CODATA Thermodynamic Tables

The "CODATA Thermodynamic Tables - Selections for Some Compounds of Calcium and Related Mixtures: A Prototype Set of Tables" have been sent to over 200 thermodynamicists around the world for advice and comment on behalf of the CODATA Task Group on Chemical Thermodynamic Tables which prepared it.

The book is the beginning of a CODATA series of tables of thermodynamic properties. Another book, the "CODATA Key Values for Thermodynamics," is at the printers and the Task Group is now working on a set of tables on compounds and two component systems of iron. Their goal is to cover the periodic table. However, at this stage, the Task Group would like the advice of the thermodynamic community. The tables represent several departures from previous tables both in terms of what is included and how they were produced. The differences are discussed in more detail in the first three chapters of the book but fall roughly into three categories: design, content, and modus operandi.

Comments are sought on the design of the tables for a particular set of compounds including the arrangement of values and their documentation, the contents of these tables, the type of material presented, the coverage of each topic, the satisfaction of the analysis, and the level of documentation.

Operationally, the tables are internationally sponsored and internationally produced. In spite of the decentralized mode of production, they are thermodynamically consistent. Details are given in Chapters 1 and 3. The methodology allows for different sections to be prepared simultaneously and for experts in specific areas to work cooperatively with others in producing the overall tables. Finally, the task group seeks reactions to this plan for producing a comprehensive set of tables, because they hope to speed up the work by increasing the number of participants.

Despite the unusual emphasis on criticism and advice, the Tables are no mean achievement. They comprise a very generous selection of calcium compounds and systems in a variety of states of aggregation.

Forty one tables of thermal functions (heat capacity, entropy, enthalpy, and Gibbs energy functions) for those compounds of magnesium, calcium and potassium for which the properties have been evaluated in this work are included. Twenty four tables of thermal functions are given for auxiliary substances. Each table spans the temperature range 0 to 4000 K, to the extent that data are available. Formation properties at 298.15 K (enthalpy and Gibbs energy of formation) are given for 68 compounds of calcium, magnesium and potassium plus the relevant values for 34 auxiliary substances. For each of the three systems the data given are mixing properties (enthalpies and Gibbs energies), partial molar or excess properties (activities, enthalpies, heat capacities) and phase transformation data. All selections of data are accompanied by uncertainties, and are documented. Detailed lists of measurements used in the evaluations are given for the thermochemical, alloy, and aqueous solution sections.
Connecting Computers to International Networks

The Canadian Fusion Program (Tokamak de Varennes, near Montreal, Canada) recently linked its local computer network (ETHERNET) to other computers through international network facilities. The connection is effected by linking the local ETHERNET network to the DATAPACK network of Bell Canada. The connection of DATAPACK to the other major networks around the world (TYMNET in U.S.A., TRANS Pack in France, DATEX in Germany, etc...) is obtained through the X-75 Protocol developed by CCITT (Comité Consultatif International Télégraphique et Téléphonique) in which Téléglode Canada participated. The object of X-75 is to allow inter-networking; it provides a gateway for a user to communicate through multiple networks with another user. It allows data transfer on international circuit between packet switched data networks. Access to the huge scientific and database libraries of the fusion programs around the world have been made available to the Canadian Fusion Program. Execution of scientific programs on the computers of the MFE (Magnetic Fusion Energy) center at Livermore, California or on other computers around the world, and reception of the resultant graphic display are achieved with a high level of scientific quality according to Mogdi M. Shoucri of Tokamak de Varennes.

Interlinking of international networks for electronic mail, as well as scientific, educational, and research purposes is described tersely by J. M. Hudson in J. Molecular Graphics, Vol. 3, No. 1, pp. 57-58 (1987).

Special Chinese Geothermodynamics Group Founded

The Chinese Society of Mineralogy, Petrology, and Geochemistry has approved the founding of a Special Group on Geothermodynamics under their auspices to study relevant geothermodynamic matters and to interact with international geothermodynamics in the critical evaluation of geothermodynamically relevant data and thus to provide within China a nucleus in this currently important area.

