

Mines Branch Information Circular IC 289

BIBLIOGRAPHY OF HIGH-TEMPERATURE CONDENSED
STATES RESEARCH PUBLISHED IN CANADA,
APRIL - JUNE, 1972

by

Norman F.H. Bright*

- - -

SYNOPSIS

This report contains bibliographic information concerning research work on high-temperature condensed states published in Canadian journals from April 1 to June 30, 1972.

*Head, Physical Chemistry Group, Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Canada.

Direction des mines, Circulaire d'information IC 289

BIBLIOGRAPHIE DES RECHERCHES EFFECTUÉES
DANS LE DOMAINE DES ÉTATS CONDENSÉS AUX
TEMPÉRATURES ÉLEVÉES, AU CANADA,
D'AVRIL À JUIN, 1972

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'avril 1 à juin 30, 1972.

*Chef du Groupe de la chimie physique, Division des sciences minérales, Direction des mines, Département de l'Énergie, des Mines et des Ressources, Ottawa, Canada.

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 Refractory Materials of the International Union of Pure and Applied Chemistry. The present document covers the three-month period from April 1 to June 30, 1972, 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, or anyone who currently receives 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:

Dr. Norman F.H. Bright,
Mineral Sciences Division,
Mines Branch,
Department of Energy, Mines and Resources,
555 Booth Street,
Ottawa, Ontario.
K1A 0G1

The following notice relating to the International Bibliographies, published earlier by the National Bureau of Standards, Washington, D. C., and more recently taken over by Dr. M. G. Hocking of Imperial College, London, England, has been received from him with the request that it be included in the national bibliographies, so that the recipients of these documents shall be fully informed concerning the availability and prices of back and future issues of the "International Bibliographies on High-Temperature Chemistry and Physics of Materials", published under the auspices of the International Union of Pure and Applied Chemistry.

IUPAC: Bibliography on the High-Temperature Chemistry
and Physics of Materials: Availability and Prices

1. Back Issues

July, Aug., Sept. 1968 and earlier issues; free. For these, please apply to: Dr. T. Coyle, Inorganic Chemistry Division, N.B.S., Washington, D.C. 20234, U.S.A.

Oct., Nov., Dec. 1968 to Jan., Feb., March 1970: These are available as NBS Special Publications 315 and 315-1 to 315-5, price 75 cents (except 315-3 which is \$1.00) and are available from U.S. Government Printing Office, Washington, D.C. 20402, U.S.A.

July, Aug., Sept. 1970 (14, No. 3) and onwards; available from M. G. Hocking, Metallurgy Department, Imperial College, London, S.W. 7, England. These are 90 cents each, postage paid (add 75 cents for air mail delivery). The first issue in this series (14, No. 2) is out of print and only available as a Xerox copy, price \$3.00, postage paid.

2. Future Issues

These are available by annual subscription of £1.50 or \$3.60 which covers printing costs and surface mailing (4 issues). For air mail, add £0.60 (Europe) or £1.25 (\$3.00) (outside Europe), per annum.

Subscriptions are due on 1st of April and the subscription year is April to April. A simple accounting system is used, and it is essential that all subscriptions must end on 31st of March. Those who may wish to commence subscriptions part way through the year should therefore remit in direct proportion to the remaining period ending 31st of March.

Subscriptions for multiple years are acceptable, provided the final expiry date is a 31st of March.

Terms: Prepayment with order. This will not apply, however, if it is unacceptable to your purchasing department. Overseas subscribers can remit by their ordinary cheque (e.g. \$3.60), provided their currency is not subject to exchange control.

Please make cheques payable to:

IUPAC High-Temperature Bibliography,

and mail them to:-

M. G. Hocking, (IUPAC),
Metallurgy Department,
Imperial College,
London, S. W. 7,
England.

... (faint text) ...
... (faint text) ...
... (faint text) ...

... (faint text) ...
... (faint text) ...
... (faint text) ...
... (faint text) ...

BIBLIOGRAPHY OF WORK ON HIGH-TEMPERATURE
CONDENSED STATES PUBLISHED IN CANADA,
APRIL - JUNE, 1972

1. The first of the two main parts of the report is devoted to a description of the work done during the year. This part is divided into two sections, one dealing with the work done in the laboratory and the other with the work done in the field.

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

Bibliography (April 1 to June 30, 1972)
for Canada

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

- - - - -

A. Devices for achieving temperatures above 1500°C

1. Precision Flame Cutting: Part 2. Close-Tolerance Requirements.
Edward S. Young (The Harris Calorific Company, Cleveland,
Ohio, U.S.A.).
Canad. Machinery and Metalworking, 83 [4], 88-89 (1972).
2. Precision Flame Cutting: Part 3. Stack Cutting.
Edward S. Young (The Harris Calorific Company, Cleveland,
Ohio, U.S.A.).
Canad. Machinery and Metalworking, 83 [5], 84-85, 89 (1972).

B. Devices for measuring and controlling temperatures above 1000°C

1. Guide to Thermocouples and Surface Temperature Measurement.
A. J. Otter (University of British Columbia, Vancouver,
British Columbia).
Canad. Controls and Instrumentation, 11 [5], 24-29 (1972).

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

1. Autodifferential Thermal Analysis: A New Development in DTA.
G.T. Meaden (Dalhousie University, Halifax, Nova Scotia) and
N.H. Sze (Singapore Institute of Standards and Industrial
Research, Singapore).
Canad. Res. and Devel., 5 [May/ June], 13-17 (1972)

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

a. Metallic materials

1. Temperature Dependence of the Hyperfine Field at ^{181}Ta
Nuclei in a Nickel Lattice.

J.S. Barrett, J.A. Cameron, Z. Zámori and D.C. Santry
(Department of Physics, McMaster University, Hamilton,
Ontario).

