

Mines Branch Information Circular IC 206

BIBLIOGRAPHY OF HIGH-TEMPERATURE CONDENSED
STATES RESEARCH PUBLISHED IN CANADA,
APRIL-JUNE, 1968

by

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SYNOPSIS

This report contains bibliographic information concerning research work on high-temperature condensed states published in Canadian journals from April 1 to June 30, 1968.

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Direction des mines, Circulaire d'information IC 206
BIBLIOGRAPHIE DES RECHERCHES EFFECTUÉES
DANS LE DOMAINE DES ÉTATS CONDENSÉS AUX
TEMPÉRATURES ÉLEVÉES, AU CANADA,
D'AVRIL À JUIN, 1968

par

Norman F.H. Bright*

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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'avril 1 à juin 30, 1968.

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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 Temperatures and Refractories of the International Union of Pure and Applied Chemistry. The present document covers the three-month period from April 1 to June 30, 1968, and gives details of work published in Canadian scientific and technical journals during that period.

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, or 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.

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:

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Anyone interested to receive the High-Temperature Gaseous State Bibliographies that are prepared on a quarterly basis by Professor Leo Brewer of the University of California should notify the compiler of the present document and arrangements will be made to have these Gaseous State Bibliographies sent gratis to such people.

The first circular relating to the XXIInd International Congress of Pure and Applied Chemistry, to be held in Sydney, New South Wales, Australia, on August 20-27, 1969, has now been published. The subjects to be featured that may be of interest to recipients of these Information Circulars are:-

Physical Chemistry

1. Theoretical chemistry, and atomic and molecular spectroscopy (incorporating the Seventh Australian Spectroscopy Conference).
2. Intermolecular forces: solids, liquids, gases and solutions, including a session on electrolytes and ionic melts.
3. High-pressure chemistry.
4. Kinetics, comprising (a) reactions of free radicals and excited species, (b) thermally-induced gas-phase reactions, (c) kinetics at the solid/gas interface, and (d) rates and equilibria in solutions.
5. The solid/liquid interface, including sessions on electrode processes and the double layer and on oxide/solution interfaces.
6. A Symposium entitled "50 Years of Valence Theory", with invited speakers only.

Inorganic Chemistry

1. General inorganic chemistry, comprising non-metals and non-transition metals.
2. Mineral chemistry, comprising interfacial processes in mineral extraction and on-stream analysis in the mineral industry.
3. Solid-state chemistry, comprising preparation and growth of crystals, including vapour-transport and hydrothermal synthesis, and characterization, including defect solids and non-stoichiometric phases.

Further information can be obtained from

The Chairman, Organizing Committee
XXII IUPAC/XII ICC
Box 2249 U, G. P. O.
Melbourne, Australia 3001.

BIBLIOGRAPHY OF WORK ON HIGH-TEMPERATURE

CONDENSED STATES PUBLISHED IN CANADA,

APRIL-JUNE, 1968

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

Bibliography (April 1 to June 30, 1968)
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

Nil

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

a. Metallic materials

1. CO Adsorption on (100) and (211) Tungsten Single-Crystal Surfaces: Changes in Work Function. R. A. Armstrong (Radio and Electrical Engineering Division, National Research Council of Canada, Ottawa, Ontario).
Canad. Journ. Phys., 46 [8], 949-958 (1968).
2. Sea-water Crevice Corrosion Tests on Uranium-Bearing AISI Type 430 Stainless Steels.
J. G. Garrison and G. J. Bieffer (Physical Metallurgy Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Technical Bulletin TB 98, February 1968 (Department of Energy, Mines and Resources, Ottawa).

b. Non-metallic materials

1. Studies of the Double-Layer at the Oxide-Solution Interface.
S.M. Ahmed and D.V. Maksimov (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Research Report R 196, February 1968 (Department of Energy, Mines and Resources, Ottawa).
2. Chemisorption Sites on Porous Silica Glass and on Mixed-Oxide Catalysts.
N. W. Cant and L. H. Little (Department of Physical Chemistry, University of Western Australia, Nedlands, Western Australia).
Canad. Journ. Chem., 46 [8], 1373-1378 (1968).
3. The Optical Absorption Spectra of Iron in Six-Coordinate Sites in Chlorite, Biotite, Phlogopite and Vivianite: Some Aspects of Pleochroism in the Sheet Silicates.
G. H. Faye (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Canad. Mineral., 9 [3], 403-425 (1968).
4. Refinement of the Crystal Structure of Scandium Oxide.
Osvold Knop and Jean M. Hartley (Department of Chemistry, Dalhousie University, Halifax, Nova Scotia).
Canad. Journ. Chem., 46 [8], 1446-1450 (1968).
5. Absorption Spectra of the Manganese-Bearing Chain Silicates Pyroxmangite, Rhodonite, Bustamite and Serandite.
P. G. Manning (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Canad. Mineral., 9 [3], 348-357 (1968).
6. Electron Spin Resonance of Mn^{2+} in $Cd_2V_2O_7$.
Carl V. Stager (Department of Physics and Institute for Materials Research, McMaster University, Hamilton, Ontario).
Canad. Journ. Phys., 46 [7], 807-810 (1968).
7. Studies of the Surface Area of Zeolites, as Determined by Physical Adsorption and by X-Ray Crystallography.
D. J. C. Yates (Central Basic Research Laboratory, Esso Research and Engineering Corporation, Linden, New Jersey, U.S.A.).
Canad. Journ. Chem., 46 [10], 1695-1701 (1968).

c. Mixed materials

1. The Influence of Metal Preparation on the Quality of Porcelain Enamel.
J. Walter Carroll (Pennsalt Chemicals Corporation, Philadelphia, Pennsylvania, U.S.A.).
Journ. Canad. Ceram. Soc., 37, [Mar.-Apr., 1968], 2-4 (1968), incorporated in Canad. Clay and Ceram., 41 (1968).