The Group numbers eight and their professional affiliations are:

Zhang Taok, Consultant, Secretary for Academic Affairs, Division of Earth Sciences, Chinese Academy of Sciences (and Chinese National Committee for CODATA), Beijing
Guo Qiti, Group Head, Associate Research Professor, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang
Lin Chuangxian, Research Professor, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang
Zhou Xunruo, Professor, Chinese University of Geology, Beijing
Zhang Ronghua, Associate Research Professor, Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing
Jiang Peimo, Associate Professor, Department of Geology, Peking University, Beijing
Yin Hui-an, Associate Professor, Graduate School, Chengdu College of Geology, Chengdu
Cheng Wei, Associate Professor, Department of Earth and Space Sciences, University of Science and Technology of China, Hefei
MARCELLO CARAPEZZA  
(1925 - 1987)

Professor Marcello Carapezza, Italian delegate to CODATA since 1974 and member of the CODATA Executive Committee, lost a two year struggle against cancer on September 1, 1987 at the age of 62. A long-time member of CODATA and the international scientific community, Professor Carapezza was a warm, caring geochemist whose life had been devoted to research in the hope of alleviating the human tragedy associated with natural disasters such as volcanic eruptions, earthquakes, and acid rain.

A native of Sicily, where science has only been an active word in the vocabulary for the last hundred years, Marcello Carapezza received his doctorate at the University of Palermo in 1959. From November 1959 to November 1969 he taught at the University of Bologna, interrupted in 1962-63 by a term as Associate Professor of Experimental Geochemistry at Pennsylvania State University. From 1969 he worked until his death at the University of Palermo as Professor of Applied Geochemistry. From 1970-72 he was President of the Faculty of Science and from 1982 to 1984 served as Vice-Rector of the University of Palermo.

At the time of his death he was the Director of the Institute of Geochemistry of Fluids of the National Research Council; President of the Advisory Committee for Earth Sciences of the Ministry of Public Education; Member of the Commission on Natural Hazards attached to the Ministry of Civil Protection; leader of the surveynace of active volcanoes for the national group on volcanology, Delegate from the Sicilian Region to the Public Society of the Strait of Messina in which he chaired the Committee on Geoelectromagnetism; and member of the Regional Committee for Environmental Education.

In international activities he was a member of the Executive Committee of the following scientific unions: Geochemistry and Cosmochemistry Association (GCA), International Lithosphere Program (ILP), and the Committee on Data for Science and Technology (CODATA) where he was elected Chairman of the Task Group on Monitoring Active Volcanoes during its international meeting in Israel in 1984.

In 1982 the President of the Republic, Sandro Pertini, awarded him the Gold Medal for Merit in Culture, Science and Art. In 1984 he received the Mauroloce Prize in Messina.

A consultant to the CEC on problems of the environment, his scientific activities led to publication of over 100 articles (several of which were translated into various languages), from the compilation of geological maps in the area of Sardinia and Sicily to a large number of articles in newspapers such as The Corriere dellaSera, Il Gionone di Sicilia, L'Ora, Panorama, L'Europea, etc. and the American New York Times. In addition he was involved in the publication of scientific books and wrote the prefaces to several others.

He organized international scientific conferences, directed the International School of Earth Sciences of the Majorana Center in Erice, presented scientific papers in U.S.A., U.S.S.R., Great Britain, France, Federal Republic of Germany, Israel, Japan, and Venezuela.

He set up bilateral agreements for scientific cooperation with the U.S. Geological Survey, Reston, Virginia, U.S.A.; the Academy of Sciences of the U.S.S.R., Moscow; the Lomonosov University, Moscow; and the Institute for Chemistry of Earthquakes, Tokyo, Japan.

