

Events

IV. ICTA

The Fourth International Conference on Thermal Analysis was held in Budapest, Hungary, 8–13 July, 1974

DR. JAROSLAV ŠESTAK Prague, Czechoslovakia, was presented with the 1974 Mettler Award at the 4th International Conference in Thermal Analysis in Budapest. The Award was handed over by Hans J. Hoehn, the representative of Mettler Instrument Corporation of Princeton, New Jersey, USA. Dr. Sestak is being cited for his outstanding performance in solid state kinetics.

We all wish him further success in this field.

The following lectures were presented:

Section 1, Theory

Reaction kinetics

Principle of least deformation as controlling factor in solid state reactions

Z. G. SZABÓ (Hungary)

The kinetic compensation effect

P. D. GARN (USA)

On the applicability of basic kinetic equations for non-isothermal investigations of heterogeneous processes

P. HOLBA, J. KRATOCHVIL and J. ŠESTÁK (Czechoslovakia)

On the correction of some models regarding the relationship of the kinetic parameters from the conditions of the nonisothermic experiment

A. V. NIKOLAEV, V. A. LOGVINENKO, V. M. GORBATCHOV and L. I. MYACHINA (USSR)

Some problems of the theory of thermal analysis

I. B. KUDINOV, G. O. PILOJAN and K. A. SEMENDJAEV (USSR)

Numerical methods for the analysis of data from solid state reactions

M. D. JUDD, A. C. NORRIS, M. I. POPE and M. SELWOOD (UK)

Application of dynamic mass-spectrometry and computer for the study of kinetics and determination of the kinetics constants in condensed systems

O. P. KOROBENICHEV, A. S. SCHMELEV, V. G. VORODOV and G. I. ANISIFOROV (USSR)

Reaction mechanism

The thermal analysis in the chemistry of coordination compounds

A. V. NIKOLAEV, V. A. LOGVINENKO, V. M. GORBATCHOV (USSR)

On calculation of the mechanism and the kinetics of non-isothermally investigated heterogeneous processes by computers

F. ŠKVÁRA and J. ŠESTÁK (Czechoslovakia)

Activation energy of the dehydration of a silica-gel between 200 and 1000 °C.

F. ROUQUÉROL, S. RÉGNIER and J. ROUQUÉROL (France)

Non-isothermal methods for studying kinetics of topochemical reactions

V. V. ALEKSANDROV and V. V. BOLDYREV (USSR)

Investigation of consecutive reactions under non-isothermal conditions by TA

K. HEIDE, G. KLUGE, W. REIPRICH and H. HOBERT (GDR)

Calorimetric studies on oscillating chemical systems

E. KÖRÖS, M. ORBÁN and Zs. NAGY (Hungary)

Kinetic investigation of complex solution reactions by differential thermal analysis

E. KOCH (GFR)

Mechanism of thermal rearrangement process in solid potassium chlorite

T. BÁNSÁGI and F. SOLYMOŠI (Hungary)

Investigation of the kinetics of heterogen dissociation reactions at high heating rates by a new principle of nonisothermal temperature treatment

K. VOLKE (GDR)

Thermal deamination of $Me(\text{amine})_nX_2$ type complexes

J. ZSAKÓ, Cs. VÁRHELYI and E. KÉKEDY (Roumania)

The kinetics of thermal dehydration of $K_2C_2O_4 \cdot H_2O$ as studied by DSC and optical microscopy

G. G. T. GUARINI, R. SPINICCI and D. DONATI (Italy)

Clearing up the of temperature distribution at the study of kinetics of chemical reactions at linear heating

V. V. BARZYKIN, V. T. GONTKOVSKAYA, A. G. MERZHANOV, N. I. OZERVOVSKAYA (USSR)

Compensation effect in thermal dissociation processes

T. ZMIJEWSKI and J. PYSIAK (Poland)

Some aspects of the kinetical evaluation of DTA-curves

H. ANDERSON, W. BESCH and D. HABERLAND (GDR)

Nucleation characteristics of decomposition processes

H. G. WIEDEMANN (Switzerland)

The investigation of phase transition kinetics and phase diagrams of the method of statistical thermal analysis

B. I. KIDYAROV and V. I. KOSYAKOV (USSR)

Evaluation of DTA-curves

International standards for ΔT

H. G. McADIE (Canada)

On the analysis of the shape of DTA endothermic peaks

L. STOCH and Z. STOCH (Poland)

On theoretical background of quantitative DTA

N. SMAJIC (Yugoslavia)

*Role of the experimental conditions**Influence of the particle shape on the reaction rate solid-fluid*

W. RICHARZ and H. BEER (Switzerland)

Relation between anomalies in endothermic decomposition kinetic curves and heat and gas transfer processes

G. BERTRAND, M. LALLEMANT and G. WATELLE-MARION (France)

The role of the gas phase in the thermal analysis of dispersed phase materials

L. G. BERG, V. P. EGUNOV, A. D. KIYAIEV, V. S. KOZLOV and M. I. KOZHUKHOV (USSR)

*Section 2, Inorganic Chemistry**Phase analysis**Contribution to the study of some systems involving alkali, thallium and hydrogen fluorides*

R. COHEN-ADAD, B. BOINON, J. G. VOUELLON, M. T. SAUGIER and A. MARCHAND (France)

Investigation of the thermal properties of alkaline metal fluoride solvates with acetic acid

A. V. NIKOLAJEV, V. E. FEDOROV and T. D. FEDOTOVA (USSR)

DTA investigations of high temperature phase equilibria in ternary transition metal-carbon systems

H. FREY and H. HOLLECK (GFR)

Investigation of the system $Ag_2Se = AgX$, where $X = Cl, Br$

Z. BONTCHEVA-MLADENOVA and N. ARAMOV (Bulgaria)

Investigation of the ternary system $NaF-MgF_2-AlF_3$ by DTA

J. L. HOLM and B. HOLM (Norway)

Investigations of systems $AX/ME X_2$ (AX 2 alkali halides; $X = Cl, Br, I$) with DTA

H. J. SEIFERT, H. FINK, G. THIEL (GFR)

DTA and DSC-investigation of phase transitions in solids with cooperative Jahn-Teller effects

E. DUBLER, J. P. MATTHIEUR and H. R. OSWALD (Switzerland)

Studying of polymorphous transformations of solid solutions in the $Y_2O_3-Pr_2O_3+x$ and $NfO_2-Pr_2O_3(Tb_2O_3)$ systems by means of DTA

