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MISCELLANEOUS METALS AND MINERALS

History of the Miscellaneous Metals and Minerals
Division of the National Production Authority

U. S. DEPARTMENT OF COMMERCE
NATIONAL PRODUCTION AUTHORITY
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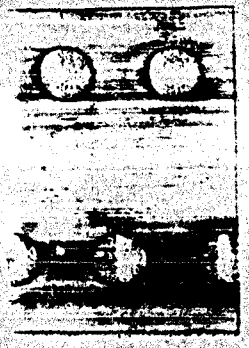

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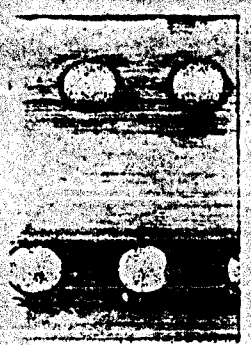
I. ORGANIZATION AND FUNCTIONS





Background

The Miscellaneous Metals and Minerals Division was included in the plans for the National Production Authority when that agency was established. Officially, however, its operations did not begin until its budget was established on July 11, 1951. Mr. F. H. Hayes was appointed as the first director of the Copper Division and was also responsible for the assignments that were considered as the Miscellaneous Metals and Minerals Division. He continued in this capacity until April 6, 1951 when Mr. Harry B. Sharpe was appointed as acting director of the new Miscellaneous Metals and Minerals Division. Mr. Sharpe was well qualified for this position, having been assistant to the director of the Miscellaneous Minerals Division of the War Production Board and having governmental responsibility for these assignments during most of the interim period. He became Deputy Director on October 4, 1951, when Mr. William A. White, Sr. was appointed to the position of Director. Mr. White had had exceptionally broad experience in industry including the production and processing of minerals, as well as a broad knowledge of their occurrence and uses. During World War I he was associated with the War Trade and War Industries Board, especially in compiling the Tungsten Report. From 1943 to 1949 he was Administrative Director of Union Mines Development, Union Carbide and Carbon Corporation, operating a secret Government contract with the Manhattan Project (now the Atomic Energy Commission) evaluating world resources of a strategic metal. He continued as director until October 1, 1952, when the assignments of the Tin, Lead, and Zinc Division were consolidated with ours and Mr. Erwin Vogelsang became director of the combined division. Mr. Vogelsang was particularly well qualified for this assignment, being familiar with the operations of both government and industry. During World War II he was Director of the Tin, Lead and Zinc Division of the War Production Board and has continued to have governmental responsibility for those assignments. Prior to World War II he was active in various phases of the non-ferrous metals and minerals industries.

This Division is responsible for more than 100 active assignments, which includes practically all the metals and minerals except those assigned to the other three metals divisions and in turn they are covered in other parts of the history of NPA. The assignments and responsibilities of this Division are similar to those of the former Miscellaneous Minerals Division of the War Production Board. The latter agency was succeeded by the Civilian Production Administration on November 2, 1945, and, at that time, our present assignments were placed in the hands of Mr. F. H. Hayes as Director of the Minerals Division. Under his able guidance the problems diminished and the responsibility for the assignments passed through the Office of Liquidation and the Office of Materials Distribution into the Office of Industry and Commerce in the Department of Commerce. The problems that developed after World War II and prior to the Korean conflict were comparatively minor and Mr. Hayes was able to handle

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them with a skeleton force and with the benefit of skilled advice from specialists who were maintained on a consultant basis.

Assignment of Materials and Products to the Division

Officials of the Division worked closely with the Division of Product Assignments in determining our assignments and responsibilities. It is important that all minerals, no matter how seemingly unimportant they may be, should be definitely assigned to a particular division and the limits of the responsibilities clearly defined. Some 300 mineral products were assigned here with the expectation that only a few would become sufficiently critical to justify careful study or to need definite control. The fact that many of these metals and minerals are of foreign origin imposes an additional problem that becomes particularly serious in times of emergency. The assignments were confined to materials wherever it was practical to do so. In some cases, it was not desirable or satisfactory to divide the responsibility between the raw materials and the end products, with the result that some manufactured products were also assigned to this Division. Such assignments include some ceramic and glass products, asbestos products, fiber glass, and artificial graphite and carbon products.