A member of several Italian and foreign academies, he received scientific prizes from Italy, France, and the U.S.A., and was made an honorary citizen of Gibellina (Trapani).

His research included studies of large natural processes such as volcanoes, contributions to the study of the lunar field, studies related to atmospheric degradation of historic monuments, prospecting for geothermic resources, and above all, methods of studying geochemical activities of volcanoes including their continuous monitoring.

In 1987, the "Year of the Environment," the Minister Granelli awarded him in Milan a scientific prize for his important contribution to the protection of the environment and particularly recognized his major contribution to the forecasting and prevention of earthquakes and his studies relating to volcanoes and atmospheric pollution.

CODATA extends heartfelt condolences to his wife, Ginevra, and his four children, Attilio, Fabio, Marco, and Marisa.

—Phyllis Glaeser

IUIS not IUBS!

CODATA Newsletter No. 41, page 6 correctly identified the new delegate from the International Union of Immunological Societies, but the heading should have reflected the text and read IUlS (not IUBS).
To the "Comments" of Dr. M. Grabe, CODATA Newsletter 41, p. 6, July 1987, Dr. E. Richard Cohen, former Chairman of the involved CODATA Task Group replies:

Dr. M. Grabe
Braunschweig, F.R.G.

September 22, 1987

Dear Dr. Grabe:

I have carefully read your paper, Principles of "Metrological Statistics," published in Metrologia and your comments on the 1986 adjustment of the Fundamental Physical Constants in the CODATA Newsletter. Although there are significant differences between the treatment that you propose and the treatment utilized by Dr. Taylor and me, I do not think that we are in disagreement about basic statistical procedures.

Your treatment is directed towards giving a confidence interval for the true value of an observed (or inferred) variable. My viewpoint is that a confidence interval is an extremely poorly defined quantity. Because the tails (extremes) of a distribution function are themselves not well defined, it becomes increasingly poorly defined as the confidence level increases.

Although the discussion in CODATA Bulletin 63 did not specifically address confidence intervals, I am in essential agreement with you that confidence intervals should be calculated from formulas such as equation (2.6) of your Metrologia article i.e.,

\[ z - t_0 \sigma \leq \bar{x} \leq z + t_0 \sigma \]  

where \( \sigma \) is the estimate of the standard deviation of the distribution function associated with the variable \( x \), and \( t_0 \) is the Student parameter associated with the specified confidence level. Note here that I am using \( x \) with the same meaning that you use the symbol \( \bar{x} \). We calculated the effective degrees of freedom in agreement with B. L. Welch,

\[ \sigma_x^2 = \sum (\sigma_i^2) \quad \text{and} \quad \nu = \sum (\sigma_i^2/\nu_i) \]  

(2a, 2b)

Equation (2) may be considered to be a recursive definition: the components \( \sigma_i^2 \) of \( \sigma_x^2 \) and their associated degrees of freedom \( \nu_i \) are themselves to be calculated from similar equations, if necessary. The primary quantities required for the calculation of confidence intervals are estimates of the mean and the variance, and the number of degrees of freedom associated with the variance estimate. If these cannot be stated, a confidence interval cannot be given. The Student distribution is based on the assumption of a normal distribution for the underlying stochastic data. If this is not the case, the intended confidence interval is not correctly given by equation (1). Certainly, no precise confidence level can be given for the \( (x - u_x, x + u_x) \) interval with \( u_x = t_0 \sigma + f_x \) from equation (2.7) of your paper. One cannot quote a confidence interval if the statistical estimate is simply increased by a "safe" estimate of the magnitude of unmeasured error.

We have followed the BIPM procedure recommendation to treat 'systematic' error in the same manner as 'random' error (and have used essentially the same concepts for years prior to the BIPM proposal) because there is no valid alternative for the general purposes with which we are dealing. The BIPM recommendations, if I may give it my own interpretation, does not distinguish between 'random' and 'systematic' errors because such a distinction is in fact impossible.

