

Mines Branch Information Circular IC 164

BIBLIOGRAPHY OF HIGH-TEMPERATURE CONDENSED  
STATES RESEARCH PUBLISHED IN CANADA,  
APRIL - JUNE, 1964

by

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SYNOPSIS

This report contains bibliographic information concerning research work on high-temperature condensed states published in Canadian journals during the period April to June, 1964.

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Direction des mines

Circulaire d'information IC 164

BIBLIOGRAPHIE DES RECHERCHES EFFECTUÉES DANS  
LE DOMAINE DES ÉTATS CONDENSÉS AUX TEMPÉRATURES  
ÉLEVÉES, AU CANADA, D'AVRIL À JUIN 1964

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 à juin 1964.

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CONTENTS

	<u>Page</u>
Synopsis.....	i
Résumé.....	ii
Introduction.....	1
Bibliography of Work on High-Temperature Condensed States Published in Canada, April-June, 1964.....	6

## 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 Sub-commission on Condensed States of the Commission on High Temperatures and Refractories of the International Union of Pure and Applied Chemistry. The present document covers work published in Canadian scientific and technical journals during the period April to June, 1964, inclusive.

Any further information concerning these bibliographies can be obtained from the writer of this report at the following address:

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Anyone not now receiving these reports who wishes to do so, or anyone who no longer finds them of interest is requested to advise the writer accordingly in order that the appropriate changes may be made in the mailing list.

The writer 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 these Information Circulars.

The programme for the Symposium on High-Temperature Inorganic Chemistry to be held at Carleton University, Ottawa on September 2-4, 1964, as an activity of the Inorganic Chemistry Division of the Chemical Institute of Canada, with additional sponsorship by the National Research Council, has now been finalized. The details of the invited papers ( 5 in number), were given in the previous issue of these Information Circulars (IC 159). The details of the contributed papers to be presented are as follows:

1. "Thermodynamic, Crystallographic and Phase Behaviour of the Tungsten-Oxygen System at High Temperatures".  
R.J. Ackermann, Elizabeth Gebert and James H. Maurer,  
Argonne National Laboratory.
2. "Kinetic Aspects of Artificially Crystallized Hawaiian Basalt".  
Myron G. Best,  
University of Ottawa.
3. "Sintering and Grain Growth of Non-Stoichiometric Rutile".  
A.C.D. Chaklader and J.P.J. Thiriar,  
University of British Columbia.
4. "Emission Studies of Selected Pyrotechnic Flames".  
Bernard E. Doua,  
U.S. Naval Ammunition Depot.
5. "High-Temperature Inorganic Reactions Using Exploding Wire Techniques".  
Micheal J. Joncich, Donald G. Reu, Byron F. Knutsen and Joe W. Vaughn,  
Northern Illinois University.
6. "The Dissociation Energy of Diatomic Molecules of the Transition Elements Ni, Co, Mn, Cr and Ti".  
Arthur Kant,  
U.S. Army Materials Research Agency.

7. "A Note on the High-Temperature Reactions in Talc-Clay Mixtures Leading to Glass Formation".  
S. Kumar and Richard H. Lake,  
Central Glass and Ceramic Research Institute, Calcutta, and Mines Branch, Ottawa.
8. "Kinetics of the Oxidation of Tungsten by  $\text{CO}_2$  above  $2000^\circ\text{K}$ ".  
I.R. Ladd, J.M. Quets, J.E. Smith, R.A. Graff and P.N. Walsh,  
Union Carbide Research Institute.
9. "Kinetics of the Desulphurization of Liquid Iron-Sulphur Alloys by Argon-Hydrogen Mixtures".  
R.J.W. Peters, S.G. Whiteway and C.R. Masson,  
N.R.C. Atlantic Regional Laboratory.
10. "Condensed Phase Relations in Metal-Metal-Oxygen Systems to  $1700^\circ\text{C}$ ".  
Bert Phillips,  
Tem-Pres Research Incorporated.
11. "A Re-Examination of the Binary Systems  $\text{CaO-Nb}_2\text{O}_5$  and  $\text{Nb}_2\text{O}_5\text{-SiO}_2$  and Their Relation to the Ternary System  $\text{CaO-Nb}_2\text{O}_5\text{-SiO}_2$ ".  
A.T. Prince and A.L. Wilkins,  
Mines Branch, Ottawa.
12. "Transport Processes in Molten Inorganic Salts".  
R.D. Reeves and George J. Janz,  
Rensselaer Polytechnic Institute.
13. "Structure of Magnesium Aluminosilicate Liquids at  $1700^\circ\text{C}$ ".  
E.F. Riebling,  
Corning Glass Works.
14. "Controlled Precipitation in Oxide Systems".  
V.S. Stubican,  
Pennsylvania State University.
15. "Notes on the Transport-Controlled Kinetics of Some Slag-Metal Interactions".  
J. Szekely,  
Imperial College of Science and Technology, London.
16. "The Substitution of Niobium and Tantalum into Magnetite at  $1200^\circ\text{C}$ ".  
A.C. Turnock and Norman F.H. Bright,  
Mines Branch, Ottawa.