An Inter-agency question developed as to the area of responsibility for the production of minerals. Officials of this Division met with officials of the Department of the Interior and agreed that Defense Minerals Administration in the Department of Interior should be responsible for the production of minerals, and that the responsibility should generally carry through the first stage of processing. This resulted in the issuance by National Production Authority of Delegation 5, which conferred to Defense Minerals Administration the necessary authority to develop a plan for the expansion of mineral production, and defined the limit of their authority in processing the ores. An important factor in making this decision was that the manufacturers of underground mining machinery were, in many cases, the makers of the surface equipment used in the early stage of processing. In many cases, "surface equipment" could not be generally defined as distinct from "underground equipment" and by combining the assignments in one agency, the manufacturers could present their problems and obtain assistance more readily.

The following chapters represent the story of many critical and strategic metals and minerals and the part they have played in building up our defense and the actual implements of war. New uses have been developed largely through the urgency of our defense effort and many of our assignments have moved from a relatively obscure place in the industrial realm to the critical list of most needed items. The materials, almost without exception, are little known to most people but they are basic industrial materials, upon which depend many of the end products which are so familiar to the general public.

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Staffing Problems

The problems confronting the Division continued to mount through 1951 and it became extremely important that competent help be obtained as rapidly as possible. Because most of the assignments are so highly specialised that few people are familiar with the general or detailed problems encountered in handling them, it was a continuous problem until long after the other divisions were fully staffed. By the end of 1951 approximately 50 people were employed in the Division and were becoming acquainted with the various problems that had developed, but the services of specialists in some fields were still lacking. The better supply of most metals during 1952 was reflected to some extent in the assignments of this Division. Shortages in the supply of metals assigned to the Tin, Lead and Zinc Division had almost entirely disappeared and for a more efficient operation of the two divisions they were combined on October 1, 1952. As the problems became lighter it was apparent that some of the personnel was no longer needed and substantial reductions were made during late 1952 and early 1953. The lack of specialists, however, was severely felt during the entire period.

Development of Controls

Most of the assignments in this Division represent industries consisting of, or dominated by, one or a very few companies. It has been desirable, therefore, to discuss the individual problems of each industry and give such informal assistance as was deemed necessary without the formality of actually issuing controlling orders. In other cases, it has been necessary to institute controls and the following orders have been issued:

M-54 - Platinum
M-66 - Artificial Graphite and Carbon Electrodes
M-91 - Selenium
M-96 - Spinning Grades of Chrysotile Asbestos Fiber
M-99 - Cryolite
M-102 - Crushing Bort, Diamond Powder or Dust and unclaimed Diamond Material

Particular problems necessitating the issuance of each of the above orders are discussed in detail in following parts of this history and copies of each of these orders are attached. The lack of similarity between these orders should be noted. It is indicative of the various types of problems encountered in this Division. The orders themselves are a cross section of every type of material conservation order that has been issued during this emergency. Easing of material shortages caused study to be given to the lightening of some of the restrictions imposed by these orders.

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Establishment of Committees

The need for advice from industry could best be met by establishing Industry Advisory Committees. Careful consideration was given to the membership of these committees and the advice given by them was valuable in planning actions and controls over the various industries they represented. Through this medium the industries were also kept informed of policies, regulations and actions of the National Production Authority, with regard to matters relating to their particular field. Pending actions were discussed and their suggestions were solicited. Advice was solicited from the members concerning methods of increasing stringent supplies and controlling most effectively the distribution of most materials. The following Advisory Committees were established:

Artificial Graphite Producers
Asbestos Fibre & Textile Manufacturers
Automatic Machine Made Glass Tumbler, Table, Kitchen and Cooking Ware
Built-Up Mica Manufacturers
Carbon Brush Manufacturers
Condenser Mfrs. & End-Use Raw Mica Fabricators
Custom Raw Mica Fabricators
Frit Manufacturers
Graphite Crucible Manufacturers
Handmade Stem, Table and Art Glassware
Industrial Diamonds
Kyanite and Mullite
Mica Importers
Natural Graphite Importers-Processors
Platinum
Selenium Producers
Semi-Vitreous Dinnerware
Steatite Electrical Porcelain
Technical, Scientific, Illuminating and Industrial Glassware
Vitrified Chinaware

The recommendations of these committees were very important in developing controls of all types and in many cases, we were able to avoid formal control actions through the cooperation of the committees or their individual members. The activities, objectives and accomplishments of these committees are discussed at length in the individual commodity reports which comprise ensuing parts of this history.

To insure a complete understanding by other government agencies of proposed controls and other pending actions, a Division Requirements Committee was established in June 1951. It has not been necessary to call a meeting of the entire committee but all interested members have been regularly called together for meetings on Cryolite and on Selenium. Details concerning these meetings are discussed in appropriate parts of this history.

