

Mines Branch Information Circular IC 177

BIBLIOGRAPHY OF HIGH TEMPERATURE CONDENSED
STATES RESEARCH PUBLISHED IN CANADA,
OCTOBER-DECEMBER 1965

by

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SYNOPSIS

This report contains bibliographic information concerning research work on high-temperature condensed states published in Canadian journals from October 1 to December 31, 1965.

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Direction des mines

Circulaire d'information IC 177

BIBLIOGRAPHIE DES RECHERCHES EFFECTUÉS DANS
LE DOMAINE DES ÉTATS CONDENSÉS AUX TEMPÉRATURES
ÉLEVÉES, AU CANADA, D'OCTOBRE À DÉCEMBRE 1965

par

Norman F.H. Bright*

RÉSUMÉ

Le présent rapport contient des renseignements bibliographiques sur les recherches effectuées sur les états condensés aux températures élevées, publiées dans les revues scientifiques canadiennes au cours de la période d'octobre 1 à décembre 31, 1965.

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INTRODUCTION

This report is a further contribution to the series of bibliographic bulletins of information on high-temperature condensed states research that have been published as Mines Branch Information Circulars since March 1960, on behalf of the Commission on High Temperature and Refractories of the International Union of Pure and Applied Chemistry. The present document covers the three-month period from October 1, 1965 to December 31, 1965, and gives details of work published in Canadian scientific and technical journals during that period.

As indicated in the previous bulletin in this series (IC 175, published in October, 1965), the organization that was formerly a Sub-Commission on Condensed States has now been confirmed by the Council of IUPAC as a fully-fledged Commission in its own right. The membership of this Commission is as follows:

Titular Members

1. Professor H. Nowotny, Chairman.
Institut für Physikalische Chemie der Universität
Wien, Währinger Strasse 42, Vienna IX, Austria.
2. Professor R. Collongues, Secretary
Centre d'Études de Chimie métallurgique,
15, rue Georges-Urbain, Vitry-sur-Seine,
France.
3. Professor Haakon Flood,
Institute of Silicate Science,
Technical University of Norway, Trondheim, Norway.

4. Dr. W.S. Horton,
National Bureau of Standards,
Washington 25, D.C., 20234, U.S.A.

Associate Members

1. Dr. N.F.H. Bright,
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2. Professor F. Cabannes,
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3. Professor H. Schäfer,
Anorganisch-Chemisches Institut der Universität Münster,
Hindenburgplatz 55, Münster, Germany.
4. Dr. R.F. Walker,
National Bureau of Standards,
Washington 25, D.C., 20234, U.S.A.

All the above will serve until the next meeting of IUPAC to be held in Prague, Czechoslovakia in the summer of 1967, when certain members may be eligible for re-election. The preparation of the bibliographies will continue as heretofore, as detailed in the previous Information Circular.

Any further information concerning these bibliographies or any of the other relevant IUPAC activities, can be obtained from the compiler of this report at the following address:

Dr. Norman F.H. Bright,
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Department of Mines and Technical Surveys,
555 Booth Street,
Ottawa 4, Ontario, Canada.

Anyone not now receiving these reports who wishes to do so, anyone who would like to receive the analogous documents relating to research on the gaseous state and on plasma phenomena, and anyone who currently receives either of these bibliographies but to whom they are no longer of interest, is requested to advise the compiler accordingly so that the appropriate changes may be made in the relevant mailing lists.

The compiler would very much appreciate being advised of any work published in Canadian journals, and lying within the scope of these bibliographies, that has escaped his notice in order that such work may be mentioned in a subsequent issue of this series of Information Circulars.

BIBLIOGRAPHY OF WORK ON HIGH-TEMPERATURE
CONDENSED STATES PUBLISHED IN CANADA,
OCTOBER-DECEMBER 1965.

International Union of Pure and Applied Chemistry
Commission on High Temperature and Refractories

Bibliography (October 1 to December 31, 1965)
for Canada

collected by Dr. Norman F.H. Bright, Mines Branch, Ottawa

A. Devices for achieving temperatures above 1500°C

Nil

B. Devices for measuring and controlling temperatures above 1500°C

Nil

C. Devices for physical measurements at temperatures above 1000°C

1. A Comparative Method Apparatus and Standards for Measurement of Thermal Conductivity.

V.V. Mirkovich (Mineral Processing Division, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Canada).
Mines Branch Research Report, R 156, April 1965,
Department of Mines and Technical Surveys, Ottawa.

D. Properties, at temperatures below 1000°C, of materials that melt above 1500°C

a. Metallic Materials

1. Corrosion Behaviour of Uranium-Bearing Resulphurized Chromium Stainless Steels.

G.J. Biefer and W.M. Crawford (Physical Metallurgy Division, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Ontario).

Mines Branch Research Report R 166, July 1965,
Department of Mines and Technical Surveys, Ottawa.

2. The Status of the Hydrogen Problem in Steel.

R.D. McDonald (Physical Metallurgy Division, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Ontario).
Mines Branch Technical Bulletin TB 72, July 1965,
Department of Mines and Technical Surveys, Ottawa.