'Random' errors are recognized as errors that are unpredictable and uncorrelated from measurement to measurement. 'Systematic' errors are detected in the measurement process because they are repeated from trial to trial with a correlation coefficient of 100%. From the analytic standpoint, however, error is described by a (possibly unknown) distribution function. For a finite sequence of measurements, this can be decomposed into a fixed component (non-zero mean) with zero dispersion (zero variance) and a random component with zero mean and finite variance. In practice, however, this sharp dichotomy does not exist; there is no unique decomposition of the error into components, and the errors of two different trials are correlated with an arbitrary correlation coefficient that may vary for every pair of trials.

Experimental error is usually described in terms of what the experimenter perceives to be the sources or the origins of the errors. It is impossible to observe the constant component of the so-called 'systematic' errors. However, if a 'systematic' source has a variable component it will contribute to the observed dispersion of the measurement results. Any decomposition of errors on the basis of source must consider the extent of the correlation (from -1.0 to +1.0) among the components.

When the uncertainties of the systematic errors are expressed in terms of intervals it is still necessary to consider the question of how to combine components, including possible correlations. Only if two errors have a correlation coefficient \( \rho = 1 \) may the two error limits be added. (Two 'random' variables will also combine so that the uncertainty of the sum is the sum of the uncertainties when the correlation coefficient is 1.) Furthermore, the assumed 'limit' interval is uncertain, and the fact that the limit intervals do not overlap indicates that there has been an incorrectly evaluated. Thus, even if one were to treat 'random' and 'systematic' uncertainties differently, it would be necessary to include a statistical treatment of the magnitudes of the 'limits of error.' It seems to me that this leads to even murkier realms that are un- uncertainties associated with the BIPM recommendations.

Fortunately, the additive properties of the characteristic function and the Central Limit theorem come to our aid here: the second and fourth moments of the distribution function (or if one wishes, the variance and the degrees of freedom) of a stochastic variable can be estimated in a straightforward manner from equations (2a) and (2b). Since these equations embody the only statistically valid statements that can be made, I believe that we are correct in quoting only these quantities.

My viewpoint is that the precise distribution of errors is unknown and we therefore avoid the issue by dealing only with the quantities that are available to us. Our analysis is intended to provide the mean value, the variance, and the effective degrees of freedom (equivalent to giving the fourth moment) of a stochastic variable or of a set of data. The user can then construct whatever confidence intervals may be deemed appropriate using whatever further statistical processes are desired. Questions of probabilities and of confidence intervals are important, but these are the next (and independent) step, and involve their own assumptions and uncertainties. We do not consider it appropriate to extend our analysis to cover these questions because, to a large extent, such questions are problem-dependent and outside the range of our objectives.

I would also like to point out that it is incorrect to say, as you do in your note in the CODATA Newsletter, that "the term 'error' has disappeared from official linguistic usage". This is by no means true; rather the attempt is being made to distinguish two related but very different concepts. Physical measurements are subject to 'error'; one never knows what the errors in a measurement are, otherwise they would, of course, be corrected before giving the final result. The term 'uncertainty' is used in this paper to denote an estimate of the magnitude of the 'error'; the BIPM recommendation is to use the standard deviation of the observed or assumed distribution of errors as a measure of this uncertainty.

Sincerely yours,

--E. Richard Cohen

Distinguished Fellow

Rockwell International Science Center
Factual Databanks

A small, but interesting volume entitled "Banques de Données Factuelles sur les Matériaux (Actes de la Journée d'Étude)" summarizing the action at France's Study Day—November 20, 1986—under the presidents of CODATA FRANCE DBMST/RES has appeared recently. As its title implies, it is concerned with material data base development incorporating almost two score presentations of experts from several countries on both sides of the Atlantic. Moreover, annexes cover such useful topics as a Code of Practice (EEC's MDB Demonstrator), a sampling of the forthcoming materials section of the Inventory of Data Sources in Science and Technology, a list of actual data banks on materials (including those cited at the Study Day) and the (more than 200) participants. The 184 page volume is edited by Bernard Marx of DBMST and bears the mark of the Comité des Donées pour la Science et la Technologie under the presidency of Dr. H. Vieriad. More details on its procurement will be found on page 5.
CODATA Conference Proceedings

