

Mines Branch Information Circular IC 148

BIBLIOGRAPHY AND DIRECTORY OF HIGH-TEMPERATURE
CONDENSED STATES RESEARCH IN CANADA AND ELSEWHERE,
JANUARY-MARCH, 1963

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 January, February, March, 1963.

A list is given of laboratories and personnel engaged in high-temperature condensed states research in Germany, Austria and Switzerland.

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Direction des mines

Circulaire d'information IC 148

BIBLIOGRAPHIE ET RÉPERTOIRE DES RECHERCHES FAITES,
AU CANADA ET AILLEURS, SUR LES ÉTATS CONDENSÉS
À HAUTES TEMPÉRATURES, JANVIER - MARS 1963

par

Norman F. H. Bright*

RÉSUMÉ

Le présent rapport contient une bibliographie des études faites sur les états condensés à hautes températures, et publiées dans des revues scientifiques canadiennes en janvier, février et mars 1963.

On y trouve aussi une liste des laboratoires et des scientifiques qui s'occupent de telles recherches en Allemagne, en Autriche et en Suisse.

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CONTENTS

	<u>Page</u>
Synopsis	i
Résumé	ii
Introduction	1
Part I Bibliography of Work on High-Temperature Condensed States Published in Canada in January-March, 1963	3
Part II List of Laboratories and Personnel Active in High-Temperature Condensed States Research in Germany, Austria and Switzerland	7

INTRODUCTION

This report is a further contribution to the quarterly 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.

This present document contains a bibliography of work in this field published in Canadian scientific and technical journals during the period January, February and March, 1963.

Also included in this Information Circular is a list of laboratories and personnel engaged in high-temperature condensed states research in Germany, Austria and Switzerland. This list was compiled by Dr. A. Wittman of the Institut für physikalische Chemie der technischen Hochschule, in Vienna, Austria and was supplied to the author through the courtesy of Dr. J. J. Diamond, National Bureau of Standards, Washington, D.C. No claims are made as to the accuracy or completeness of this information.

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

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The writer is particularly anxious that anyone not currently receiving these reports, but who would wish to do so, should be added to the mailing list. Similarly, anyone currently on the mailing list to whom these reports are no longer of interest is requested to advise the writer accordingly, so that the name may be removed from the mailing list.

The writer also would very much appreciate being advised of any work published in Canadian journals, and lying within the scope of this bibliography, that has escaped his notice, in order that such work may be mentioned in a subsequent issue of these Information Circulars.

PART I

BIBLIOGRAPHY OF WORK ON HIGH-TEMPERATURE
CONDENSED STATES PUBLISHED IN CANADA
IN JANUARY-MARCH, 1963

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

Bibliography (January, February, March, 1963)

for Canada

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

- A. Devices for achieving temperatures above 1500°C
1. Electric Arc Furnaces.
J.H. Mortimer.
Canad. Mining Journ., 84 [1], 50-52 (1963).
- 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. Characteristics of solid tantalum capacitors.
H. Reiche.
Canad. Electronics Engg., 7 [3], 65-67 (1963).
 2. The diffusion of lithium in tungsten.
H.M. Love and G.M. McCracken.
Canad. Journ. Phys., 41 [1], 83-89 (1963).

b. Non-metallic materials

1. Heat transfer to clouds of particles.
N.J. Themelis and W.H. Gauvin.
Canad. Journ. Chem. Engg., 41 [1], 1-6 (1963).
2. Electromechanical properties of three experimental
lead zirconate/lead titanate ceramic compositions.
T.B. Weston,
Mines Branch Research Report R 100, Department of
Mines and Technical Surveys, Ottawa.
(July 27, 1962).

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

a. Metallic materials

nil

b. Non-metallic materials

1. Quartzite and jaspilite.
L. Sanderson.
Canad. Mining Journ., 84 [1], 58-61 (1963).

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

nil

G. Phase equilibria

1. An investigation of the aluminium-oxygen-carbon
system.
J.H. Cox and L.M. Pidgeon.
Canad. Journ. Chem., 41 [3], 671-683 (1963).
2. The system Al-Sb-Bi.
A.N. Campbell and J. Winkler.
Canad. Journ. Chem., 41 [3], 743-749 (1963).
3. The freezing points of high-purity metals as precision
temperature standards: VII. Thermal analyses on
seven samples of bismuth with purities greater than
99.999+%.
E.H. McLaren and E.G. Murdock.
Canad. Journ. Phys., 41 [1], 95-112 (1963).

H. Reactions at temperatures above 1000°C

1. The aluminium reduction of magnesium compounds: III.
The vapour pressure of magnesium over the system
Al-Mg₂SiO₄ (olivine).
K. Grjotheim, O. Herstad, R. Skarbø and J.M. Toguri.
Canad. Journ. Chem., 41 [3], 739-742 (1963).
2. Thermogravimetry of the dehydration of Mg(OH)₂.
R.C. Turner, I. Hoffmann and D. Chen.
Canad. Journ. Chem., 41 [2], 243-251 (1963).

Review Articles

1. Research policy in the mineral industry.
F.A. Forward.
Canad. Min. Met. Bull., 56 [609], 7-11 (1963).
2. Chemical metallurgy and the chemical industry.
F.A. Forward.
Canad. Journ. Chem. Engg., 41 [1], iii-vi (1963).
3. Technical advances in milling and process metallurgy
in Canada during 1962.
D.E. Pickett.
Canad. Mining Journ., 84 [2], 146-152 (1963).