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In addition to these committees, personal contacts were maintained with most of the other government agencies. Harmonious relations were maintained at all times for the mutual exchange of data. The advice obtained from these specified sources has been valuable and care should be exercised to continue the usefulness of their services.

The Controlled Materials Plan

The diversified assignments in this Division include twelve items classed as "B" products under the Controlled Materials Plan. Approximately 100 original applications for controlled materials were received. After carefully screening these applications we have alloted about 3500 tons of carbon steel, 75 tons of alloy steel, 175,000 pounds of stainless steel, 700,000 pounds of Brass Mill copper, 230,000 pounds of Wire Mill copper, 1,500,000 pounds of Foundry copper and 150,000 pounds of Aluminum to them per quarter. In each code the amount of controlled materials used was small when compared with the other materials needed, or when compared with the value of the finished products. The Defense Production Administration, through its Requirements Committee, recognized that fact and supplied us with the necessary materials to meet our manufacturing needs. Questions arose concerning the "B" product classification of some items, but, in each case, the benefit of the doubt was given in favor of the manufacturer and the applications were processed in regular manner. In no case was a manufacturer forced to shut down or curtail his operations because of the lack of an allotment of controlled materials. The procedure allowing self-certification reduced our number of original applications to 22 for the second quarter of 1953.

Establishment of Branches and Sections

The diversification of assignments necessitated a large number of operating sections within the Division. A total of 13 sections were established and in nearly every case the problems and responsibilities were entirely different and apart from those of the other sections. The sections, however, were grouped into two operating branches as shown in the accompanying chart. The transfer of the assignments of the former Tin, Lead and Zinc Division into this Division on October 1, 1952 necessitated changes within the Division. The old operating branches and sections were terminated and one new operating branch established which included three new sections. The old sections became units within the newly created sections. Actually, the unit chiefs continued to maintain close contact with the Office of the Director.

To perform necessary staff services within the Division, the Program and Requirements Branch was established with the responsibility for all programming and statistical activities within the Division, as well as to administer all DMP, tax amortization, loans, industrial expansion and priority actions, and to perform necessary services for the various committees.

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II. ASBESTOS AND FIBROUS GLASS

In setting up the Asbestos and Fibrous Glass Section, the determining factor for assigning these products to the same Section was the interchangeability of these materials in the electrical and thermal insulation fields. Among the responsibilities of this Section, whose activities covered not only the basic materials, but also the many diversified end products fabricated from these materials, were the following:

Preparing reports on Loan Applications
Preparing reports on Requests for Tax Amortization
Priority Assistance
Directive Assistance
Assembling Supply and Requirement data
Rendering informal assistance to both Government agencies and industry members

Even before the Section was established, a shortage of spinning grades of asbestos had already developed, brought about mainly by increased requirements of the military. This in turn was due to the accelerated naval and air force programs, as these two branches of the services are the major consumers of products fabricated from both asbestos and fibrous glass.

Therefore, our immediate problem was to ascertain the extent of this shortage and to take whatever steps were necessary to bring these supply and requirement positions into balance. Since each of the basic types of asbestos and fibrous glass presented individual problems, the manner in which they were handled is shown in the discussion of the various types, which follows.

Chrysotile Asbestos

(a) Strategic grades - Rhodesian C & G 1 and C & G 2.

This is a fibrous mineral composed of silicon, magnesium, oxygen and hydrogen, formed as an alteration product in serpentine rock. Because of its low iron content, it is used almost exclusively in the manufacture of tape and roving for use in production of Navy cable and other electrical products. To a much lesser extent, it is also used in the manufacture of Navy types B and D cloth, for use where high temperatures are involved. These grades of asbestos are mined in Southern Rhodesia, the sole producer being Turner-Newall, Ltd. of London, England. In addition to the Rhodesian source of supply, there is a limited tonnage of low-iron chrysotile mined in the Globe area of Arizona. Plans are now being developed by DMPA to expand the Arizona operations.

(b) Canadian chrysotile (Spinning grades)

Canadian chrysotile asbestos fiber has a higher iron content than the Rhodesian fiber, and is therefore unsuited for use in Navy cable and other high grade electrical insulation. The main uses of Canadian fiber are in the production of yarn, tape, and textiles, friction materials, packings gaskets, wicking, etc. The main source

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of supply is in the Thatford Mines area of the Province of Quebec. Other deposits are at Asbestos, Quebec, and there are scattered deposits throughout the entire provinces of Ontario and Quebec. An extensive deposit was recently discovered in British Columbia, and a mill and other facilities are now being erected, which, it is estimated, will produce from 6,000 to 10,000 tons of spinning fiber annually. Preliminary tests of this fiber indicate it to be of low iron content, and it may prove to be of stockpile quality.