Another new -- and better -- summary of the broad spectrum of data handling and dissemination has appeared in compact form in the new volume "Computer Handling and Dissemination of Data," which comprises the proceedings of the International CODATA Conference at Ottawa, Canada, 14–17 July 1986. The editing has been done under the direction of CODATA's Executive Secretary, Phyllis S. Glaesser and the publication by North-Holland.

A CODATA Bulletin of the same title but dealing with otherwise selected papers, CODATA Bulletin 64 (December, 1986), is listed in CODATA Newsletter No. 40 and should not be confused with the present tome which is listed among CODATA publications on page 7 of CODATA Newsletter 41.

The 82 papers contained in this volume have been selected from more than 180 papers presented at the 10th International CODATA Conference. These papers cover some of the general aspects of computer applications in the management of databases and the implementation of data handling and dissemination, and use of factual, scientific data, as well as the status of database design, manipulation, and development in materials science, chemistry, physics, astronomy, geoscience, environmental science, molecular biology, biotechnology, nutrition and agriculture disciplines.

The Conference brought together 300 experts in the evaluation of data handling and dissemination, and management of numerical databases in all fields of science and technology. The central theme of the Conference, "Computer Handling and Dissemination of Data," was brought out in sessions devoted to data validation by statistical techniques, general approaches to database design, and options for computer-based dissemination of data to the scientific community. A strong theme throughout the Conference was the growing database management capability of microcomputers and the prospect for the dissemination of databases in PC compatible formats for use by individual scientists.

Thermodynamics of Alloys

A new volume, "Statistical Thermodynamics of Alloys" by Nev Gokcen covers solutions of metals in metals and both the statistical thermodynamic aspects and numerical data values of metalloids in metals in depth for discussion of the procurement of thermodynamic values from phase diagrams, as well as the quantum statistical mechanical aspects (often postulative as well as inductive and deductive).

Solution theory supplemented by treatment of order-disorder phenomena are provided together with values for the actual numbers of configurations in highly ordered structures. The extensive treatment of interstitial solutions--particularly for hydrogen storage in metal and allox--is an important feature of the text. Other renewable energy relevant material concerns the conversion of solar energy into hydrogen and/or electrical energy.

The extensive appendices contain recent and evolving theories of alloy phase formation, methods of estimation and correlation of thermodynamic properties (including those in dilute solutions, the Engel-Brewer approach in Appendix A, and those concerning the estimations of the enthalpy of alloy formation by Miedema's group). Extensive tables--and phase diagrams--are included for the correlations of excess partial molal enthalpies and entropies in solution. Hence the development and results are indeed of interest not only to metallurgists, material scientists, and ceramists, but to geoscientists as well. The author is to be commended on what must have been a large (long) and arduous achievement.

Further details concerning the production and procurement of the book are given on page 7, CODATA Newsletter No. 41.

Multisatellite Mapping

The Task Group meeting in Beijing and X'ian (China) 1–14 September 1987 reviewed its organization and plans for 1987–1988. The main participants were Dr. C. Bardinet, Chairman (CTAMN, France), Prof. G. Gabert (BGR, FRG), Prof. Chen Yiyun (RSGS, Beijing), and Prof. Wan Zheng-Ming (IRSA, Academia Sinica, Beijing). The organization of the Task Group has been reviewed relative to the objectives of CODATA China as explained by Prof. Moosen Kwauk and Ms. Hu Yaru, Secretary.

