Mines Branch Information Circular IC 296

BIBLIOGRAPHY OF HIGH-TEMPERATURE CONDENSED STATES RESEARCH PUBLISHED IN CANADA, OCTOBER-DECEMBER, 1972

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, 1972. This is the final issue of this quarterly series of Information Circulars. In future, the information will be provided by Professor C. B. Alcock, Department of Metallurgy, University of Toronto.

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BIBLIOGRAPHIE DES RECHERCHES ÉFFECTUÉES DANS LE DOMAINE DES ÉTATS CONDENSÉS AUX TEMPÉRATURES ÉLEVÉES, AU CANADA, D'OCTOBRE À DÉCEMBRE, 1972

par

Norman F. H. Bright*

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RÉSUMÉ

Le présent rapport contient des renseignements bibliographiques sur les recherches éffectuées sur les états condensés aux températures élevées, publiées dans les revues scientifiques canadiennes au cours de la période d'octobre 1 à décembre 31, 1972. C'est la dernière publication de ces séries trimestrielles des Circulaires d'information. A l'avenir le Professeur C. B. Alcock du département de Métallurgie de l'Université de Toronto donnera les renseignements requis.

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INTRODUCTION

This report is the final contribution to the series of bibliographic bulletins of information on high-temperature condensed states research that have been published as Mines Branch Information Circulars. This series has been published quarterly since March 1960 on behalf of the Commission on High Temperatures and Refractory Materials of the International Union of Pure and Applied Chemistry. The present document covers the three-month period from October 1 to December 31, 1972, and gives details of work published in Canadian scientific and technical journals during that period.

In the future, the task of producing and distributing these Canadian bibliographies will be undertaken by

Professor C.B. Alcock,
Department of Metallurgy,
University of Toronto,
Toronto, Ontario.

Dr. Alcock is a Titular Member of the above-mentioned Commission and is widely known as an authority on high-temperature metallurgical thermodynamics. He will have the same mailing list as has been used heretofore for these bulletins, and any future enquiries concerning them, or any other relevant I.U.P.A.C. matters, should be referred to him.

As in the past, the Canadian contribution will be incorporated into the international bibliography edited by Dr. M.G. Hocking of Imperial College, London, England. Details concerning the price and availability of the international documents were given in full in previous issues of this series of Information Circulars.

As previously, anyone not now receiving the quarterly Canadian documents but who wishes to do so, or anyone who currently receives them but to whom they are no longer of interest, should communicate their wishes to Dr. Alcock at the above-mentioned address so that the appropriate changes may be made in the relevant mailing lists.

It might be mentioned that the present compiler of these bibliographies, although he is relinquishing this task, will remain, for the time being at least, as a National Representative for Canada on the Commission on High Temperatures and Refractory Materials of I. U. P. A. C.

BIBLIOGRAPHY OF WORK ON HIGH-TEMPERATURE CONDENSED STATES PUBLISHED IN CANADA, OCTOBER-DECEMBER, 1972

International Union of Pure and Applied Chemistry
Commission on High Temperatures and Refractory Materials

Bibliography (October 1 to December 31, 1972)
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 1000°C

1. How to Linearize Thermocouple Amplifiers.
Lee Garelick and Eric Hauptmann (Transmation Inc.)
Canad. Controls and Instrumentation, 11 [11], 31-33 (1972).

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

1. Thermal Conductivity Measurement Via Heat Pipes.
Anon.
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2. A Mathematical Simulation of Radiant Heat Transfer in a Cylindrical Furnace.
S. Osuwan and F.R. Steward (Department of Chemical Engineering, University of New Brunswick, Fredericton, New Brunswick).
Canad. Journ. Chem. Engg., 50 [4], 450-455 (1972).

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

a. Metallic materials

1. Magnetic Field Dependence of the Thermoelectric Power of Iron.
F.J. Blatt (Physics Department, Simon Fraser University, Burnaby, British Columbia).
Canad. Journ. Phys., 50 [22], 2836-2839 (1972).

2. The Magnetic Moment of ^{59}Fe.
P.W. Daly, R.L.A. Gorling, P.W. Martin and B.G. Turrell (Department of Physics, University of British Columbia, Vancouver, British Columbia).
Canad. Journ. Phys., 50 [19], 2373-2375 (1972).

3. Emissary Dislocations Associated with $\{11\bar{2}2\}$ Twins in Zirconium.
J.I. Dickson, A. Dedo and G.B. Craig (Department of Metallurgy, University of Toronto, Toronto, Ontario).
Canad. Metall. Quart., 11 [3], 477-479 (1972).

4. Crystal Dynamics of Platinum by Inelastic Neutron Scattering.
D.H. Dutton and B.N. Brockhouse (Department of Physics, McMaster University, Hamilton, Ontario) and A.P. Miller (Department of Physics, Brandon University, Brandon, Manitoba).
Canad. Journ. Phys., 50 [23], 2915-2927 (1972).

5. Debye Characteristic Temperatures of Cubic Metals.
B.S. Semwal and P.K. Sharma (Department of Physics, University of Allahabad, Allahabad, India).
Canad. Journ. Phys., 50 [21], 2712-2714 (1972).

