Mines Branch Information Circular IC 281

# BIBLIOGRAPHY OF HIGH-TEMPERATURE CONDENSED STATES RESEARCH PUBLISHED IN CANADA, OCTOBER-DECEMBER, 1971

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, 1971.

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Direction des mines, Circulaire d'information IC 281

# BIBLIOGRAPHIE DES RECHERCHES ÉFFECTUÉES DANS LE DOMAINE DES ÉTATS CONDENSÉS AUX TEMPÉRATURES ÉLEVÉES, AU CANADA, D'OCTOBRE À DÉCEMBRE, 1971

par

Norman F. H. Bright*

## 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, 1971.

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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 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, 1971,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:

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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 Bibligraphies 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¢ (except 315-3 which is $1.00) and are available from U.S. Government Printing Office, Washington, D.C. 20402, U.S.A.

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# BIBLIOGRAPHY OF WORK ON HIGH-TEMPERATURE CONDENSED STATES PUBLISHED IN CANADA, OCTOBER-DECEMBER, 1971

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

Bibliography (October 1 to December 31, 1971)
for Canada

collected by Dr. Norman F.H. Bright, Mines Branch, Ottawa, K1A 0G1.

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A. Devices for achieving temperatures above 1500°C.

Nil

B. Devices for measuring and controlling temperatures above 1000°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. Preliminary Measurements of the Environmental Cracking Behaviour of Titanium Alloy 721.
G.J. Biefer and J.G. Garrison (Physical Metallurgy Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Technical Bulletin TB 132, February 1971 (Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).

2. Magnetic Susceptibility and Electrical Resistivity of Dilute Chromium-Titanium Alloys.
C.H. Chiu, M.H. Jericho and R.H. March (Physics Department, Dalhousie University, Halifax, Nova Scotia).
Canad. Journ. Phys., 49 [ 23 ], 3010-3023 (1971).

3. Thermoelectric Power of Pure Rhodium.
D.J. Huntley (Physics Department, Simon Fraser University, Burnaby, British Columbia.)
Canad. Journ. Phys., 49 [ 20 ] , 2610-2612 (1971).

4. Vibrational Spectrum and Specific Heat of Tantalum.
Satya Pal (Physics Department, Allahabad University, Allahabad, India).
Canad. Journ. Phys., 49 [ 21 ], 2727-2730 (1971).

5. Low-Energy Gamma-Ray Spectrum of $^{184m,184}$Re.
H.W. Taylor, J.D. King and B. Singh (Department of Physics, University of Toronto, Toronto, Ontario.)
Canad. Journ. Phys., 49 [ 20 ], 2614-2618 (1971).

b. Non-metallic materials

1. Magnetic Domain Structure of Hematite.
J.A. Eaton and A.H. Morrish (Department of Physics, University of Manitoba, Winnipeg, Manitoba).
Canad. Journ. Phys., 49 [ 22 ], 2768-2777 (1971).

2. Analytical Data on the U.S.G.S. Standard Rock by X-ray Fluorescence Spectrometry.
R.J. Goodman (Bondar-Clegg and Co. Ltd., Ottawa, Ontario).
Canad. Spectr., 16 [ 4 ] , 97-99 (1971).

3. Characterization and Preparation of Standard Reference Materials that Contain Noble Metals:
(A) PTA (Ores) and (B) PTM (Nickel-Copper Matte).
R.C. McAdam, Sutarno and P.E. Moloughney (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Technical Bulletin TB 138, June 1971 (Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).

4. The Use of Silica Dilution in the Determination of Strontium in Ore Fractions by X-ray Spectrography.
Dorothy J. Reed (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Canad. Spectr., 16 [ 5 ], 129-131 (1971).

5. Molybdenum Ore PR-1: Its Characterization and Preparation for Use as a Standard Reference Material.
Staff of the Mineral Sciences Division (Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Technical Bulletin TB 139, August 1971 (Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).

6. X-ray Fluorescence Determination of Minor and Trace Elements in Silicate Rocks.
G.R. Webber and M.L. Newbury (Department of Geological Sciences, McGill University, Montreal, Quebec).
Canad. Spectr., 16 [ 4 ], 90-93, 99 (1971).

c. Mixed materials

1. Desulphurizing Gases with MgO-Recovery of Concentrated $SO_2$ or Elemental Sulphur.
P. Marier and T.R. Ingraham (Extraction Metallurgy Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Information Circular IC 263, February 1971 (Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).

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

a. Metallic materials

Nil

b. Non-metallic materials

1. Viscosity and Structure of Industrial High-$TiO_2$ Slags.
G. Handfield and G.G. Charette (Quebec Iron and Titanium Corporation, Limited, Sorel, Quebec).
Canad. Metall. Quart., 10 [ 3 ], 235-243 (1971).

2. Étude des Propriétés Thermodynamiques des Solutions Solides d'Oxydes de Magnésium et de Nickel.
C. Petot, G. Petot-Ervas et M. Rigaud (Département de génie, métallurgique, École Polytechnique, Montréal, Québec).
Canad. Metall. Quart., 10 [ 3 ], 203-205 (1971).

c. Mixed materials

Nil

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

Nil

G. Phase equilibria above 700°C.

Nil

H. Reactions at temperatures above 700°C.

a. Chemical reactions generating another substance.

1. Electrolytic Deposition of Silicon and of Silicon Alloys. Part II: Decomposition Voltages of Components and Current Efficiency in the Electrolysis of the $Na_3AlF_6$-$Al_2O_3$-$SiO_2$ Mixtures.
G. Bøe, K. Grjotheim, K. Matiašovský and P. Fellner (Institute of Inorganic Chemistry, Technical University, Trondheim, Norway).
Canad. Metall. Quart., 10 [ 3 ], 179-183 (1971).

2. Justification for Both Ionic and Thermal Reactions in Grenville Province Pelitic Rocks near Sudbury, Ontario, Canada.
Teunis A. P. Kwak (Vening Meinesz Laboratorium, Rijksuniversiteit te Utrecht, Utrecht, The Netherlands),
Canad. Journ. Earth Sci., 8 [ 11 ], 1333-1354 (1971).

3. Principles of Metal Oxidation.
R. C. Logani and W. W. Smeltzer (Department of Metallurgy and Materials Science, McMaster University, Hamilton, Ontario).
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4. Kinetics of Reactions Between Gases and Molten Alloys of Iron.
S. G. Whiteway (National Research Council of Canada, Atlantic Regional Laboratory, Halifax, Nova Scotia).
Canad. Metall. Quart., 10 [ 3 ], 185-187 (1971).

b. Crystal growth of a component from melt or vapour.

1. Crystal Growth. Part II: The Growth of Zinc Sulphide Crystals. Leonard G. Ripley (Mineral Sciences Division, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario). Mines Branch Research Report R 236, March 1971 (Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).

c. Physical diffusion without the formation of a new component.

1. The Dissolution of Fused Quartz in Ferrous Silicate Slags. D.A. Reeve (Metals Reduction and Energy Centre, Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).
Mines Branch Research Report R 240, July 1971 (Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario).

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