3. The Heat-Treatability and Properties of Uranium Alloys.
H. P. Tardif (Materials Section, Canadian Armaments Research and Development Establishment, Valcartier, Québec).
Canad. Min. Met. Bull., 58 [643] , 1167-1177 (1965).

b. Non-Metallic Materials

1. The Rational and Geological Aspects of Solid Diffusion.
M. L. Jensen (Department of Geology, Yale University, New Haven, Connecticut, U. S. A.).
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G. A. Kent (Mineral Processing Division, Mines Branch, Department of Mines and Technical Surveys, Ottawa, Ontario).
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3. Determination of the Crystal Structure of Erbium Titanate, $\text{Er}_2\text{Ti}_2\text{O}_7$, by X-Ray and Neutron Diffraction.
Osvald Knop, François Brisse, Lotte Castelliz and Sutarno (Department of Chemistry, Dalhousie University, Halifax and Department of Chemical Engineering, Nova Scotia Technical College, Halifax, Nova Scotia).
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4. Gas-Phase Adsorption and Surface Area Determination of Minerals.
T. Salman and R. F. Robertson (Chemistry Department, McGill University, Montreal, Québec).
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5. Some Properties of Aluminum Hydroxide Precipitated in the Presence of Clays.
R. C. Turner (Soil Research Institute, Canada Department of Agriculture, Ottawa, Ontario).
Canad. Journ. Soil Sci., 45 [3] , 331-336 (1965).

c. Mixed Materials

1. The Mechanism of Wall-to-Fluid Heat Transfer in Particulately Fluidized Beds.
B. Wasmund and J. W. Smith (Department of Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, Ontario).
Canad. Journ. Chem. Engg., 43 [5] , 246-251 (1965).

E. Properties, at temperatures above 1000°C, of materials that melt above 1500°C

a. Metallic Materials

1. The Story of Metals. XIII: The Art of Making Iron.
R. Groves.
Canad. Min. Journ., 86 [1], 95-96 (1965).
2. The Story of Metals. XIV: The Trials and Tribulations of Early Iron Smelters.
R. Groves.
Canad. Min. Journ., 86 [2], 85-87 (1965).

b. Non-Metallic Materials

Nil.

c. Mixed Materials

Nil.

F. Properties, at temperatures above 1000°C, of materials that melt below 1500°C

Nil.

G. Phase Equilibria

1. Lattice Parameters of Melilite Solid Solutions and a Reconnaissance of Phase Relations in the System $\text{Ca}_2\text{Al}_2\text{SiO}_7$ (Gehlenite) - $\text{Ca}_2\text{MgSi}_2\text{O}_7$ (Akermanite) - $\text{NaCaAlSi}_2\text{O}_7$ (Soda Melilite) at 1000 Kg/cm² Water Vapour Pressure.
A. D. Edgar (Department of Geology, University of Western Ontario, London, Ontario).
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T. N. Irvine (Geological Survey of Canada, Department of Mines and Technical Surveys, Ottawa, Ontario).
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3. Chalcogenides of the Transition Elements. IV: Pentlandite, a Natural Phase.
Osvold Knop, Mohammad Anwar Ibrahim and Sutarno (Department of Chemical Engineering, Nova Scotia Technical College, Halifax, Nova Scotia).
Canad. Mineralogist, 8 [3], 291-316 (1965).

4. On the Relationship Between Equilibrium Pressures and the Phase Diagram of a Reactive System: The Systems $\text{NaCl} - \text{Na}_2\text{ZrCl}_6$, $\text{KCl} - \text{K}_2\text{ZrCl}_6$, $\text{NaCl} - \text{KCl} - \text{ZrCl}_4$.
R. L. Lister and S. N. Flengas (Department of Metallurgy and Materials Science, University of Toronto, Toronto, Ontario).
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 WAs_2 , W_2As_3 , MoAs_2 , Mo_2As_3 and Mo_5As_4 .
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H. Reactions at temperatures above 1000°C

1. Heats of Some Polymorphic Metal Sulphate Transitions Estimated by Semi-Quantitative Differential Thermal Analysis.
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2. Activation Energy Calculation from a Linearly-Increasing-Temperature Experiment. Part II.
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3. On a Platinum-Rhodium-Oxygen Electrode in Silicate Melts.
R. E. Ranford and S. N. Flengas (Department of Metallurgy and Materials Science, University of Toronto, Toronto, Ontario).
Canad. Journ. Chem., 43 [10] , 2879-2887 (1965).
4. Differential Thermal Analysis of Calcium Carbide Formation.
W. J. Thoburn and L. M. Pidgeon (Department of Metallurgy and Materials Science, University of Toronto, Toronto, Ontario).
Canad. Met. Quart., 4 [3] , 205-217 (1965).

5. The Solubility of Aluminum in $\text{NaF} - \text{AlF}_3 - \text{Al}_2\text{O}_3$ Melts.
Jomar Thonstad (Technical University of Norway, Trondheim, Norway).
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Donald E. White and James J. Carberry (Department of Chemical Engineering, University of Notre Dame, Notre Dame, Indiana, U.S.A.).
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