17. "The Vaporization Behaviour of MnS and the Dissociation Energy of MnS and Mn<sub>2</sub>".  
Heribert Wiedemeier and Paul W. Gilles,  
University of Kansas.
18. "Investigations in the Systems W-O and Al-W-O at Temperatures between 800°C and 1600°C".  
Ernst W.S. Winkler, (the late) E.J. Kohlmeyer and F. Pawlek,  
Technische Universität, Berlin.

Further information regarding this Symposium, including the full programme complete with abstracts, registration and accommodation details, can be obtained from the writer of this report, who is acting as Programme Chairman for the Symposium, at the address already quoted.

BIBLIOGRAPHY OF WORK ON HIGH-TEMPERATURE  
CONDENSED STATES PUBLISHED IN CANADA,  
APRIL - JUNE, 1964



International Union of Pure and Applied Chemistry  
Commission on High-Temperatures and Refractories  
Sub-Commission on Condensed States

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A. Devices for achieving temperatures above 1500°C

1. Resistance welding coated material.  
Anon.  
Canad. Metalworking, 27 [5], 52-54 (1964).

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

1. Trends in high-temperature measurement: I.  
Hugh C. McIntyre.  
Canad. Controls and Instrumentation, 3 [3], 32-36 (1964).

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

Nil

b. Non-metallic materials

1. Molecular sieve sorbents from clinoptilolite.  
R.M. Barrer and M.B. Makki (Chemistry Department, Imperial  
College, London, England).  
Canad. Journ. Chem., 42 [6], 1481-1487 (1964).

2. On the pore structure of Vycor glass.  
D. Basmadjian and K.P. Chu (Department of Chemical Engineering, University of Ottawa, Ottawa, Ontario).  
Canad. Journ. Chem., 42 [4], 946-949 (1964).
3. Spin-lattice interaction experiments on colour centres in quartz.  
A.L. Taylor and G.W. Farnell (Eaton Electronics Laboratory, McGill University, Montreal, Quebec).  
Canad. Journ. Phys., 42 [4], 595-607 (1964).

c. Mixed materials

Nil

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

a. Metallic materials

Nil

b. Non-metallic materials

1. Experimental studies relating mineralogical and petrographic features to the thermal piercing of rocks.  
James A. Soles and Lorant B. Geller (Mines Branch, Department of Mines and Technical Surveys, Ottawa).  
Mines Branch Technical Bulletin TB 53, Department of Mines and Technical Surveys, Ottawa, Ontario. (January 28, 1964).

c. Mixed materials

Nil

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

a. Metallic materials

1. Gold: Part I. Its properties, occurrences and extraction.  
L. Sanderson.  
Canad. Min. Journ., 85 [4], 113-116 (1964).
2. Gold: Part II. Its compounds and uses.  
L. Sanderson.  
Canad. Min. Journ., 85 [5], 81-85 (1964).

b. Non-metallic materials

Nil

c. Mixed materials

Nil

G. Phase equilibria

Nil

H. Reactions at temperatures above 1000°C

1. Production of uranium carbide fuel elements.  
John H. Meyer (American Anaconda Brass Company, Waterbury, Connecticut, U.S.A.).  
Canad. Nucl. Techn., 3 [2], 60-63 (1964).
2. Gas-solid exchange reactions: Zinc vapour and poly-crystalline zinc sulphide.  
E.A. Secco (Chemistry Department, St. Francis Xavier University, Antigonish, Nova Scotia).  
Canad. Journ. Chem., 42 [6], 1396-1400 (1964).
3. The synthesis of anhydrous zirconium trichloride.  
B. Swaroop and S.N. Flengas (Department of Metallurgical Engineering, University of Toronto, Toronto, Ontario).  
Canad. Journ. Chem., 42 [6], 1495-1498 (1964).