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Note

KINETICS ANALYSIS PROJECT

A Kinetics Workshop was held during the 11th International Congress on Thermal Analysis and Calorimetry (ICTAC) in Philadelphia, USA, in August 1996. One of the suggestions which arose was that sets of kinetic data should be prepared and distributed to volunteer participants for their analysis using any, or several, methods they wished. These sets are now available and will be distributed to those who volunteered (and provided usable addresses) at the Workshop. Anyone else wishing to participate should contact:

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Any comments, suggestions, or queries concerning the project should be directed to the above, or to:

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The Data Sets

SET 1

Figure 1 illustrates six experimental alpha-temperature curves for the decomposition of calcium carbonate (CC) in vacuum, obtained at different heating rates (1.8, 2.5, 3.5, 5.0, 6.2 and 10 K min^{-1} as shown) by Dr. Maciejewski.
FILE: CCVKPM.TXT

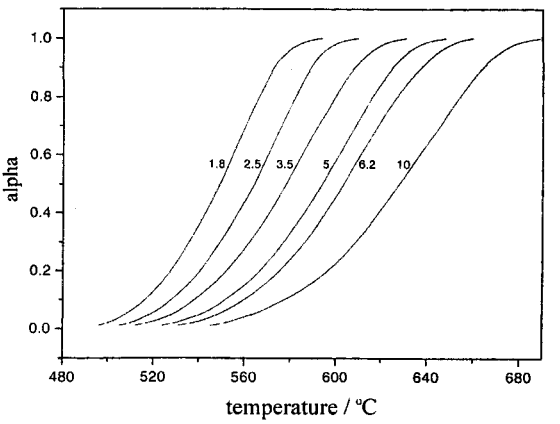

Fig. 1

SET 2

Figure 2 illustrates six experimental alpha-temperature curves for the decomposition of calcium carbonate (CC) in nitrogen, obtained at different heating rates (1.0, 3 .0, 5.0, 7.5, 10, 15 and 25 K min^{-1} as shown) by Dr. Maciejewski.
FILE: CCNKPM.TXT

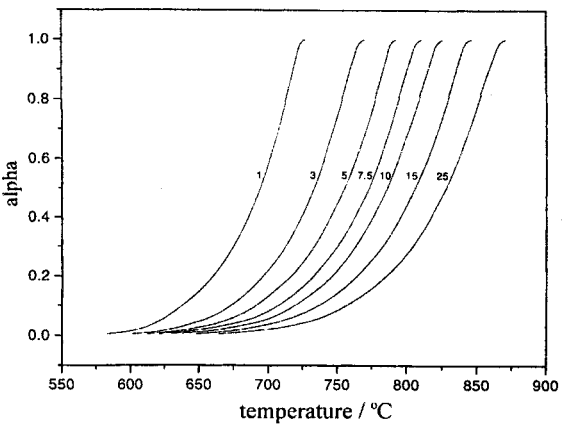

Fig. 2

SET 3

Figure 3 illustrates six experimental alpha-time curves for the decomposition of calcium carbonate (CC) in vacuum, obtained at different temperatures (550, 540, 535, 530, 520 and 515°C as shown) by Dr. Maciejewski.
FILE: CCVISO.TXT

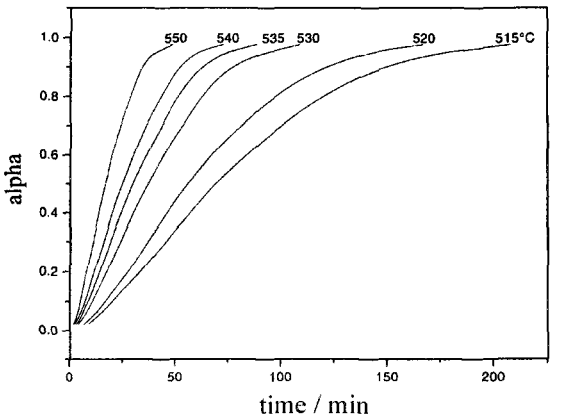

Fig. 3

SET 4

Figure 4 illustrates seven experimental alpha-time curves for the decomposition of calcium carbonate (CC) in nitrogen, obtained at different temperatures (773, 750, 740, 732, 719, 710 and 700°C as shown) by Dr. Maciejewski.
FILE: CCNISO.TXT

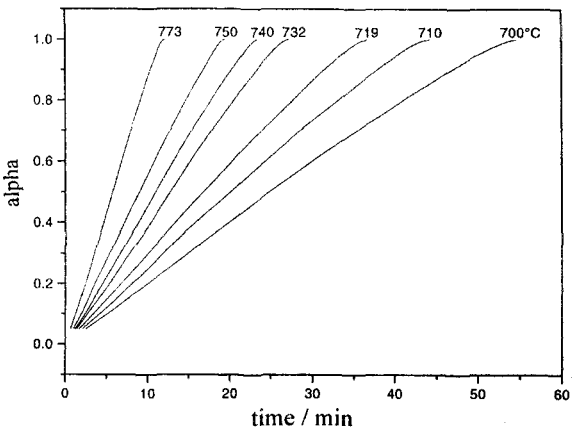

Fig. 4

SET 5

Figure 5 illustrates six experimental alpha-temperature curves for the decomposition of ammonium perchlorate (AP) in nitrogen, obtained at different heating rates (a=2.52, b=5.16, c=7.58, d=10.49, e=12.79 and f=15.45 K min^{-1}) by Dr. Vyazovkin.
FILE: APKPM.TXT

