

Avery-Abex Metallurgical Collection

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c. 1920s-1987



Title Statement

Avery-Abex Metallurgical Collection Avery-Abex Metallurgical Collection, c. 1920s-1987 Ms.1995.025

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Profile Description

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Language Usage: Description is written in: English, Latin script.

Descriptive Rules: Describing Archives: A Content Standard

Descriptive Summary

Unit ID

Ms.1995.025

Unit Date

c. 1920s-1987

box

Metallurgical Samples

box

Unprocessed papers and photographs

box

Processed boxes

oversize

1 (folder)

Language

The materials in the collection are in English.

Abstract

The American Brake Shoe (later Abex) Company was formed in 1902 from the merger of five smaller foundries that specialized in railroad brake shoes, castings and forging, as well as hydraulic equipment. The research laboratory, known as the Mahwah Research Center, from which the collection is drawn, did applied industrial research, but was closed in 1990. Howard Avery (1906-1996), VPI graduate (B.Sc. MinE 1927, M.Sc. MinE 1928), was one of the center's leading research metallurgists. Collection includes research data of the properties of metals conducted by The American Brake Shoe Company (later Abex). Materials include research files, photographic materials, polymer resin-encased specimens, publications, and more.

Creator

American Brake Shoe Company

Creator

Avery, Howard S. (Howard Shaeffer), 1906-1996

Extent

248 Cubic Feet 165 boxes; approx. 100 feet of metallurgical samples in cases

Physical Location

Please note: This collection is in off-site storage and requires 2-3 days notice for retrieval. Please contact Special Collections and University Archives for more information.

Repository

Special Collections and University Archives, Virginia Tech

Administrative Information

Condition Governing Access

The collection is open for research.

Conditions Governing Reproduction and Use

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Reproduction or digitization of materials for personal or research use can be requested using our reproduction/digitization form: <http://bit.ly/scuareproduction>. Reproduction or digitization of materials for publication or exhibit use can be requested using our publication/exhibition form: <http://bit.ly/scuapublication>. Please contact Special Collections and University Archives (specref@vt.edu or 540-231-6308) if you need assistance with forms or to submit a completed form.

Source of Acquisition

The collection was donated to Special Collections and University Archives in multiple accruals from 1995-1997. One report donated in 2006.

Processing Information

Minimal description and some processing was undertaken in 1998 and 1999.

Please note: The collection is being processed. An in-progress inventory of the collection is available upon request. Please contact Special Collections and University Archives for more information.

Preferred Citation

Researchers wishing to cite this collection should include the following information: [identification of item], [box], [folder], Avery-Abex Metallurgical Collection, Ms1995-025, Special Collections and University Archives, Virginia Tech, Blacksburg, Va.

Administrative History - American Brake Shoe Company (later Abex Corporation)

The American Brake Shoe Company was formed as the American Brake Shoe and Foundry Company in 1902 from the merger of five smaller foundries that specialized in railroad brake shoes, castings and forging, as well as hydraulic equipment. The research laboratory, known as the Mahwah Research Center, from which the collection is drawn, did applied industrial research in mineral extraction, cement, construction, dredging, timber, railroad, and non-magnetic (e.g., submarine). Testing facilities included metallographic evaluation, chemical analysis, machining, heat treatment, various non-destructive methods such as x-ray testing, abrasion, physical, and mechanical analysis. In 1966, the company became Abex Corporation, and upon the purchase of Abex by Illinois Central Industries in 1990, the research center was closed.

Biographical Note - Howard S. Avery

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The materials forming the collection were rescued from destruction by Mr. Howard Avery (1906-1996), VPI honors graduate (B.Sc. MinE 1927, M.Sc. MinE 1928), one of the Mahwah Research Center's leading research metallurgists, with a national reputation in the field of wear-resistant and heat-resistant alloy research. His research career spanned 60 years, and his work included metals abrasion wear resistance analyses; hard surface facing and welding; manganese steel; and high chromium stainless steel; with primary areas of specialization being alloys utilized for railroad tracking, as well as austenitic manganese steel (alloy composition and heat treatment analysis).

Scope and Content

The collection documents the research of metallurgist Howard S. Avery over the span of 50 years at the American Brake Shoe (later Abex) Company's Mahwah Research Center. Research topics concern mechanical properties, metallographic alloy microstructure, physical (electrical, conductive, or thermal) properties, spectroscopy (chemical) analysis, tribology (sliding and lubricant properties), and light, x-ray and other defractional properties. Data is available from experimental foundry "heats" of combined and melted alloys, hot tensile and room temperature tensile tests, and alloy compositions. Research data is recorded on glass negatives (photomicrographs) and metallographic photographs, in polymer resin-encased specimens (ca. 40,000), "Polaroid" negatives and prints, and ca. 3,000 case files (paper and microfiche). There are also master log books and a listing of compositions on keypunch cards, some of the Battelle Institute Research Reports, as well as research related publications and reference books.

Please note: The collection is being processed. An in-progress inventory of the collection is available upon request. Please contact Special Collections and University Archives for more information.

The following are common abbreviations or acronyms found in the collection:

- HSA - Howard S. Avery
- HRA - Heat Resistant Alloy(s)
- CRA - Corrosion Resistant Alloy or Alloys
- HSWR - Hard Surfacing Welding Rod
- ASM - American Society for Metals
- ACI - Alloy Casting Institute
- L.S. - Lantern slides, usually these are glass slides or plastic transparencies
- Chemical symbols - Used for chemical elements and compounds, such as γ Mn St for Austenite Manganese Steel

Separated Materials

Numerous books were separated to the Rare Book Collection and Newman Library. Duplicates were weeded.

Some of Avery's personal papers and early professional papers were separated to Howard S. Avery Papers, Ms1997-026.

Related Archival Materials

VT Special Collections and University Archives also has the Howard S. Avery Papers, Ms1997-026, which primarily relates to Avery's personal and professional life in Virginia.

The Mahwah Museum in Mahwah, New Jersey, holds the Howard Avery Archives and the American Brake Shoe & Foundry Collection. Some of the American Brake Shoe Collection is available online in the Mahwah Digital History Archive.

Keywords

Administrative records
Businesspeople
Inventors
Science and Technology
Metallurgy
Geology

Rights Statement for Archival Description