Canad. Journ. Phys., 50 [7], 619-621 (1972).

2. The Magnetic Field at Tungsten Nuclei in Iron.

J.A. Cameron, L. Keszthelyi, G. Mezei, Z. Szökefalvi-Nagy
and L. Varga (Central Research Institute for Physics, Budapest,
Hungary).

Canad. Journ. Phys., 50 [8], 736-739 (1972).

3. Field-Ion Microscopy of Tungsten Bombarded by Low-
Energy Argon Ions.

B. Gregov and R.P.W. Lawson (Department of Electrical
Engineering, University of Alberta, Edmonton, Alberta).

Canad. Journ. Phys., 50 [8], 791-797 (1972).

4. The Structure and Properties of Warm-Rolled Steels.

J.L. Uvira, D.B. Clay, P.J. Worthington and J.D. Embury
(Steel Company of Canada Research Centre, Burlington,
Ontario).

Canad. Metall. Quart., 11 [2], 439-449 (1972).

5. Corrosion, Deformation, Tubing Properties and Alloy
Development of Zirconium Alloys.

Various authors.

Complete volume (27 papers) of Canadian Metallurgical
Quarterly, 11 [1], 1-283 (1972) devoted to these subjects.

b. Non-metallic materials

1. Mixed Valencies and Site Occupancies of Iron in Silicate
Minerals from Mössbauer Spectroscopy.

Roger G. Burns (Department of Earth and Planetary Sciences,
Massachusetts Institute of Technology, Cambridge, Mass.,
U. S. A.).

Canad. Journ. Spectr., 17 [2], 51-59 (1972).

2. Electron Spin Resonance in Neutron-Irradiated Diamond.

P.W. Whippey (Department of Physics, University of Western
Ontario, London, Ontario).

Canad. Journ. Phys., 50 [8], 803-812 (1972).

c. Mixed materials

Nil

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

a. Metallic materials

1. Determination of Oxygen Activities in Iron-Vanadium Alloys by a Levitation-Melting Procedure.

P. Kershaw, A. McLean and R. G. Ward (Department of Metallurgy and Materials Science, McMaster University, Hamilton, Ontario).

Canad. Metall. Quart., 11 [2], 327-336 (1972).

b. Non-metallic materials

Nil

c. Mixed materials

Nil

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

a. Metallic materials

Nil

b. Non-metallic materials

Nil

c. Mixed materials

1. Entrapment and Flotation of Matte in Molten Slags.

R. Minto and W. G. Davenport (Department of Metallurgical Engineering, McGill University, Montreal, Quebec).

Canad. Inst. Min. Metall. Bull., 65 [720], 70-76 (1972).

G. Phase equilibria above 700°C

1. Plagioclase-Garnet-Epidote Equilibria in Hornblende-Plagioclase-Bearing-Rocks from the Esplanade Range, British Columbia.

Edward D. Ghent and C. D. S. DeVries (Department of Geology, University of Calgary, Calgary, Alberta).

Canad. Journ. Earth Sciences, 9 [6], 618-635 (1972).

H. Reactions at temperatures above 700°C

a. Chemical reactions generating another substance

1. Current Efficiency Measurements in Laboratory Aluminum Cells: II. Influence of Alumina Content.
Kai Grjotheim, Milan Malinovský, Kamil Matiašovsky
Alexander Silny and Jomar Thonstad (Institute of Inorganic Chemistry, Technical University of Norway, Trondheim, Norway).
Canad. Metall. Quart., 11 [2], 295-298 (1972).
2. On the Origin of Oxide Inclusions in Ingots Made by the Electroslag Process.
A. Mitchell and M. Bell (Department of Metallurgy, University of British Columbia, Vancouver, British Columbia).
Canad. Metall. Quart. 11 [2], 363-369 (1972).
3. Conditions for Nucleation of Oxides in Fe-Si-O Alloys.
Geoffrey K. Sigworth and John F. Elliott (Department of Metallurgy and Materials Science, Massachusetts Institute of Technology, Cambridge, Mass., U.S.A.).
Canad. Metall. Quart., 11 [2], 337-349 (1972).
4. Titanium De-Oxidation Reactions in Liquid Iron.
A.M. Smellie and H.B. Bell (Department of Metallurgy, Ontario Research Foundation, Sheridan Park, Ontario).
Canad. Metall. Quart., 11 [2], 351-361 (1972).

b. Crystal growth of a component from melt or vapour

Nil

c. Physical diffusion without the formation of a new component

Nil

J. Review Articles

1. Characteristics of the Arsenides, Sulpharsenides and Antimonides in the Cobalt-Gowganda Ores.
W. Petruk, D.C. Harris and J.M. Stewart (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Canad. Mineralogist, 11 [1], 150-186 (1972).

2. Characteristics of the Silver-Antimony Minerals in the Cobalt-Gowganda Ores.
W. Petruk, D.C. Harris, L.J.P. Cabri and J.M. Stewart
(Mineral Sciences Division, Mines Branch, Department of
Energy, Mines and Resources, Ottawa, Ontario).
Canad. Mineralogist, 11 [1], 197-195 (1972).
3. Review of Oxygen Sensors for Use in Steelmaking and of De-oxidation Equilibria.
E.T. Turkdogan and R.J. Fruehan (United States Steel
Corporation, Monroeville, Pennsylvania, U.S.A.).
Canad. Metall. Quart., 11 [2], 371-384 (1972).

1. The first part of the report is a general introduction to the subject of the study.

2. The second part of the report is a detailed description of the methods used in the study.

3. The third part of the report is a discussion of the results of the study.

1/1/77