Action taken

In order to get an accurate picture of the inventory, supply and production patterns, we initiated a reporting form through the Bureau of Mines, Form 6-1212X, entitled "Report on Asbestos Textiles and Chrysotile Asbestos Fiber." This report was sent to all users of record, and the information gained therefrom gave us exact figures as to the production of the industry for 1950 and the first six months of 1951, as well as the inventory position, receipts, and consumption of fiber for these periods. In order to attempt to reconcile the shortage of fiber with the increase in requirements, we took immediate steps to limit the use of strategic and spinning grades of chrysotile asbestos to those end uses considered most essential. To assist us in formulating this policy, we established the Asbestos Fiber and Textile Manufacturers Industry Advisory Committee, composed of the following industry members:

A. J. Scanlon, American Asbestos Textile Corporation
Norristown, Pennsylvania

John G. Schoepf, Asten-Hill Manufacturing Company
Philadelphia, Pennsylvania

C. H. Carlough, Carolina Asbestos Company
Davidson, North Carolina

R. J. Hinkle, The Garlock Packing Company
Palmyra, New York.

Frank J. Wakem, Johns-Manville Corporation
New York, N. Y.

Ernest Muehleck, Keasbey & Mattison Company
Ambler, Pennsylvania

J. A. Bettes, Jr., Raybestos-Manhattan, Inc.
Manheim, Pennsylvania

Custan Walters, The Russell Mfg. Company
Middletown, Connecticut

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George S. Fabel, Southern Asbestos Company
Charlotte, North Carolina

T. C. McCluskey, Tallman-McCluskey Fabrics Company
Kirkwood, Missouri

R. E. Cryor, Union Asbestos & Rubber Company
Chicago, Illinois

H. E. Sunbury, United States Rubber Company
New York, N.Y.

This committee was called in July 1951, to discuss the general situation. It was decided to postpone any definite action until further consideration could be given as to what steps should be taken. The committee was again called in October 1951, by which time a proposed order limiting the uses of strategic and spinning grades of chrysotile fiber had been set up in draft form. Further discussion with industry members and representatives of the military resulted in the issuance of NPA Order M-96, which became effective February 1, 1952. This order has unquestionably been of great value in channeling the strategic and spinning grades of chrysotile asbestos fiber into the most essential end uses. In addition to limiting the use of these grades of fiber to certain end uses, the order also restricted the manufacture of a limited use of end products to percentages of a base period. This latter restriction was in effect a compromise between the thinking of the military, who favored complete elimination of these items (theatre safety curtains, gun covers, ironing board covers, passenger car woven brake linings less than 1/4 inch thick by 2 inches wide, and oil burner wicking) and the thinking of the industry members who felt that no restrictions need be placed on these items.

Despite the favorable effects of Order M-96, it became apparent in the Spring of 1952 that the Navy requirements for lagging cloth could not be met with the supply of fiber that was available to American industry. A third meeting of the Industry Advisory Committee was called in May 1952 for the purpose of examining the defense requirements in the light of the total problems of the industry, and to see what action could be taken to meet these requirements. One of the industry members had developed a combination yarn, in which staple glass fiber was substituted for approximately 20% of the asbestos fiber content, and samples of Navy types B and D cloth had already been submitted for testing to the Naval Research station at Annapolis. At this meeting, the Navy agreed to accept this type of cloth providing it passed the tests. It was decided that the Navy requirements could be met by the acceptance of this combination cloth. We were subsequently advised that this material had been approved by the Naval Research station, and the industry was so advised.

In addition to the Asbestos Fiber and Textile Manufacturers Industry Advisory Committee, the following Industry Advisory Committees were also set up:

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85% Magnesia Manufacturers
Mechanical Packings and Gaskets Manufacturers
Friction Materials Manufacturers
Asbestos-Cement Producers

It was not necessary to call any of these four committees in, as there were no problems of sufficient importance to necessitate such action.

Recommendations

1. Since present supply is inadequate for actual requirements, assistance through DMEA and DMPA is urged where necessary to bring in new deposits and to expand present known deposits.

2. In the event of full mobilization, complete allocation should be established, patterned after the system of allocation used in World War II under WPB Orders M-79 and M-283.