E. K. KOEHLER, A. K. KUZNETSOV, P. A. TIKHOVONOV and M. V. KRAVCHINSKAYA (USSR)

Thermoanalysis in the system $VO_2-VO_{2.5}$

H. OPPERMANN, W. REICHELDT and E. WOLF (GDR)

Differential thermal analysis of Ca_3SiO_5 solid solutions

W. EYSEL, E. WOERMANN and TH. HAHN (GFR)

Polymorphism of $Sr_xBa_{1-x}(HCOO)_2$ solid solutions

B. F. MENTZEN and C. COMEL (France)

*Reaction kinetics**The "Hedvall-effect"*

D. KRUG and F. BEER (GFR)

Thermal decomposition of iodic acid, periodic acid and iodine pentoxide in solid phase

K. JÁKY and F. SOLYMOŠI (Hungary)

Simultaneous thermal analysis of some high-melting oxides; study on kinetics and mechanism of reaction

M. SZALKOWICZ (Poland)

The thermal decomposition of $AgMO_2$ ($M = Al, Ga, In, Sc, Fe, Cr$)

G. HAKVOORT (Netherlands)

Thermogravimetry of extremely thin alkaline-earth carbonate layers

GY. POKOL, S. GÁL, T. TOMOR and L. DOMOROS (Hungary)

The use of thermography in the study of the kinetics of metal oxides reduction with carbon

M. NIKLEWICZ, J. WARCZEK, N. HAJDUK (Poland)

Thermogravimetric study of the reduction of mixed copper and chromium oxides by hydrogen

M. POSPIŠIL and J. CABICAR (Czechoslovakia)

Thermal decomposition of chromium perchlorate

J. RASKÓ and F. SOLYMOŠI (Hungary)

The influence of atmosphere on the mechanism and kinetics of the manganous carbonate ($MnCO_3$) thermal decomposition reaction

Z. KUBA and J. OREWCIK (Poland)

Desilication of zircon with aluminium fluoride in presence of graphite

A. M. ABDEL REHIM (Hungary)

Thermoanalytical study of the solid-state reaction between $CuSO_4 \cdot 5H_2O$ and β - PbO

M. E. GARCIA-CLAVEL, M. I. TEJEDOR-TEJEDOR and F. BURRIEL-MARTI (Spain)

*Hydrates, dehydration**Investigations of the system $CaSO_4-H_2O$ under special considerations of material and experimental parameters by differential thermal analysis*

H. LEHMANN and K. RIEKE (GFR)

Thermal analysis and reactivity of amorphous calcium silicate hydrates

H. STADE (GDR)

Investigation of $LiOH-RbOH$ and $LiOH-CsOH$ systems by DTA method

L. S. ITKINA, S. M. PORTNOVA and S. E. OSTROVITIANOVA (USSR)

Determination of small amounts of $CaSO_4 \cdot 2H_2O$ in $CaSO_4 \cdot 1/2 H_2O$ by quantitative DTA

V. SCHLICHENMAIER (Switzerland)

*Salts**Thermal behaviour of some synthetic ion exchangers of the zirconium phosphate class*

A. LA GINESTRA, M. A. MASSUCCI C. FERRAGINA and N. TOMASSINI (Italy)

TA of alkali earth hydrophosphates

G. BEREND and A. J. HEGEDÜS (Hungary)

- The thermal decomposition of zirconium phosphates II. γ -zirconium phosphate*
D. DOLLIMORE, S. E. HORSLEY, N. J. MANNING and D. V. NOWELL (England)
- Thermoanalytical investigations of crystalline zirconium phosphate in various salt forms*
L. ZSINKA, L. SZIRTES, Z. POKÓ and F. FODOR (Hungary)
- Thermal decomposition of basic aluminium-potassium sulfate in high vacuum*
E. KAHUL-CHIEBOWSKA and J. PYSIAK
- Further studies on the preparation and thermal properties of bismuth orthovanadate*
M. GOTTLIEB and D. V. KELLY (USA)
- Thermal synthesis of some inorganic double phosphates*
D. MACAROVICI and D. POLVEREJAN (Roumania)

Thermometry, calorimetry

- Calorimetric study of dark and photostimulated low temperature reactions of halogens and hydrohalogens addition to the unsaturated hydrocarbons*
A. P. SHVEDCHIKOV, A. M. KAPLAN and A. V. POLYKOVA (USSR)
- Application of non-selective reagents. Determination of iodide and bromide when present together by direct thermometric method*
P. KORDA-MARIK (Hungary)
- The development of direct thermometric analysis for use in arbitrary analyses*
I. SAJÓ (Hungary)
- New instruments in thermometric analysis (enthalpimetry)*
J. BRANDŠTETR (Czechoslovakia)
- The application of the slope method of the thermometric examination of equilibria*
F. TRISCHLER and R. HOYNOS (Hungary)
- Calorimetric measurements by DTA in Cd-In system*
A. ROSINA (Yugoslavia)
- The investigation of labile states in salt systems by differential thermal analysis*
L. G. BERG, N. P. BURMISTROVA, N. I. LISSOV and R. G. FITZEVA (USSR)
- On the thermal decomposition of transition-metal oxalates*
GY. BAKCSY and A. J. HEGEDÜS (Hungary)
- DTA investigations of divalent metal perhenates*
D. SCHULTZE (GDR)
- TG studies on the formation of the new intermediate V_4O_9 by the reduction of V_2O_5 and its identification*
M. TANIGUCHI (Japan)
- Thermogravimetric studies of deviation from stoichiometry in cuprous oxide*
K. GODLEWSKI and A. STOKŁOSA (Poland)
- Investigations on transition points of iron oxides*
W. FRÖMMING (GDR)
- Expansion characteristics and thermal stability of platinum group metal oxides*
G. BAYER (Switzerland)

Complexes

Thermal decomposition of [Co/(diox · H)₂(amino)₂] X type complexes

J. ZSAKÓ, Cs. VÁRHELYI and G. LIPTAY* (Roumania, *Hungary)

Thermogravimetric analysis of oxotricobalt carboxylates as the criterion of structure of coordination compounds

T. SZYMANSKA-BUZAR, J. J. ZIELKOWSKI (Poland)

Thermal properties of binuclear mono-, di- and tribridged cobalt(III) complexes

J. MROZIŃSKI (Poland)

Analysis of decomposition stages of some titanyl oxalate complexes

G. M. H. VAN DE VELDE and P. J. D. ORANJE (Netherlands)

Contribution to the clathrate compounds. 4. thermal stability of the host molecule

