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**Bibliography of the Technical Literature
of the Metals and Ceramics Division
1970 Through 1974**

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METALS AND CERAMICS DIVISION

BIBLIOGRAPHY OF THE TECHNICAL LITERATURE
OF THE METALS AND CERAMICS DIVISION
1970 THROUGH 1974

Compiled and edited by
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The subject headings were selected and the modifiers were written by the authors of the publications listed. The computer material entry was prepared by Judy Young of the Metals and Ceramics Division Reports Office. The subject and author indexes were produced by the Computing Technology Center under the direction of E. J. Nall, using a program developed by M. H. Roe.

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ABSTRACT

This is a bibliography of the scientific information originating in the Metals and Ceramics Division during 1970 through 1974. The master listing contains 925 references for which both subject and author indexes are provided.

INTRODUCTION

This document contains the written scientific information originating in the Metals and Ceramics Division of the Oak Ridge National Laboratory during 1970 through 1974. It is the third document issued as ORNL-4270. The first issue (Vol. 1) included the publications originating in the Metals and Ceramics Division and the divisions performing materials work that were forerunners of this division; it covered the period from 1948 through June 30, 1967. This document was updated through 1968, including corrections and additions, and issued as ORNL-4270, Vol. 1, Rev. Volume 2 contained the literature for 1969.

DESCRIPTION OF THE BIBLIOGRAPHY

This document contains 925 separate citations and is presented similarly to previous issues: (1) master chronological listing in which each entry is given in complete bibliographic form, (2) subject index, (3) author index, (4) ORNL topical "numbered" reports, and (5) ORNL Technical Memorandum "numbered" reports.

Master Listing

The master listing is simply a registry of documents as nearly as possible in the order in which they were issued. This complete listing is the data base from which the other indexes are derived. Each entry is presented in complete bibliographical form in accordance with the *ORNL Style Guide*. Citations of articles that appeared in journals, for

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example, include author, title, name of journal, volume number and/or issue number, paging, and date; references to reports show author, title, report code, sequential number, and date of issuance. The abbreviations for journals are those given in the *Chemical Abstracts Service Source Index* current at the time of indexing.

A separate identifying code number appears at the left of each entry to facilitate handling, particularly machine indexing of subject content. This code consists of three component parts, as shown in the example:

Subject Index

The subject index follows rather closely the philosophy of the USAEC Technical Information Center in their publication of *Nuclear Science Abstracts*. Hence it uses thesaurus control of terminology and is prepared by a computer program compatible with thesaurus indexing.

The main entries in the index are generally specific materials, things, and processes. These are followed by modifiers that describe the properties of, and processes applied to, the main entries.

The number preceding the colon is the year of appearance, and the number following is the serial number within that year. References to report numbers immediately precede the serial number. Journal references are indicated by (J) and book references by (B).

Multicomponent alloys and systems, except well-known trade names, are indexed under a main heading in the form "element" or "element alloy" for each component. The modifier begins with element symbols for each component arranged alphabetically. Multicomponent systems and mixtures of inorganic compounds are indexed under the main heading for each component compound; the modifiers begin with an alphabetical listing of compound formulas.

The modifiers appearing under a main heading are written specifically to show the relation between the item being indexed and the main heading. The modifier, therefore, contains a maximum of useful information. The modifier begins with the word judged to be of greatest use to the greatest number of users; this, however, does not obviate the need to consider all modifiers under the main heading(s) of interest.

Modifiers usually form meaningful phrases when combined with the main heading. Some are intended to be read following the main heading, e.g., the entry *SPECIFIC HEAT - measurement by pulse calorimetry* is read "specific heat measurement by pulse calorimetry"; however, as a result of placing the important word first, many modifiers must be arranged for smooth reading, e.g., *URANIUM - crystal structure of, effect of cooling rate on allotropic transformation in* is read "effect of cooling rate on allotropic transformation in crystal structure of uranium."

Author Index

The classified subject index is followed by an author index containing all entries appearing in the master list, but rearranged and listed alphabetically by surname and initials of the author. In cases of multiple authorship, the entry is repeated under the name of each individual. Staff members, alumni, and personnel assigned to the division are included. When several publications are recorded for a given author, entries appear alphabetically followed by the year of appearance and the identifying serial number to provide easy reference to the complete bibliographical citation in the master list. This index should assist researchers in finding either a specific reference or all written work of an individual, regardless of subject matter.

Special and Cross Indexes

For convenience, all ORNL topical reports and technical memorandums written by Metals and Ceramics Division personnel are listed numerically with the code showing their location in the main listing.

Availability of Materials Referenced

There is no single source at the Oak Ridge National Laboratory for all the information presented. Copies of patents are on file in the ORNL Patent Section, Law Department, and are available from the U.S. Patent Office, Washington, D.C. Periodicals are on the shelves of the Central Research Library and are available from the publishers. Copies of ORNL topical reports and technical memorandums are on file in the Document Collection of the Central Research Library, in the Laboratory Records Department, and in the Metals and Ceramics Division Reports Office. Theses not issued as topical reports or technical memorandums but shown in the Master Listing are on file in the Metals and Ceramics Division Reports Office. Reprints of open literature articles can usually be obtained from the authors. Copies of documents issued by the Oak Ridge National Laboratory or other governmental agencies are in most cases available for purchase from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161.

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