3. Continued research on removing the iron content of Canadian fiber to permit its substitution for Rhodesian fiber in the manufacture of electrical insulation.

4. Negotiations through high levels to secure a larger allocation of Rhodesian chrysotile for Government purchase for the stockpile.

Amosite Asbestos

This type of asbestos, which is a ferrous magnesium silicate, is the preferred type for the manufacture of turbine blankets and other forms of Marine insulation. Its one superior property is resilience and regain of loftiness after exposure to water. In the lower grades, M-1 and below, the chief use is in the production of 85% magnesia insulation.

Amosite has been in very short supply for a number of years. While the supply at the mines in the Union of South Africa has been increasing since World War II, the sole supplier, Cape Asbestos Company of London, England, have been diverting their supply of fiber to their own manufacturing plants and to the world market, with a resultant decrease in shipments to this country. It has become necessary for the 85% Magnesia industry to substitute Canadian fiber, in some cases, as high as 50% of their mix because of their inability to get Amosite.

American industry is now using the strategic grades of Amosite only for military end use items. The Navy has an approved specification for turbine blankets using fibrous glass instead of Amosite, and although the cost of the glass is several times that of asbestos, it may become necessary, in the event the supply of Amosite continues to dwindle, to resort to the use of glass fibers for this purpose.

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There are no controls on Amosite at present, but it is now proposed to amend NPA Order M-96 to restrict the use of the strategic grades for the production of military end use items only. This will, in effect, make mandatory what the industry is already doing, but such action is felt necessary in view of the short supply of Amosite Fiber.

Crocidolite Asbestos

Crocidolite, or blue asbestos, is a silicate of iron and sodium. The outstanding advantage of this type of fiber is its high resistance to acids and alkalies, which makes it superior for certain types of packing and gasketing material. It is also used extensively as a filter medium. There are two sources of supply - The Union of South Africa, from which we receive all of our supply for industrial and commercial use; and Bolivia, from which we receive the stockpile grade. The Bolivian fiber is being purchased only for the stockpile and for use by the Army Chemical Corps for production of gas mask filters.

The South African crocidolite has presented no problem to date, as the supply has been adequate. The production of Bolivian crocidolite has not been sufficient to meet all requirements, and discussions have been held with other agencies to promote expansion of present mining facilities as well as exploration of new resources. Action is, at present, delayed on this matter because of the internal situation in Bolivia.

There have been no controls placed on crocidolite asbestos to date, nor are any deemed necessary, due to the fact that the United States Government is the sole purchaser of the strategic Bolivian fiber, and there has been no shortage of the African fiber.

Fibrous Glass

Fibrous glass, for which military uses were established during World War II, was in short supply at the outset of the Korean conflict. These uses are - (1) as a substitute for Kapok fiber in the manufacture of life belts, (2) electrical insulation for Navy and other electric cable, (3) thermal insulation for aircraft, (4) as an extender for asbestos fiber in the production of Navy lagging cloth, (5) as a substitute for amosite fiber in the production of Navy felt. The Fibrous Glass Industry, recognizing the increasing requirements for their products, had already started expanding, and it became the duty and responsibility of this Section to assist the members of this Industry through priorities assistance, and consideration of the various applications for tax amortization and loan applications which were filed by members of this Industry. In order to bring this expansion up to requirements, an expansion goal was finally established by DPA for the Fibrous Glass Industry covering the two main products, continuous filament textile fiber and superfine fiber.

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In setting up this expansion goal, requirements were promised on the total military and essential civilian needs through a period embracing total mobilization. Because of the fact that the basic fiber producers do not fabricate many of the end use products, many of the requirements included in essential civilian figures are in reality military requirements. The information required to establish the expansion goal figures was secured (1) from the anticipated requirements of the military as established by the Munitions Board and (2) from actual sales figures furnished to this Section by the leading members of the Industry.

The total requirements, as set forth in Expansion Goal No.116, are 86,400,000 pounds of continuous filament and 18,300,000 pounds of superfine annually. Due to the expansion of facilities already under taken by industry members, plus new facilities which have come into the picture as a result of Government assistance, both of these goals have been met.

No controls were placed on fibrous glass, although it was necessary several times in 1951 to place directives on industry members to secure certain military requirements within a specified time. It is now felt that this industry will be able to handle all foreseeable requirements without further expansion.

Raw materials used in the production of fibrous glass are all of domestic origin, and therefore have presented no problems.

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