A. SOPKOVÁ, V. JESENÁK, J. CHOMIČ, and M. DZURILLOVÁ (Czechoslovakia)

Thermal study of some metal chelates of bidentate sulphur-containing ligands

S. V. LARIONOV and L. A. KOSAEVA (USSR)

Semiconductors

Thermal investigations into the glass transition range of chalcogenide glasses

W. LUDWIG, B. VOIGT, H. J. LIPPMAN and A. FELTZ (GDR)

Thermoanalytical investigation of amorphous Te-Ge-As semiconductor materials

J. HAJTÓ, Z. POKÓ and M. FODOR (Hungary)

On the thermal decomposition of GaN in vacuum

R. GROH, GY. GERCY, L. BARTHA and J. I. PANKOVE (Hungary)

A thermoanalytical investigation of the thermodynamic properties of the system PbTe-GeTe

S. MISRA and SHAMSUDDIN (India)

Uranium compounds

Investigation of a new uranium compound by simultaneous TG-DTA-MS-technique

H. WYDEN, H. M. MULLER, H. Z. DOKUZOGUZ (Switzerland, GFR, USA)

Thermal analysis of the UO₃ - CO₂ - H₂O system

Z. URBANEC and J. ČEJKA (Czechoslovakia)

Study of the temperature composition isobars of U₃O₈ phase from 723 to 1273 K employing microthermogravimetric technique

S. R. DHARWADKAR, M. S. CHANDRASAKHARAIHAH and M. D. KARKHANAVALA (India)

Decomposition reactions

Thermal analysis of neutral and basic copper-II salts of monohalobenzoic acids: XC₆H₄CO₂H (X = Cl, Br, I)

F. CHARBONNIER (France)

A thermoanalytical study of electrodeposited manganese dioxide

J. HITCHCOCK and P. F. PELTER (UK)

Thermal investigation of Pd, Ru and Rh chlorides and oxides in air
I. S. SHAPLYGIN and V. B. LAZAROV (USSR)

Thermal decomposition of organic salts of Reinecke acids
B. LÓRÁNT (Hungary)

Section 3. Organic and macromolecular chemistry *Transition and relaxation of polymers*

Thermal analysis of polymeric glasses at elevated pressure
B. WUNDERLICH and A. WEITZ (USA)

Thermal analysis of soapes of aluminium and some other metals
R. C. MEHROTRA and A. K. RAI (India)

On the actual crystallization temperature of polymers
B. YA. TEITEL'BAUM (USSR)

Thermal analysis of the morphology of polymethylene prepared during polymerization of diazomethane
M. MUCHA (Poland)

DSC-investigation of the melting of polyamide- β
P. WEIGEL, R. HIRTE and CH. RUSCHER (DGR)

Reactions and processing of polymers

Thermal shrinkage of high polymers by thermomechanical analysis
H. KAMBE, M. KOCHI, T. KATO and M. MURAKOMI (Japan)

Heat capacities of linear macromolecules measured by DSC
B. WUNDERLICH and A. MEHTA (USA)

Thermal properties of some substituted polyvinylbenzoates
M. PASQUINI*, T. P. MELIA** and A. MARCHETTI* (*Italy, **UK)

Thermal study polyvinylcarbazole complexes with halogen halides
J. PIELICHOWSKI, T. LESIAK and Z. DASZKOWICZ (Poland)

Kinetics of polymerization and thermal decomposition of some insulating polymers
G. PARLAGH, G. SZÉKELY and M. LACZKÓ (Hungary)

A weight-change study of the catalysed cyclodehydration of a poly(o-hydroxyamide)
K. A. HODD (UK)

Derivatographic investigation of cross-linkage formation in polymers
F. ÖRSI, I. RUSZNÁK, GY. BERTALAN, P. ANNA, I. GYURKOVICW and M. LACZKÓ (Hungary)

Thermal stability of structural fragments of polyimides
YU. N. SAZANOV and L. A. SHIBAEV (USSR)

Degradation of synthetic polymers

Rapid method for estimation of non-isothermal crystallization parameters and phase state of polymers by DSC.
V. BIL and SAMARDUKOV (USSR)

Thermogravimetric investigations on the oxidation of polyolefins

M. IRING, S. HEDVIG—LÁSZLÓ, T. KELEN and F. TÜDÖS (Hungary)

Thermogravimetric investigations on the thermal destruction of polyethyleneterephthalate

H. ZIMMERMANN and E. SCHAAF (GDR)

Study on thermal degradation of polypyromellitimide series

J. ZURAKOWSKA-ORSZAGH and ST. KOBIELA (Poland)

Thermal decomposition studies of sodium and potassium methacrylates and polymethacrylates

R. KRZYSZOWSKA (Poland)

Thermal degradation of perfluoroalkylene-linked polyimides

J. L. COTTER, G. J. KNIGHT and W. W. WRIGHT (UK)

Investigation of PVC-lubricant systems

J. NAGY, T. GÁBOR and E. BRANDT-PETRIK (Hungary)

*Degradation of natural polymers**A high pressure differential thermal analysis system for the study of aqueous α -keratin systems*

E. BURRELL and J. S. CRIGHTON (England)

Study of thermal stability of β -ether bonds in lignin and its models

G. DOMBURG, G. ROSSINSKAJA and V. SERGEEVA (USSR)

Pyrolytical determination of physically-chemical structure of oxycellulose

J. BLAHA, P. ČERNÝ and I. BLAŽIČEK (Czechoslovakia)

*Thermal degradation of a series of mono-*o*-methyl-*d*-glucose derivatives*

M. KOŠIK, V. REISER and P. KOVÁČ (Czechoslovakia)

Some studies of the dry-ashing preparation method of plant material by thermoanalytical procedure

E. M. VARJU (Hungary)

Differential scanning calorimetric determination of purity and heat of fusion of organic compounds

D. WYRZYKOWSKA—STANKIEWICZ and A. SZAFRANSKI (Poland)

A new thermal analysis method to study the thermochemistry of solids

A. O. WIST, J. FUNT and J. Magill (USA)

*Reactions of low molecular weight materials**Formation of dioxins and other condensation products from chlorinated phenols by differential thermal analysis*

H. G. LANGER and T. P. BRADY (USA)

Enthalpy of formation of the addition of $SbCl_5$ to acetoacetanilides

A. KETRUP and K. STRIEGLER (GFR)

Correlation between the thermal and tribological properties of chlorine- and sulphur-containing extreme pressure additives.

