1615.	124.4	16.96
948.0	-0.3135D-02	35.08	9.317	3372.	8743.	2136.	1592.	122.6	16.72
949.0	-0.3058D-02	35.05	9.189	3324.	8621.	2107.	1570.	120.9	16.49
950.0	-0.2980D-02	35.03	9.065	3278.	8504.	2079.	1549.	119.3	16.26
951.0	-0.2900D-02	35.00	8.947	3233.	8391.	2051.	1529.	117.7	16.05
952.0	-0.2820D-02	34.97	8.833	3191.	8283.	2025.	1509.	116.2	15.85
953.0	-0.2738D-02	34.95	8.724	3150.	8179.	2000.	1491.	114.8	15.65
954.0	-0.2655D-02	34.92	8.620	3110.	8080.	1976.	1473.	113.4	15.47
955.0	-0.2571D-02	34.89	8.520	3073.	7984.	1953.	1456.	112.1	15.29
956.0	-0.2486D-02	34.86	8.425	3037.	7893.	1931.	1439.	110.9	15.11
957.0	-0.2400D-02	34.84	8.333	3002.	7806.	1910.	1424.	109.7	14.95
958.0	-0.2313D-02	34.81	8.246	2969.	7723.	1890.	1409.	108.5	14.79
959.0	-0.2226D-02	34.78	8.163	2938.	7644.	1871.	1395.	107.4	14.65
960.0	-0.2138D-02	34.75	8.085	2908.	7568.	1853.	1381.	106.4	14.50
961.0	-0.2049D-02	34.72	8.010	2880.	7497.	1835.	1368.	105.4	14.37
962.0	-0.1960D-02	34.69	7.939	2852.	7429.	1819.	1356.	104.5	14.24
963.0	-0.1870D-02	34.66	7.872	2827.	7364.	1804.	1345.	103.6	14.12
964.0	-0.1780D-02	34.63	7.809	2803.	7303.	1789.	1334.	102.8	14.01
965.0	-0.1689D-02	34.60	7.749	2780.	7246.	1775.	1324.	102.0	13.90
966.0	-0.1598D-02	34.57	7.693	2758.	7192.	1762.	1314.	101.2	13.80
967.0	-0.1507D-02	34.54	7.641	2738.	7141.	1750.	1305.	100.5	13.71
968.0	-0.1415D-02	34.51	7.592	2719.	7094.	1739.	1297.	99.90	13.62
969.0	-0.1323D-02	34.48	7.547	2701.	7050.	1728.	1289.	99.31	13.54
970.0	-0.1231D-02	34.45	7.505	2684.	7009.	1719.	1282.	98.75	13.46
971.0	-0.1139D-02	34.42	7.466	2669.	6972.	1710.	1275.	98.24	13.39

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
972.0	-0.1047D-02	34.39	7.431	2655.	6937.	1702.	1269.	97.78	13.33
973.0	-0.9551D-03	34.36	7.399	2642.	6906.	1694.	1264.	97.36	13.27
974.0	-0.8631D-03	34.33	7.370	2630.	6877.	1687.	1259.	96.98	13.22
975.0	-0.7712D-03	34.30	7.344	2620.	6852.	1681.	1254.	96.64	13.18
976.0	-0.6794D-03	34.27	7.322	2610.	6829.	1676.	1250.	96.34	13.14
977.0	-0.5877D-03	34.24	7.302	2602.	6810.	1672.	1247.	96.09	13.10
978.0	-0.4963D-03	34.21	7.286	2594.	6793.	1668.	1244.	95.87	13.07
979.0	-0.4052D-03	34.18	7.273	2588.	6779.	1665.	1242.	95.70	13.05
980.0	-0.3143D-03	34.16	7.263	2583.	6768.	1662.	1240.	95.57	13.03
981.0	-0.2238D-03	34.13	7.256	2579.	6760.	1661.	1239.	95.47	13.02
982.0	-0.1337D-03	34.10	7.252	2576.	6755.	1659.	1238.	95.42	13.01
983.0	-0.4399D-04	34.07	7.251	2575.	6752.	1659.	1238.	95.40	13.01
984.0	0.4524D-04	34.04	7.252	2574.	6752.	1659.	1238.	95.42	13.01
985.0	0.1340D-03	34.01	7.257	2574.	6755.	1660.	1239.	95.49	13.02
986.0	0.2222D-03	33.98	7.265	2575.	6761.	1662.	1240.	95.59	13.03
987.0	0.3098D-03	33.95	7.275	2578.	6769.	1664.	1242.	95.73	13.05
988.0	0.3968D-03	33.92	7.289	2581.	6780.	1667.	1245.	95.90	13.08
989.0	0.4831D-03	33.89	7.305	2586.	6794.	1671.	1247.	96.12	13.11
990.0	0.5688D-03	33.87	7.325	2591.	6811.	1675.	1251.	96.38	13.14
991.0	0.6537D-03	33.84	7.347	2598.	6830.	1680.	1254.	96.67	13.18
992.0	0.7379D-03	33.81	7.372	2605.	6852.	1686.	1259.	97.00	13.23
993.0	0.8212D-03	33.78	7.401	2614.	6877.	1692.	1263.	97.37	13.28
994.0	0.9037D-03	33.76	7.432	2623.	6904.	1699.	1269.	97.78	13.33
995.0	0.9854D-03	33.73	7.466	2634.	6934.	1707.	1275.	98.23	13.39
996.0	0.1066D-02	33.70	7.503	2646.	6967.	1716.	1281.	98.71	13.46
997.0	0.1146D-02	33.68	7.543	2659.	7003.	1725.	1288.	99.24	13.53
998.0	0.1225D-02	33.65	7.585	2672.	7041.	1734.	1295.	99.80	13.61