The CODATA Chinese National Committee plans to establish a Multisatellite Thematic Mapping Task Group in China (MTMTGC) in order to implement research cooperation with the CODATA Task Group (MTMTG) during 1987–1988. The Task Group will consist of members and four members of the CODATA Task Group.

The Task Group plans a presentation at the 1988 Karlruhe Conference on Multisatellite Imagery Applications in China. The lecture will consist of a comprehensive presentation on Chinese Remote Sensing Projects using Multisatellite Imagery (prepared by these members), and joint research involving integration of high resolution imagery including TM and SPOT classifications.

The research areas included: (1) Tangshan city in Hebei Province and Nanbi county, (2) the Loess plateau of Shanxi Province, (3) Northern Xianjiang Province. In Hebei and Shanxi research with concern mainly natural resources classification (TM and SPOT) and mapping (geomorphology and land resources); whereas in Xinjiang, it will consist mainly of comparative geological studies based on NOAA and MSS imagery.

In Beijing, discussions concerning future work took place at: 1) the IRS (Institute of Remote Sensing Application, Academia Sinica) with Prof. Yang Shi-Ren, Prof. Wan Zheng-Ming and Prof. Chen Yiyun; 2) the TM Remote Sensing Ground Station with Prof. Lee Zhi-rong and Prof. Chen Yiyun; 3) the NOAA Ground Station with Dr. Liu Chen, Dr. Sun Zhi-Yu and Prof. Wan Zheng-Ming.

In X'ian similar discussions took place at the Institutes of Geography and Geology (Northwestern University) with Dr. Yuan Kangsheng and Dr. Dai Mo, at the Photogrammetry and Remote Sensing Center of the Ministry of Coal Industry with Dr. Liu Yonglian, Mr. Song-Li, Mr. Yao Ding-Yi and Mr. Gao Yi. C. Bardinet and G. Gabert met with Prof. Wang Yong-Yan, a world-renowned loess soil specialist.

Applications of remote sensing to land use and land resources mapping such as forest fire surveying using NOAA, detection of geomorphological features using TM and SPOT, detection of geological structures affecting coal mining, and geographical information system using TM, MSS and SPOT were discussed.

-- Claude Bardinet

Microbiological Data Coding

Morrison Rogosa and Micah I. Krichevsky of the National Institutes of Dental Research of the National Institutes of Health, and Rita R. Colwell of the University of Maryland have assembled an open ended system in which computer techniques facilitate encoding, entry, management, and analysis of microbiological data derived from the study of bacteria, algae, fungi, and protozoa. Many others have contributed expertise and productive assistance, and the 310 page volume has now been realized under CODATA sponsorship as a volume in the Springer Series in Microbiology.

Further details concerning its availability may be found on page 7 in CODATA Newsletter # 41.
The purpose of this Newsletter is to provide an overview of national and international developments relating to all aspects of materials property databases, and to promote cooperation with respect to standards for database design, management and use. The Editor welcomes contributions and comments from database builders, operators and users. There are no restrictions on the reproduction and distribution of the contents of this Newsletter.

NETWORKS

The CEC's DEMONSTRATOR PROGRAMME ON MATERIALS DATABANKS is the first step in the European Commission's aim of promoting public availability of materials property databanks. The Demonstration Programme, which is designed to become a pilot to a future European system, will integrate most of the European online databanks in a way which is expected to provide easier access, better transparency, more comprehensive services and a better response to user needs. The programme will involve harmonization of participating databanks and the development of a Multilingual User Guidance System. Seminars will commence late in 1987 and Demonstration Workshops early in 1988. SOURCE: Echo News, 1987, No. 1; FURTHER INFORMATION: Mr. G. Steven, Commission of the European Communities, DGXI/B, Bat. J. Monnet, Plateau du Kirchberg, L-2920, Luxembourg.