Z. ADONYI, G. KÖRÖSI, E. VAMOS and I. VALASEK (Hungary)

Study of the homogeneous and heterogeneous pyrolytic decomposition of brominated methane derivatives

O. KAPOSI, A. B. KISS, M. M. RIEDEL and T. DEUTSCH (Hungary)

Thermal decomposition of rare earth acetylacetonates

M. FODOR, F. MOLNÁR and Z. POKÓ (Hungary)

Thermoanalytical studies of transition metal and rare earth hexafluoroacetylacetonates and related compounds

Z. POKÓ, L. BAKOS and M. FODOR (Hungary)

Thermal properties of iron(III) and ruthenium(III) β -diketonates

R. GROBELNY and B. JEZOWSKA—TRZEBIATOWSKA (Poland)

Differential calorimetric study of unsaturated sulphones of the δ -nitrofuran series

P. KLÁRIK and M. HRDINA (Czechoslovakia)

Thermal properties of ammonium salts of fatty acids

J. RÓTH, Z. HALMOS and T. MEISEL (Hungary)

Thermal properties of metal complexes of chlorinated dicarboxylic acids

I. VANCSÓ—SZMRECSÁNYI (Hungary)

Thermal decomposition of some heavy and transition metal benzene sulphonates

T. MEISEL, Cs. MÉLYKUTI and Z. HALMOS (Hungary)

Thermal behaviour of phenylalanine and aminophenilalanine

J. GYÖRE and M. ECET (Hungary)

Use of high temperature X-ray diffractometry on the study of the thermal decomposition of the formates of nickel and copper

G. C. MAITI, M. L. KUNDU, S. K. GHOSH and B. K. BANERJEE (India)

Studies of the application of cryometry to the determination of purity in systems involving solid solutions.

A. BYLICKI and Z. BUGAJEWSKI (Poland)

*Transition in low molecular weight material**Thermoanalytical investigation of some new liquid crystals*

M. FODOR, L. HODÁNY, K. PINTÉR and K. RITVAY (Hungary)

Investigation of fatty acid salts of thallium (I) by electrical thermal analysis

K. SEYBOLD, Z. HALMOS and T. MEISEL (Hungary)

The characterization of the purity of organic substances with measurements of the heat of fusion and of the heat of dissolution

E. MARTI, O. HEIBER, A. GEOFFROY and G. TONN (Switzerland)

Kinetics of evaporation in case of quasi-binary hydrocarbon mixtures of high vapor pressure difference

Z. ADONYI and G. KÖRÖSI (Hungary)

DSC studies on some pharmaceutical basic materials of different crystalline structure

K. NIKOLICS, J. SZTATISZ and S. GÁL (Hungary)

DTA-investigation of the thermal transitions of α -phosphorylated carbinols

A. N. PUDOVIK, I. V. KONOVALOVA, G. V. ROMANOV, M. G. ZIMIN, N. P. ANOSHINA and M. M. FRENKEL (USSR)

Section 4. Earth sciences
Combined thermal methods in earth sciences

Application of DTA-TG-Ms in the investigation of clays.

M. MÜLLER—VONMOOS and R. MÜLLER (Switzerland)

Thermal-gas-analysis of bauxites

P. GADÓ, J. KENYERES, M. SAJÓ and B. SELMECZI (Hungary)

Phase analysis of Na-Al-hydrosilicates by combined thermal, IR and X-ray methods

K. SOLYMÁR, J. KENYERES, ORBÁN—M. KELEMEN and K. JÓNÁS (Hungary)

Use of emanation thermal analysis for testing of rutile powers

V. BALEK (Czechoslovakia)

Clays

DTA as a tool for the measurement of disorder in kaolinites and for the classification of montmorillonites

W. SMYKATZ—KLOSS (GFR)

Multimethod approach to follow the changes in the kaolinite structure

Z. G. SZABÓ, M. GÁBOR, E. KŐRÖS, L. PÖPPL, J. WAJAND and N. VARGA (Hungary)

Quantitative mineralogical analysis of alunitic clays

E. PEKENC and J. H. SHARP (UK)

Differential thermal investigation of different types of red clays in Hungary

G. BIDLÓ (Hungary)

Zeolites; water binding

A contribution to the nature of water-binding in perlites

H. LEHMANN (GFR)

Thermal analysis in the investigation of waterbonds in natural zeolites

É. P. DONÁTH (Hungary)

Thermal analysis of minerals

Thermographic analysis of copper ores

M. A. WISNIOWSKI, R. S. WOJCIECHOWSKA and J. SERKIES (Poland)

Thermal characteristics of manganese silicate minerals

K. V. G. K. GOKHALE and D. M. RAO (India)

Thermal analysis of mechanically activated bauxites

T. A. KORNEVA, T. S. JUSUPOV, L. G. LUKJANOVA and G. M. GUSEV (USSR)

Differential thermal analysis of zinc dolomites

L. ZAWISLAK (Poland)

Thermal analysis of natural salts

I. N. LEPESHKOV and N. K. SEMENDJAEVA (USSR)

Estimations through catalization: thermogravimetric determination of dolomites

N. G. DAVE and I. MASOOD (India)

Contribution to the knowledge of quantitative determination of quartz in clay by DTA method

R. HALLE, O. ŠARC—LAHODNY and T. GAČEŠA (Yugoslavia)

A study on the quantitative determination of phases in the system $\text{CaSO}_4\text{—H}_2\text{O}$

St. FOLEK and K. KOWOL (Poland)

Dissociation of potassium, sodium and ammonium jarosites

V. KAROLEVA, G. GEORGIEV and N. Spassov (Bulgaria)

Soils

DTA in the characterization of iron and aluminum complexes of soil organic matter

G. GIOVANNINI and P. SEQUI (Italy)

Differential thermogravimetric determination of calcite and dolomite in soils

G. SZENDREI (Hungary)

Role of thermal and petrographic studies in the evaluation of black soils

G. S. MEHROTRA, M. RAI and R. S. MITHAL (India)

A complex derivatographic method for investigating the mineralogical composition of finely dispersed fractions and the organic matter of soils