TIME(MIN)	REACT.($)	TEMP(CELCIUS)	POWER(W)	PRECURSOR CONCENTRATIONS					
999.0	0.1302D-02	33.63	7.631	2687.	7083.	1745.	1303.	100.4	13.69
1000.	0.1379D-02	33.60	7.680	2703.	7127.	1756.	1311.	101.0	13.78

IHC002I STOP 0

INTERNAL DISTRIBUTION

1. R. C. Baker, PAD
2. D. E. Bartine
3. H. P. Carter/G. E. Whitesides/ CS Library
4. Y. Chen, K-25
5. J. G. Cleveland, Y-12
6. D. H. Cook, K-25
7-11. H. L. Dodds, Jr.
12. H. R. Dyer, K-25
13. J. Dykstra, Jr., K-25
14. M. E. Easter
15. E. P. Elliott
16. W. W. Engle
17. G. F. Flanagan
18. D. N. Frye
19. P. W. Gaffney, Y-12
20. Uri Gat, Y-12
21. W. R. Golliher, K-25
22. G. L. Grametbauer, K-25
23. S. R. Greene, Y-12
24. C. M. Hopper
25. J. C. Ingram, K-25
26. J. O. Johnson
27. W. C. Jordan
28. W. T. King
29. A. J. Legeay, K-25
30. J. T. Mihalczo
31. E. M. Oblow
32. R. J. Renka
33. E. O. Sternberg, K-25
34. R. G. Taylor, Y-12
35. J. T. Thomas
36. J. L. Thompson
37. R. D. Timmerman
38. F. M. Tinch, K-25
39. B. E. Vaughn, K-25
40. D. R. Vondy
41. C. W. Walter, PAD
42-46. R. M. Westfall
47. B. A. Worley
48-49. Central Research Library
50. Y-12 Document Reference Section
51-52. Laboratory Records
53. Laboratory Records - RC
54. ORNL Patent Section
55. K-25 Plant Library

EXTERNAL DISTRIBUTION

56. J. N. Rogers, Div. 8324, Sandia Laboratories, Livermore, CA 94550
57. Division of Engineering, Mathematics and Geosciences, DOE, Washington, DC 20545
58. Office of Assistant Manager for Energy Research and Development, DOE-ORO, Oak Ridge, TN 37830
59. R. H. Odegaarden, Transportation Branch, Office of Nuclear Material Safety and Safeguards, Nuclear Regulatory Commission, Washington, DC 20555
60. Michael V. Gregory, Savannah River Laboratory, Aiken, SC 29801
61. R. B. Perez, University of Tennessee, Knoxville, TN 37916
62. Larry Miller, University of Tennessee, Nuclear Engineering Dept., Knoxville, TN 37916

EXTERNAL DISTRIBUTION (CONT'D)

63. R. W. Tayloe, Goodyear Atomic Corp., P. O. Box 628, Piketon, OH 45661
64. K. D. Lewis, Goodyear Atomic Corp., P. O. Box 628, Piketon, OH 45661
65. J. Gerz, Goodyear Atomic Corp., P. O. Box 628, Piketon, OH, 45661
66. M. L. Williams, Louisiana State University, Nuclear Science Center, Baton Rouge, LA 70803
67. E. M. Katz, University of Tennessee, Knoxville, TN 37916
68. T. W. Kerlin, University of Tennessee, Knoxville, TN 37916
69. A. F. Henry, Massachusetts Institute of Technology, Nuclear Engineering Dept., Cambridge, MA
70. A. C. Hindmarsh, Lawrence Livermore National Laboratory, P. O. Box 808, Livermore, CA 94550
71. W. R. Rhyne, H&R Technical Associates, Inc., 977 Oak Ridge Turnpike, Oak Ridge, TN 37830
72. Ed Fuller, Technology for Energy Corporation, One Energy Center, Pellissippi Parkway, Knoxville, TN 37922
73. J. C. Robinson, Technology for Energy Corporation, One Energy Center, Pellissippi Parkway, Knoxville, TN 37922
74. R. E. Pevey, Savannah River Laboratory, Aiken, SC 29801

75-101. Technical Information Center, Oak Ridge, TN 37831