6. Measurement of Stopping Powers for ^{4}He, ^{16}O, and ^{35}Cl Ions at ~1 to ~3 MeV per Nucleon in Ni, Ge, Y, Ag and Au.
D. Ward, R.L. Graham and J.S. Geiger (Chalk River Nuclear Laboratories, Atomic Energy of Canada Limited, Chalk River, Ontario).
Canad. Journ. Phys., 50 [19], 2302-2312 (1972).

b. Non-metallic materials

1. Measurement of Surface Areas of Mineral Powders with a Modified Perkin-Elmer, Model 212-D, Sorptometer using a Nitrogen-Helium Gas Mixture.
K. Bartels (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Technical Bulletin TB 162, November, 1962 (Department of Energy, Mines and Resources, Ottawa, Ontario).

2. Pyrochlores. VIII: Studies of Some 2-5 Pyrochlores and Related Compounds and Minerals.
François Brisse, David J. Stewart, V. Seidl and Osvald Knop (Department of Chemistry, Dalhousie University, Halifax, Nova Scotia).
Canad. Journ. Chem., 50 [22], 3648-3666 (1972).

3. Optical Absorption Spectra of Fe^{3+} in Octahedral and Tetrahedral Sites in Natural Garnets.
P.G. Manning (Inland Waters Branch, Environment Canada, Ottawa, Ontario).
Canad. Mineral., 11 [4], 826-839 (1972).

4. Electronic Spectra of Transition Metal Ions in Silicate Garnets.
Raymond K. Moor and William B. White (Department of Geosciences, Pennsylvania State University, University Park, Pennsylvania, U.S.A.).
Canad. Mineral., 11 [4], 791-811 (1972).

c. Mixed materials

1. The Determination of the Composition of Slurries by the Measurement of Thermal-Neutron-Capture Gamma Radiation.
H.P. Dibbs and J.L. Dalton (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario) and S.S. Nargolwalla (Scintrex Limited, Concord, Ontario).
Mines Branch Research Report R 251, September, 1972 (Department of Energy, Mines and Resources, Ottawa, Ontario).

2. Measurement of Carbon Film Thickness on Metals with the Electron-Probe Microanalyser.
A. Sawatzky and S. Jones (Whiteshell Nuclear Research Establishment, Pinawa, Manitoba).
Canad. Res. and Devel., 5 [6], 23-26, 1972.

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

a. Metallic materials

Nil

b. Non-metallic materials

Nil

c. Mixed materials

1. Dispersion Strengthening Titanium with Refractory Oxides.
C.F. Dixon and H.M. Skelly (Physical Metallurgy Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Canad. Metall. Quart., 11 [3], 491-495 (1972).

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

Nil

G. Phase equilibria above 700°C

1. The Fractionation Effect of Kaersutite in Basaltic Magma.
Bernard M. Gunn (Université de Montréal, Montréal, P.Q.).
Canad. Mineral., 11 [4], 840-850 (1972).

2. Pentlandite Compositions and Associations in Some Mineral Deposits.
D. C. Harris (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario) and E.H. Nickel (C.S.I.R.O., Wembley, West Australia).
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3. New Data on Hellandite.
D. D. Hogarth (Department of Geology, University of Ottawa, Ottawa, Ontario), G. Y. Chao (Department of Geology, Carleton University, Ottawa, Ontario) and D. C. Harris (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
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4. Sapphirine-Bearing Rocks from Wilson Lake, Labrador.
Leong Khee Meng and John M. Moore, Jr., (Department of Geology, Carleton University, Ottawa, Ontario).
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H. Reactions at temperatures above 700°C

a. Chemical reactions generating another substance

1. Electrolytic Deposition of Silicon and of Silicon Alloys. Part IV: Preparation of Alloys with a High Content of Silicon and Silicon Refining.
G. Bøe, K. Grjotheim, K. Matiašovský and P. Fellner (Technical University of Norway, Trondheim, Norway).
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2. Extraction of Chromium from Egyptian Chromite Ores.
M.K. Hussein, G.A. Kolta and O. Abdel Aal (Department of Metallurgy, National Research Centre, Cairo, Egypt).
Canad. Mineral., 11 [3], 481-489 (1972).

3. Exsolution Products in Heated Chalcopyrite.
Wallace H. MacLean (Department of Geological Sciences, McGill University, Montreal, Quebec), Louis J. Cabri (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario) and James E. Gill (Department of Geological Sciences, McGill University, Montreal, Quebec).
Canad. Journ. Earth Sci., 9 [10], 1305-1317 (1972).

4. The Influence of the Substrate on Hydrogen-Water-Deuterium Exchange over Carbon-Supported Platinum.
Norman H. Sagert and Rita M. L. Pouteau (Whiteshell Nuclear Research Establishment, Atomic Energy of Canada Limited, Pinawa, Manitoba).
Canad. Journ. Chem., 50 [22], 3686-3693 (1972).

5. Identification and Thermal Stability of Copper (I) Sulphate.
Kim Vo Van and Fathi Habashi (Department of Mining and Metallurgy, Université Laval, Québec City, Quebec).
Canad. Journ. Chem., 50 [23], 3872-3875 (1972).

6. Thermal Decomposition of Pyrite in Fluidized Beds.
A.P. Watkinson and C. Germain (Department of Chemical Engineering, Noranda Research Centre, Pointe Claire, Quebec).
Canad. Metall. Quart., 11 [3], 535-547 (1972).

7. A General Asymptotic Analytical Solution for Non-Catalytic Gas-Solid Reactions.
R.J.J. Williams, A. Calvelo and R.E. Cunningham (Departamento de Tecnología Química, Universidad Nacional de la Plata, La Plata, Argentina).
Canad. Journ. Chem. Engg., 50 [4], 486-490 (1972).

b. Crystal growth of a component from melt or vapour

Nil

c. Physical diffusion without the formation of a new component

Nil