G. P. PETROSSIAN, M. P. ARANBAYEV and F. N. GRIGORIAN (USSR)

Section 5. Applied sciences

Thermal analysis in industry

Thermal analysis as a technique for quality assurance and product reliability in industry

P. F. LEVY (USA)

Analysis of multilayer coextrusions and laminated films with DSC

E. LAINE (Finland)

Differential scanning calorimetry, a quick differentiating method in quality control for new substances

D. GIRON (Switzerland)

Assessment of stored energy in powders by DTA

G. BERGGREN (Sweden)

Applications with theoretical interest

Measurement of the reaction heat of decomposition reactions between 300 and 1000 °C

E. KLOSE and W. TOUFAR (GDR)

The use of density measurements to follow the thermal decomposition of a solid material

D. DOLLIMORE and D. V. NOWELL (England)

The application of hot stage microscopy to the study of pyrotechnic systems

E. L. CHARLEY and D. E. TOLHURST

*Biology, environmental control**Enthalpy changes of conformational transitions in polypeptides*

F. E. KARASZ, G. E. GAJDOS and * J. SIMON (USA, *Hungary)

Differential thermal analysis as a screening technique for candidate carriers in pesticide formulations

F. R. RITTIG, G. SYNNAITSCHKE and W. GÜCKEL (GFR)

Thermoanalytical measurements in the field of water pollution control

P. LITERÁTHY and F. LÁSZLÓ (Hungary)

The application of thermoanalytical methods to the environmental health problems

O. MEINS, P. D. GARN and B. I. DIAMONDSTONE (USA)

A DTA study on non-miscibility phenomena in aqueous binary and ternary sodium soap systems

H. W. BROUWER and H. L. SPIER (Holland)

*Catalysts**Use of the thermogravimetric analysis for activated carbon testing.*

J. HORAK, M. ROZMARYNOWICZ and K. HOLOWIECKI (Poland)

The changes in active carbons containing nickel after activation process by derivatography

J. M. SKOWROŃSKI and K. APPELT (Poland)

Some studies of perovskite oxidation catalysts using DTA

D. W. JONSON, Jr. and P. K. GALLAGHER (USA)

Investigation of hydrogenation catalysts by thermal desorption

J. HEISZMAN, S. BÉKÁSSY and J. PETRÓ

Thermoanalytical investigation of the formation of a catalyst

K. HABERSBERGER and *E. ALSDORF (Czechoslovakia, *GDR)

The application of derivatography for the investigation of zeolite catalysts

E. ALSDORF, K. H. SCHNABEL and M. SELENINA (GDR)

Investigation of raney-type nickel catalysts by thermal methods

S. BÉKÁSSY, J. PETRÓ, G. LIPTAY, J. HEISZMAN and A. TUNGLER (Hungary)

Application of thermal analysis for investigation of surface catalytic reaction

M. MALINOWSKI and S. KRZYŻANOWSKI (Poland)

*Fuels**The use of continuous dynamic gamma-radiometry in the study of the thermal decomposition of wood*

D. J. BROWN and P. F. NOLAN (England)

Use of combined thermal analysis for study of kinetics and thermal decomposition mechanism of peats

J. A. BELICHMAER, V. M. IKRIN and S. I. SMOLYANINOV (USSR)

Thermogravimetric analysis of soot samples

A. DI LORENZO, S. MASI and D. PAPANONE (Italy)

Kinetic constants of coal decomposition in the carbonization process

S. HELPERN (Poland)

The application of the derivative-graphic method to determine the inflammation temperature of solid fuels

D. D. RUSTSHEV and K. I. ZHETSHEVA—MARKOVA (Bulgaria)

Mechanism of interaction of coal with oxygen in the range 20–300°C according to TG and DTA data

V. N. MARINOV (Bulgaria)

Using of DTA-method for studying physical-chemical properties of fuel mineral components

E. P. DICK and T. E. SERVEEVA (USSR)

Research on gangues from coal mines by differential thermal analysis

K. HOŁOWIECKI and A. CHODYŃSKI (Poland)

*Polymers resins, coatings**Investigation of the thermal degradation of polymeric insulators*

E. Á. ZELENYÁNSZKI and K. P. DÁVID (Hungary)

The cure of phenolic resins determined by DSC and IR spectroscopy

A. R. WESTWOOD (UK)

Comparative investigation on cured epoxy resins of glycidyl ether and glycidyl ester type by derivatography

I. ANTAL and L. CSILLAG (Hungary)

Relaxation phenomena in PMMA above the glass transition temperature

D. PENKE and *W. WUNDERLICH (GFR, *USA)

Isothermal curing reactions of an epoxy resins

G. A. WIDMANN (Switzerland)

Derivatographic investigations of thermal stability of polycarbonate

Z. HOLLY (Hungary)

Some applications of DSC in polyester fiber production

J. VANIČEK (Czechoslovakia)

Thermal properties of polyethylene applied in high voltage insulations

L. LIGETHY and G. LIPTAY (Hungary)

On the use of thermal analysis in coating formation research

E. POROWSKA and T. STARECZEK (Poland)

New oxygen index and thermogravimetric tests for fire retardant unsaturated polyester resins

C. CAVENAGHI and R. CLEMENTE (Italy)

Thermal analysis of textiles treated with flame retardants

I. MICHLIK and J. SMĚKAL (Czechoslovakia)

Ceramics, building materials

The influence of pore characteristics on thermal properties of high porous oxide ceramics

I. STAMENKOVIĆ, M. VLAJIĆ, N. KOSOVAC, V. KRSTIĆ and F. STGULINSKI (Yugoslavia)

Thermal analysis of active ceramic powders

S. E. HORSLEY, J. M. TOWNER and M. B. WALDRON (England)

The use of derivatographic analysis for the investigation of the hydration processes of fly-ash cements

J. HEGYI-PAKÓ and R. KOVÁCS (Hungary)

Thermal investigations of autoclaved γ -dicalcium silicate-quartz mixtures

J. JERNEŽIČ and I. JELENIĆ (Yugoslavia)

Application of thermal analysis to mechanically activated lime-sand mixtures

H. HEEGN and H. J. HUH (GDR)

Interrelation between occurrence of some thermal effects and strength of fly-ash-lime binders

I. STABNICKA—KALICKA (Poland)

Application of thermic analysis to testing corrosion of concrete structures

P. WESOŁOWSKY (Poland)

Differential thermogravimetric analysis in autoclaved cellular concrete research

R. TABAK (Poland)

Derivatographic results in the research of concrete corrosion

I. MEDGYESI, M. BOLDIZSÁR and M. MARTON (Hungary)

About necessity of progress of thermal dilatometric measurements for mineral industry

