

**AEROSPACE  
MATERIAL  
SPECIFICATION**



**AMS 7903B**

Issued APR 1991  
Revised SEP 2001  
Cancelled MAY 2006

Superseding AMS 7903A

Beryllium Bars, Rods, Tubing, and Shapes  
4.25Be0 - 94Be  
High Micro-Yield Strength

**CANCELLATION NOTICE**

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of May, 2006. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications indicating that it has been "CANCELLED".

Cancelled specifications are available from SAE.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2006 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

**TO PLACE A DOCUMENT ORDER:** Tel: 877-606-7323 (inside USA and Canada)  
Tel: 724-776-4970 (outside USA)  
Fax: 724-776-0790  
Email: [custsvc@sae.org](mailto:custsvc@sae.org)  
**SAE WEB ADDRESS:** <http://www.sae.org>

## 1. SCOPE:

### 1.1 Form:

This specification covers beryllium in the form of bars, rods, tubing, and machined shapes fabricated from vacuum hot pressed powder.

### 1.2 Application:

These products have been used typically for parts requiring a combination of high strength-to-weight ratio, high micro-yield strength, high modulus of elasticity, and excellent dimensional stability, but usage is not limited to such applications.

### 1.3 Safety - Hazardous Materials:

While the materials, methods, applications and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

#### 1.3.1 WARNING: Beryllium Product: Inhalation of dust or fumes may cause serious chronic lung disease. Potential cancer hazard is based principally on animal tests.

## 2. APPLICABLE DOCUMENTS:

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been canceled and no superseding document has been specified, the last published issue of that document shall apply.

### 2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or [www.sae.org](http://www.sae.org).

AMS 2806 Identification, Bars, Wire, Mechanical Tubing, and Extrusions, Carbon and Alloy Steel and Corrosion and Heat Resistant Steels and Alloys

## 2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or [www.astm.org](http://www.astm.org).

|             |                                                |
|-------------|------------------------------------------------|
| ASTM E 8    | Tension Testing of Metallic Materials          |
| ASTM E 8M   | Tension Testing of Metallic Materials (Metric) |
| ASTM E 112  | Determining Average Grain Size                 |
| ASTM E 1417 | Liquid Penetrant Examination                   |
| ASTM E 1742 | Radiographic Examination                       |

## 2.3 ANSI Publications:

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002.

|             |                              |
|-------------|------------------------------|
| ANSI B46.1  | Surface Texture              |
| ANSI Y14.5M | Dimensioning and Tolerancing |

## 3. TECHNICAL REQUIREMENTS:

## 3.1 Composition:

Shall conform to the percentages by weight shown in Table 1.

TABLE 1 - Composition

| Element                         | min  | max  |
|---------------------------------|------|------|
| Beryllium Oxide                 | 4.25 | --   |
| Aluminum                        | --   | 0.16 |
| Carbon                          | --   | 0.25 |
| Iron                            | --   | 0.25 |
| Magnesium                       | --   | 0.08 |
| Silicon                         | --   | 0.08 |
| Other Metallic Impurities, each | --   | 0.10 |
| Beryllium                       | 94.0 | --   |

- 3.1.1 Beryllium oxide shall be determined by gas fusion; aluminum, iron, magnesium and silicon determined by DC plasma emission spectrometry; carbon determined by combustion; and beryllium determined as the difference.