PART II

LIST OF LABORATORIES AND PERSONNEL ACTIVE
IN HIGH-TEMPERATURE CONDENSED STATES
RESEARCH IN GERMANY, AUSTRIA AND
SWITZERLAND

GERMANY

Laboratory	Personnel	Research Area of Interest
Institut f. Metallphysik d. Universität, Göttingen.	P. Haasen H. Alexander M. Ashby B. Ilschner B.L. Mordike	Deformation and lattice vacancies in cubic (body- centered) structures (Ta, Nb); diamond structures (Si, Ge) of pure metals as well as poorly-ordered FeO.
Institut f. Werkstoff- technologie u. Allgem. Hüttenkunde d. Univ. d. Saarlandes.	W. Dawihl G. Altmeyer B. Frisch E. Hargarter	Surface chemistry and physics. Properties of materials at high temperatures, e.g., refractory hard metals and alloys.
Jenaer Glaswerk Schott u. Gen., Mainz.	Not specified	Refractory and super- refractory materials for the glass industry.
Lehrstuhl f. Struktur- forschung, Mineralog. Institut d. Univ. d. Saarlandes, Saarbrücken.	H. Saalfeld O. Jarchow H. Schulz	Al ₂ O ₃ modifications and their transition behavior; structure of Ca ₂ SiO ₄ .
Max Planck-Institut für Silikatforschung, Würzburg.	A. Dietzel H. Meyer H.J. Oel	Plasma generation; behavior of refractory materials in plasma rays; coatings on metals; sintering of pure metal oxides and cermets; wetting behavior glass/ metal/metal oxide.
Mineralog. Institut d. Universität, Erlangen-Nürnberg.	W. Forkel W. Lindemann	Vapor pressure of metals; transformations at high temperatures; crystal structures (chain silicates, germanates).
Philips Zentral- laboratorium GmbH., Aachen.	A. Rabenau E. Kauer S. Scholz	Properties of high-melting compounds; mechanisms of hot pressing.
Physikalisch-chem. Institut d. Universität, München.	G-M. Schwab E.F. Wittig	Catalysts; heat of formation of alloys.

Continued

Laboratory	Personnel	Research Area of Interest
AG d. Gerresheimer Glashüttenwerke, Düsseldorf-Gerresheim.	J. Kaden H. Petermöller	Refractory materials.
Anorgan. Chem. Institut d. Universität, Göttingen.	O. Glemser	Chemistry of the oxides.
Anorgan. chem. Institut d. Universität, Münster.	H. Schäfer H. Wiedemeier	High-temperature equilibrium; chemical transport reactions; non- stoichiometric compounds; niobium and tantalum chemistry.
Carl Zeiss Abteilung für Elektronenstrahlgeräte.	K.H. Steigerwald S. Panzer	Work on high-temperature materials with electron radiation.
Chemisches Laboratorium, Lehrstuhl f. anorgan. Chemie d. Universität, Freiburg-i.B.	G. Brauer H. Bärnighausen W. Kern G. Kühner	Preparation, structure chemistry and phase equilibria of rare metals, alloys and simple binary metal/non-metal compounds.
Didier-Werke AG Forschungsinstitut, Wiesbaden-Biebrich.	S. Kienow F. Klasse R. Kancz H. Bosch M. Seeger	Refractory building materials; scorification processes; microscopic investigation of corroded stone.
Forschungsinstitut f. Edelmetalle und Metallchemie, Schwäbisch-Gmünd.	E. Raub W. Fritzsche O. Loebich E. Roeschel	Phase diagrams of high- melting alloys; dependence of properties on degree of purity of high-melting metals; high-temperature properties.
Fritz Haber-Institut d. Max Planck-Ges., Berlin.	I.N. Stranski	Reactions of gases in metal melts.
Institut f. Eisenhütten- wesen d. Rhein.-Westfäl., Technischen Hochschule, Aachen	H. Schenck M.G. Froberg M. Nacken E. Schmidtman W. Wenzel	Equilibria and kinetics of slag; ore-metal-gas reactions at high temperatures; physical properties and constitution of fluid metals and slags; oxide systems and phase equilibria; technology of iron smelting processes.

AUSTRIA

Laboratory	Personnel	Research Area of Interest
Forschungsanstalt d. Gebr. Böhler u. Co., Kapfenberg, Steiermark.	E. Plöckinger R. Blösch A. Kulmburg H. Ornig K. Swoboda H. Straube	Phase equilibria and transformations at high temperatures; structure of steel; high-temperature industrial materials; industrial materials for reactors; deformability of metals; welding processes.
Institut f. chem. Technologie anorg. Stoffe d. Techn. Hochschule, Vienna.	E. Eipeltauer G. Jangg	The system clay-earth- silicic acid; high refractory concrete; alloys of high-melting metals.
Institut f. Physikal. Chemie d. Techn. Hochschule, Graz.	K. Torkar H. Krischner	Preparation, reactivity and thermodynamic properties of aluminum hydroxides and oxides.
Institut f. Physikal. Chemie d. Techn. Hochschule, Vienna.	A. Wittmann	High-melting compounds; structure investigation on oxide systems (germanates).
Institut f. Physikal. Chemie d. Universität, Vienna.	H. Nowotny R. Kieffer H. Goretzki E. Laube	High-melting compounds; crystal structure and magnetic measurements; powder metallurgy.
Metallwerk Plansee AG, Reutte/Tirol.	F. Benesovsky K. Sedlatschek E. Rudy E. Pipitz	High-melting metals; hard metals; hard materials; sintered industrial materials.

SWITZERLAND

Laboratory	Personnel	Research Area of Interest
Institut f. Kristallographie u. Petrographie d.E.T.H., Zürich.	F. Laves G. Bayer O.W. Flörke W. Petter H. v. Philipsborn	Crystal chemistry of oxides and intermetallic compounds.
Physikal. Anstalt d. Universität, Basel.	K. Wieland	Gas equilibria of metal halogens.

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