W. CHMIELECKI, B. MONKO and A. SZYMANSKI (Poland)

Glasses, sintered materials

Direct-thermometric analysis of glasses. Possibilities and limits

K. DOERING (GDR)

Sintering properties of UO_2 studied by emanation thermal analysis

M. VOBOŘIL, J. VACHUŠKA and V. BALEK (Czechoslovakia)

Different industrial products

Studies on the thermal decomposition of electrode pitch

F. G. BUTTER (England)

The application of DTA and TG to the estimation of thermal stability of fertilizers containing ammonium nitrate

A. BISKUPSKI, A. KOŁACZKOWSKY and J. SCHROEDER (Poland)

Pyrolysis of binders from petroleum

J. WIECKOWSKA (Poland)

Kinetics of dehydration of polyhalite

J. NAGLER (Poland)

Activation energy of the oxidation in the system As-Se

J. EDEROVÁ (Czechoslovakia)

Mechanism and kinetics of the thermal decomposition of boehmite layer on aluminium foils

K. VARGHA (Hungary)

Differential thermal analysis, thermal expansion, and radiocrystallographic study of some blast-furnace slags

A. NEGRO and *M. MURAT (Italy, * France)

The application of thermal analysis in the investigation of phase composition of some materials in the hydrometallurgy of zinc

W. RIESENKAMPF and W. ZABIŃSKI (Poland)

Application of thermoanalytical methods for acid-lead storage batteries testing

L. SORS and G. LIPTAY (Hungary)

Thermal analysis of pyrolysis oil products of its processing, using derivatograph

R. CSIKÓS, E. KÁNTOR and P. FARKAS (Hungary)

*Section 6. Methodics and instrumentation**Methods**An automated evolved gas detection (EGD) apparatus*

L. E. NESBITT and W. W. WENDLANDT (USA)

New model of the automatic gas volumeter with magnetoelectric differentiator of slow processes

L. S. SEDLOVITCH, V. M. NEIMARK and I. B. KUDINOV (USSR)

A new arrangement for micro-DTA

A. BLAŽEK (Czechoslovakia)

High temperature thermal analysis apparatus

R. LECOCQ (Belgium)

Thermosonimetry

K. LÓNWIK (Norway)

A new system of electric DTA calibration by direct selecting of the amount of heat

H. SVOBODA and J. ŠESTÁK (Czechoslovakia)

A method of the high pressure DTA

K. TOBOLA (Czechoslovakia)

*Some assemblies of thermal analysis apparatus*A. A. KAMARSIN, JA. V. VASSILIEV, V. N. VELICHKO, V. A. GERASIMOV, V. G. KONONOVA
A. F. NEERMOLOV and V. S. JAKUSHEV (USSR)*Thermobalance with improved suspension*

W. KEMULA and J. CZARNEKI (Poland)

Progress in the development of freely suspended vacuum top pan balances for thermogravimetry

TH. GAST and F. E. WAGNER (West-Berlin)

Design and construction of a microthermobalance system for use in controlled atmosphere

S. R. DHARWADKAR, V. V. DESHPANDE and M. D. KARRKHANAVALA (India)

Measuring accuracy of thermogravimetry carried out in the micro range

L. LEISZTNER, S. GÁL and P. TIMÁR (Hungary)

Influence of quasi-isothermal and quasi-isobaric conditions upon thermal decomposition reactions
F. PAULIK and J. PAULIK (Hungary)

Simultaneous DTA, TG, DTG and EGA examination carried out under quasi-isothermal and quasi-isobaric conditions by means of the derivatograph
J. PAULIK and F. PAULIK (Hungary)

On the precision continuous method of absolute calorimetry and its application to determination of surface energy
T. ASHWORTH (USA)

Theory and some constructions of autocompensating thermobalances
JA. V. VASSILIEV, A. F. NEERMOLOV and V. A. GERASIMOV (USSR)

A new bench-scale heat-flow-calorimeter and its application to industrial kinetics
M. BRENNER, W. GAUTSCHI, H. MARTIN and W. REGENASS (Switzerland)

Application of sound pulses in thermal analysis of polymers
P. K. CHATTERJEE (USA)

Design and construction of thermal desorption apparatus
K. PAYER, J. HEISZMAN, S. BÉKASSY and J. PETRÓ (Hungary)

An attempt to determine the standard free energy of formation of sulphides by a modified CaF_2 solid electrolyte galvanic cell
K. OGINO, A. EGAMI, T. OISHI and J. MORIYAMA (Japan)

Application of derivatograph (with the 1500°C furnace for Curie point T_c measurement based on magnetic interaction between heating current and a ferromagnetic sample)
R. MOSKALEWITZ (Poland)

Application

Measurements with a new developed thermal conductivity apparatus
W. LAMPERT and H. WALLESER (GFR)

About some possibilities of the computer evaluations of DSC results
I. PORUBSZKY, L. FÜSTÖSS and G. NEMESHEGYI (Hungary)

The application of thermo-gravimetric analysis to the corrosion of refractories
M. SAFDAR, D. BARHAMD and L. B. BARRETT (England)

A new dilatometer based on the Laser technique
M. LINSEIS (GFR)

New possibilities of resolving complex mechanism of decomposition reactions by TG-MS system
T. SZÉKELY and F. TILL (Hungary)

Heat-exchange type of calorimetry for estimating formation constants
M. NAKANISHI and S. FUJIEDA (Japan)

Studies of sublimation using a differential scanning calorimetry method
E. BONJOUR, M. COUACH and D. SIMATOS (France)

On the constants differential thermal analysis apparatus
K. TRAORE and A. K. MEHROTRA (France)

Useful DTA kinetics method for semi-quantitative apparatus at high temperature and applications
P. PICQUET (Belgium)

Problems concerning high temperature (1000 + 1600 °C) calibration of a DTA apparatus
M. PETRUCCI and C. SANTAFÉ (Italy)

On correct calorimetric measurements by means of DTA
M. NEVŘIVA, P. HOLBA and J. ŠESTÁK (Czechoslovakia)

Instruments

Use of a programmable calculator for on-line interaction with a thermal analysis system
D. F. CARPENTER (USA)

The calorimetry of the NBS-ICTA temperature standards
A. P. GRAY (USA)