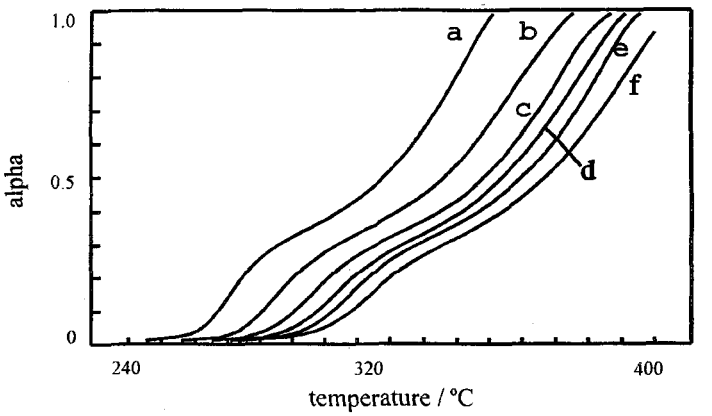

Fig. 5

SET 6

Figure 6 illustrates five isothermal alpha-time curves for the decomposition of ammonium perchlorate (AP) in flowing nitrogen, obtained at different temperatures (a=558, b=553, c=548, d=543 and e=548 K) by Dr. Vyazovkin.
FILE: APISO.TXT

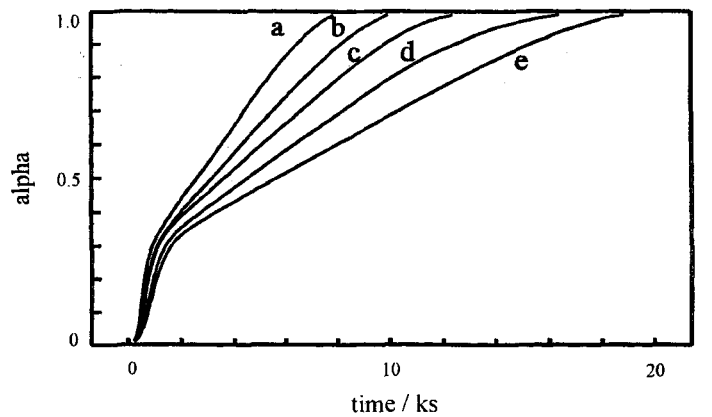

Fig. 6

SET 7

Figure 7 illustrates five simulated alpha-temperature curves calculated at heating rates of 0. 5, 1.0, 2.0, 4.0 and 8.0 K min^{-1}) by Dr. Vyazovkin.
FILE: SIMKPM.TXT

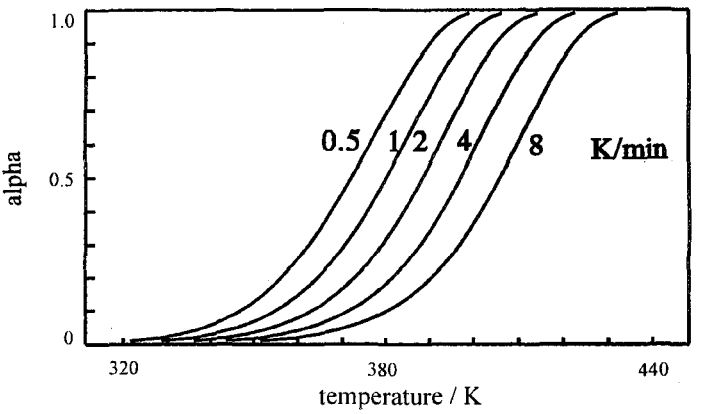

Fig. 7

SET 8

Figure 8 illustrates five simulated isothermal alpha-time curves calculated at temperatures of a=380, b=375, c=370, d=365 and e=360 K by Dr. Vyazovkin.
FILE: SIMISO.TXT

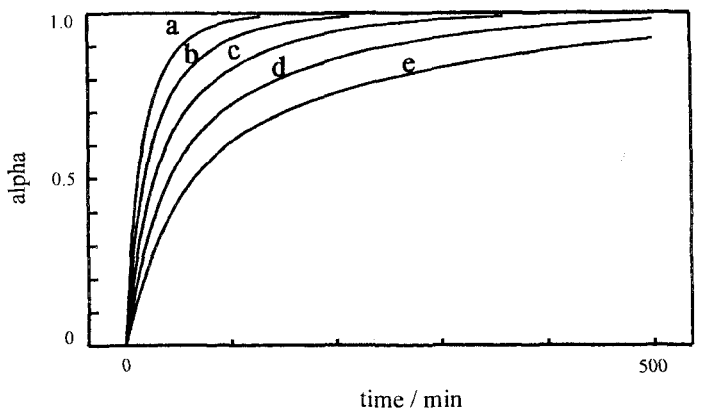

Fig. 8

These data sets (about 100 points each) are available on diskette (MS-DOS) from Michael Brown (address above) in ASCII text format. Other formats can be provided on request.

Kinetic analyses

Please send a brief summary of the Methods and Results of your kinetic analyses, of the calcium carbonate, ammonium perchlorate, or simulated data (you may choose to try one or more?) including any rate equation(s) identified as applying and estimates (with uncertainties) of the Arrhenius parameters, to Michael Brown, WITHIN SIX MONTHS OF THE DATE OF APPEARANCE OF THIS NOTE. The contributions will be combined and compared and a report on the Project, acknowledging all participants (with their permission of course!) will be submitted to Thermochimica Acta for publication.