The NATIONAL MATERIALS PROPERTY DATA NETWORK is an autonomous corporation, set up in the U.S. but international in scope, which will provide access to a wide range of data sources through a common gateway. A major pilot programme was established in 1986 with the aid of a number of government and industrial sponsors. Successful online demonstrations of the pilot network were carried out for sponsors in May this year. Three sources are included in the pilot network: portions of Military Handbook-5 (MIL-HDBK-5) and the Aerospace Structural Materials Handbook; and STEELTUF, a large bank of toughness test results for about 50 steels. The MPD Network has also concluded an agreement with STN International to have the network carried on that system, though no schedule has been announced. SOURCE: MPD Network Newsletter, April 1987. FURTHER INFORMATION: J.G. Kaufman, MPD Network, Inc., 2560 Olentangy River Road, P.O. Box 02229, Columbus, OH, U.S.A.

STANDARDS

ASTM COMMITTEE E49 on Computerization of Materials Property Data was established in 1986 to promote knowledge and to develop standard classifications, guides, practice and terminology for building and accessing material property databases. Four sub-committees have been formed to cover the areas of Identification of Materials; Reporting of Material Property Data; Terminology; and Database Interfaces and Functionalities. SOURCE: ASTM Standardization News, Mar. 1987, p. 38.

VAMAS (VERSOAILLES PROJECT ON ADVANCED MATERIALS AND STANDARDS) has established a Technical Working Area on materials databanks with the objective of identifying standardization activity related to the computerization of materials data. The report of the Working party will shortly be published, and will cover: The Need for Standards; Data Collection; Database Building, including Data Analysis; Access to Data; Computer Integrated Engineering and Expert Systems; and Organizations Active in Materials Data Standards. SOURCE: VAMAS Bulletin, 1987, (5), p. 11. FURTHER INFORMATION: Dr. J. Rumble, NBS, A323 Physics Building, Gaithersburg, MD 20899, U.S.A. OR H. Kroechel, CEC Joint Research Centre, NL-1755 ZG, Petten, The Netherlands.

In connection with the CEC's Demonstration Programme, a CODE OF PRACTICE has been developed to provide guidelines for the functional operation of software and standards for uniformity and user friendliness. The specifications cover four main areas: Access Level, Host Operations Level, Systems Operation Level, and Contents Level. Copies of the Code of Practice are available from DGXI/B in Luxembourg.

DIRECTORIES

The Institute of Mechanical Engineers has recently published a U.K. directory of MATERIALS DATA SOURCES, which includes a list of databases and materials selectors. The directory is available from MEP Publications Ltd., PO Box 28, Northgate Ave., Bury St. Edmunds, Suffolk, U.K. IP32 6BW PRICE: 10.00 pounds.
The Institute of Metals and Materials Australasia have announced the availability of a computerized materials selection system, developed by Dan Phelan of Chisholm Institute of Technology. Initially the system will include data for Al and Cu alloys; steels, cast irons, and all common alloys will be added by the end of 1987. SOURCE: Materials Australasia, Mar. 1987, p. 23.

29 Sept - 1 Oct 1987: Trier, Federal Republic of Germany
International Congress on TERMINOLOGY AND KNOWLEDGE ENGINEERING. CONTACT: C. Galinski, Ges. für Terminologie und Wissenstransfer e.V., D-5500 Trier, Postfach 3825, Federal Republic of Germany.

1st International Symposium on COMPUTERIZATION AND NETWORKING OF MATERIALS PROPERTY DATABASES. CONTACT: Dr. J. Rumble, NBS, A323 Physics Building, Gaithersburg, MD 20899, U.S.A.

11-13 Nov 1987: Yokohama, Japan
ICIK 87, International Conference on INFORMATION AND KNOWLEDGE. CONTACT: Prof. S. Fujikawa, Kanagawa University, 3-27-1 Rokkakubashi, Kanagawa-ku, Yokohama 221, Japan.

26-29 Sept 1988: Karlsruhe, Federal Republic of Germany


(Note also: Review of "Banques De Donnees Factuelles Sur Les Materiaux" on page 5.)