A new method for the determination of heat of vaporization by quantitative DTA
H. STAUB (Switzerland)

Experiences with an EGA-DTA equipment
W. D. EMMERICH and K. BAYREUTHER (GFR)

Simultaneous DTA-gas chromatography technique and its application
K. YAMADA, S. OURA and T. HARUKI (Japan)

Microthermogravimetry. A symmetrical microthermoanalyser, (-196° + 1700 °C) combined micro-DTA and EGA
J. G. MERCIER (France)

Advanced coupling systems for thermoanalyzers with quadrupole mass spectrometers
W. DÜNNER and H. EPPLER (Liechtenstein)

A modular assembly for thermal analysis and its fields of application
J. P. SCHULZ and G. HENNING (GFR)

Study of some standard substances with a DTA equipment for high gas pressures
J. KLINGNER and E. KAISERSBERGER (GFR)

Quantitative DTA measurements at low temperatures
W. PERRON (Switzerland)

The Proceedings of the Conference is published jointly by Akadémiai Kiadó and Heyden and Son Ltd.

CINQUIÈMES JOURNÉES NATIONALES DE CALORIMÉTRIE ET D'ANALYSE THERMIQUE, FRANCE, 1974

The Cinquièmes Journées Nationales de Calorimétrie et d'Analyse Thermique, organized by the

Association Française de Calorimétrie et d'Analyse Thermique (AFCAT), the Groupe de Thermodynamique Expérimentale de la Société Chimique de France (GTE) and

The Society for Analytical Chemistry, Analytical Division, Chemical Society, Thermal Methods Group

was held in Rennes, France, on 9 – 10 May, 1974. The following lectures were read:

*Calibration in calorimetry**Conductivity calorimetry. Utilization with radionuclides*

M. GANIVET, A. LEPOIVRE, H. PATIN et C. PATIN
(Université d'Aix-Marseille III — Centre Scientifique de Saint-Jerôme)

Instruments applied to calibrate and operate capturing devices

J. PIERRE (CENG — Service des Basses Températures — 38041 Grenoble)

On the calibration of a high temperature calorimeter

M. GAUNE-ÉSCARD et J. P. BROSO
(Laboratoire de Thermodynamique associé au C. N. R. S. — Université de Provence, 13L12 Marseille)

Some observations on the calibration of flux calorimeters

J. L. MACQUERON, J. NAVARRO et V. TORRA
(Laboratoire de Physique Industrielle — INSA — 69621 Villeurbanne — Departamento de Termologia — Universidad de Barcelona)

Adsorption and calorimetry.

P. BARBERI
(DGI) SEPCP — CEA Saclay — 91-Gif-sur-Yvette)

Some calibration problems in reaction and mixing calorimetry

R. D. JOLY et G. PERACHON
(Laboratoire de Chimie Minérale — Laboratoire de Physico-chimie minérale associé au C. N. R. S. N (L16 — INSA — 69621 Villeurbanne)

Mixing calorimetry: realization and calibration of an isothermal displacement calorimeter

P. CLECHET, J. JOSÉ et C. MICHOU-SAUCET
(Laboratoire de Chimie — Ecole Centrale de Lyon — 69130 Ecully, Laboratoires de Chimie Analytique I — Université Claude Bernard — 69621 Villeurbanne)

Combustion calorimetry in oxygen: definition of experimental conditions

M. DUCROS
(École Nationale Supérieure de Techniques Avancées — 75015 Paris)

Balance of four circuits of comparing radioactive sources within the laboratories of the E. C. A.

C. SANSON
(CEA — CETAMA — 92120 Montrouge)

*Calibration in thermal analysis**Differential thermal analysis and its possibilities of utilization as an analytical technique. Problems connected with calibration*

M. HARMELIN
(C. N. R. S. — Centre d'Etudes de Chimie Métallurgique — 94400 Vitry-sur-Seine)

Calorimetric analysis by power compensation

E. BONJOUR
(CENG—DTCE — Service des Basses températures — 38041 Grenoble)

Design requirements for quantitative DTA and its application to the estimation of mineral phases

R. M. MC INTOSH, A. TURNOCK et F. W. WILBURN
(Pilkington Brothers Ltd — R and D Laboratories — Lathom — NR. ORMSKIRK — LANCASHIRE)

Peak areas and heats of transition of DTA temperature standards

R. C. MACKENZIE et P. F. S. RICHIE

(The Macaulay Institute for Soil Research — Craigiebuckler—Aberdeen—Scotland)

Models of signal interpretation in differential thermal analysis

J. J. KESSIS

(Laboratoire de Chimie Minérale des Sels — Université de Paris VI)

Design and calibration of an advanced differential scanning calorimeter

M. R. COTTRELL

(Perkin Elemer Ltd — Post Office Lane Beaconsfield — Buckinghamshire HP9 1QA, U. K.)

*Determination of thermodynamic values connected with phase transformations by calorimetry and thermal analysis**Direct determination of the heat of crystallization of under-cooled liquids by differential scanning calorimetry.*

J. P. DUMAS, D. CLAUSSE et F. BROTO

(Laboratoire de Thermodynamique et Physique Moléculaire — Institut Universitaire de Recherche Scientifique — 64L16 Pau)

Measuring heat of crystallization from aqueous solutions

R. RYCHLY et L. NOVAK

(Research Institute of Inorganic Chemistry — Usti nad Labem — Tchécoslovaquie)

Influence of niobium concentration on lead zirconotitanate ceramics of high zirconium content

M. BERNARD, M. TROCCAZ, J. PERRIGOT et Y. FETIVEAU

(Laboratoire de Génie Electrique et Ferroélectricité — INSA — 69621 Villeurbanne)

A qualitative DTA study of some order [order and order] disorder transformations in various binary, ternary and quaternary alloys of electron densities in the range of 0.75 to 1.50 electrons per atom

C. PARMENTIER, M. DIRAND et J. HERTZ

(Laboratoire de Thermodynamique Métallurgique — Université de Nancy I — Case Officielle 140 — 54037 Nancy CEDEX)

Determination of fusion and transformation enthalpies of para-substitued polymorphic phenol varieties by differential scanning calorimetry

G. BERTHOLON, M. F. VINCENT—FALQUET, E. COLLANGE et M. PERRIN

(Groupe de Recherche sur les Phénols, Laboratoire de Minéralogie, Université Claude Bernard, 69621 Villeurbanne)