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

a. Metallic materials

1. Interpretation of Kinetic Data for the Decarburization of Iron Droplets.
A. E. Hamielec, W-K. Lu and A. McLean (McMaster University, Hamilton, Ontario).
Canad. Met. Quart., 7 [1], 27-33 (1968).
2. Heat Transfer to Spheres in a Confined Plasma Jet.
G. R. Kubanek, P. Chevalier and W. H. Gauvin (McGill University, and the Pulp and Paper Research Institute of Canada, Montreal, Quebec).
Canad. Journ. Chem. Engg., 46 [2], 101-107 (1968).

b. Non-metallic materials

1. High-Temperature Properties of the Ising Model on the Cristobalite Lattice.
D. D. Betts and R. V. Ditzian (Theoretical Physics Institute, Department of Physics, University of Alberta, Edmonton, Alberta).
Canad. Journ. Phys., 46 [8], 971-975 (1968).
2. Performance of Phosphate-Bonded Refractory Magnesias.
P. M. DiBello and A. M. Pradel (FMC Corporation, Inorganic Chemicals Division, New York City, U.S.A.).
Journ. Canad. Ceram. Soc., 37 [Mar.-Apr., 1968], 13-16 (1968), incorporated in Canada. Clay and Ceram., 41 (1968).

3. Refractories of the Fused Cast Alumina Class.
Karl H. Sandmeyer (Harbison-Carborundum Corporation,
Falconer, New York, U.S.A.).
Journ. Canad. Ceram. Soc., 37 [Mar.-Apr., 1968], 4-7 (1968),
incorporated in Canad. Clay and Ceram., 41 (1968).

c. Mixed materials

1. Basic Refractories Technology in Open-Hearth Steel Furnaces.
James C. Hicks (Kaiser Refractories Company, Oakland,
California, U.S.A.).
Journ. Canad. Ceram. Soc., 37 [May-June, 1968], 29-32 (1968),
incorporated in Canad. Clay and Ceram., 41 (1968).

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

a. Metallic materials

Nil

b. Non-metallic materials

1. Volatility of Glass Components from the Melt.
Woldemar A. Weyl (Pennsylvania State University, University Park,
Pennsylvania, U.S.A.).
Journ. Canad. Ceram. Soc., 37 [May-June, 1968], 19-24 (1968),
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c. Mixed materials

Nil

G. Phase Equilibria

1. Phase Studies on the Iron-Selenium System.
J. E. Dutrizac, M. B. I. Janjua and J. M. Toguri (Noranda Research
Centre, Pointe Claire, Quebec).
Canad. Journ. Chem., 46 [8], 1171-1174 (1968).

2. Structural Stability of Minerals with the Pyrite, Marcasite, Arsenopyrite and Löllingite Structures.
E. H. Nickel (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Canad. Mineral., 9 [3], 311-321 (1968).
3. Phase Relations in Cordierite-Bearing Gneisses from the Gananoque Area, Ontario.
E. W. Reinhardt (Geological Survey of Canada, Department of Energy, Mines and Resources, Ottawa, Ontario).
Canad. Journ. Earth Sci., 5 [3(i)], 455-482 (1968).

H. Reactions at temperatures above 1000°C

1. Zirconium Route By-passes Sponge Step.
Anon.
Canad. Chem. Proc., 52 [6], 69-72 (1968).
2. Chemical Kinetics of the Gaseous Reduction of Hematite.
W-K. Lu and G. Bitsianes (University of Minnesota, Minneapolis, Minnesota, U.S.A.).
Canad. Met. Quart., 7 [1], 3-13 (1968).
3. Transition from Internal to External Oxidation in Indium-Silver Alloys.
L. D. Pethe, H. B. Mathur and A. B. Biswas (National Chemical Laboratory, Poona, India).
Canad. Journ. Chem., 46 [8], 1187-1196 (1968).

J. Review Articles

1. Powder Metallurgy.
Anon.
Canad. Metalworking, 31 [6], 35-46 (1968).
2. Welding -- the Exploding Technology.
J. Chander (United Aircraft of Canada, Ltd.).
Canad. Metalworking, 31 [5], 37-46 (1968).
3. The Use of Nuclear Explosives in Oil and Gas Production.
H. F. Coffey, H. E. Grier and H. H. Aronson (CER Geonuclear Corporation, Las Vegas, Nevada, U.S.A.).
Canad. Inst. Min. Met. Bull., 61 [674], 739-750 (1968).