Separation and measurement of transformation heats in CCl₄

F. LEBLOND et P. BARBERI

(DGI) SEPCP — CEA Saclay — 91190 Gif-sur-Yvette)

Study of glass transition temperatures of sequenced polystyrol-polyisoprene copolymers by DSC

P. GOURSOT

(Département de Chimie — Université de Montréal — Canada)

*Calorimetry and thermal analysis
Inorganic Chemistry*

High energy combustion — Pyrotechnical standards

A. CHAZAL, H. PATIN et C. PATIN

(Direction des Constructions et Armes Navales — Laboratoire de Chimie Physique Générale
— Université d'Aix -Marseille III, 13397 Marseille Cedex 4)

Critical study of the methods of high temperature mixing microcalorimetry

Y. M. MUGGIANU, M. GAMBINO et J. P. BROS

(Laboratoire de Chimie Générale — Université de Provence — 13003 Marseille)

Method of measuring mixing enthalpies in molten corrosive media: utilization with systems of molten salts containing an alkaline hydroxide

H. AGHAI—KHAFFRI et M. GAUNE-ESCARD

(Laboratoire de Thermodynamique, Université de Provence, 13013 Marseille)

Calorimetric study of nickel nitrate hexahydrate in the range of 10–240 K

M. DIOT, N. PROST et J. BOUSQUET

(Département Chimie Industrielle — INSA — 69621 Villeurbanne)

Measurement of specific heats.

P. BARBERI et J. T. SENEVAT

(DGI) SEPCP — CEA Saclay — 91190 Gif-sur-Yvette)

Study of the dissolution of an aluminous gel based on calorimetry

J. VANDERDEELEN et L. BAERT

(Chimie Physique et Radiologique — Faculté agronomique — Université de Gand —
Coupure 533 — Gand — Belgique)

DTA studies on the oxidation of synthetic and natural zinc sulfides

E. BASAK, P. H. BOTHROYD, D. R. GLASSON et S. A. A. JAYAWEERA

(John Graymore Chemistry Laboratories — Plymouth Polytechnic — Plymouth PL4
8AA, U. K.)

Stored energy measurements in copper deformed by rolling

W. HEMMINGER, H. L. LUKAS et F. HAEBNNER

(Max Planck Institut für Metallforschung — Stuttgart — Institute für Werkstoffkunde
der Universität Braunschweig, R. F. A.)

Study of the dissolution of metals in mercury at 20°C (In, Cd, Tl, Bi, Pb, Sn, Zn)

F. MARCO, J. NAVARRO et V. TORRA

(Departamento de Termologia — Facultad de Ciencias — Universidad de Barcelona —
Espane)

Thermal behaviour of magnesium hydrocarbonates (hydromagnesite, artinite and nesquehonite) at low heating rates

C. VANDAELE, J. M. LEVERT et M. VANTHOURNHOUT

(Faculté Polytechnique de Mons, Belgique)

Thermal studies on magnesium nitrate hexahydrate

E. L. CHARSLEY

(Consultancy Service — Stanton Redcroft — London SW17, U. K.)

Response analysis of a calorimeter designed for the kinetic study of hydration reactions

E. KARMAZSIN et M. MURAT

(Laboratoire de Chimie Appliquée et de Génie Chimique — Université Claude Bernard
Lyon I — 69621 Villeurbanne)

Contribution to the measurement of the hydration heat of tricalcium silicate

B. BOURTAULT
(CERILH — 75015 Paris)

*Organic Chemistry**Enthalpy changes in thermochromic compounds: copper (II) and nickel (II) complexes with N, N, - diethyl - ethylenediamine*

L. FABBRIZZI, M. MICHELONI et P. PAOLETTI
(Istituto di Chimica Generale — Université de Florence — Italie)

Calorimetric investigation of solid-solid and solid-liquid equilibria in the system α,α -dichloro-propane-carbon tetrachloride

J. C. V. MILTENBURG, E. L. MEIJER et A. JENS
(Laboratorium voor Algemene Chemie der Rijksuniversiteit — Utrecht — Pays-Bas)

Study of the stability of some organic peroxides by two independent calorimetric methods

S. PREGERMAIN
(Centre d'Études et de Recherches des Charbonnages de France — 60103 Creil)

Relationship between the formation heat and the importance of the dative structure of substituted halogen-pyridine complexes

L. LAMBERTS et B. TILQUIN
(Laboratoire de Chimie Analytique — Facultés Universitaires de Namur — Belgique)

Study of the carbonyl group and its environment by calorimetry

L. ELEGANT, J. F. GAL et M. AZZARO
(Laboratoire de Chimie Physique Organique, UERDM, 06034 Nice Cedex)

Excess enthalpies in heterogenous liquid-liquid media. Analytical thermodynamic applications.

M. D. RICHON, M. WOYCICKA et M. A. VIALLARD
(Laboratoire de Thermodynamique et Cinétique Chimique, U. E. R Sciences Exactes et Naturelles, Université de Clermont-Ferrand)

Detection of new phase transitions in $(C_nH_{2n+1}NH_2)_2MnCl_4$ (Thermoanalytical test)

E. H. BOCANEGRA, M. A. ARRIANDIAGA et M. J. TELLO
(Departamento de Física, Facultad de Ciencias, Universidad de Bilbao, Espagne)

Calorimetric measurements of evaporation and sublimation enthalpies of methyl naphthalene.

R. SABBAH, R. CHASTEL et M. LAFFITTE
(C. N. R. S., Centre de Recherches de Microcalorimétrie et de Thermochimie, 13003 Marseille)

DTA SEMINAR, VIENNA, 1974

The Austrian Chemical Society (Verein Österreichischer Chemiker) together with the Institute of Technical Organic Chemistry of the Technical University of Vienna (Austria) organized a seminar on Differential Thermal Analysis which was held between November 4 and 6, 1974 at the Technical University

of Vienna. Chairman of the seminar was dr. George Liptay (Technical University Budapest). Specialists from Austria, England, France, the German Federal Republic, Hungary, Switzerland and Yugoslavia participated in this meeting. New fields of application as well as such of instrumentation were discussed in fifteen lectures held partly by university scientists, partly by industrial specialists. The latest commercially available instruments were demonstrated by nine well-known international companies active in the area of thermal analysis.

Over 40 participants obtained at first-hand information about present day techniques in DTA, DSC, including micromethods and computer analysis.