



SAE The Engineering
Resource For
Advancing Mobility

400 COMMONWEALTH DRIVE WARRENDALE PA 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 7806A

Issued 7-15-63
Revised 10-1-82

MOLYBDENUM FORGINGS Powder Metallurgy, Sintered, Stress Relieved

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of 3-28-73. It is recommended, therefore, that this specification not be specified for new designs.

This cover sheet should be attached to the "A" revision of the subject specification.

.....

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of 10-1-82. By this action, subject specification number and title will be deleted from the active specification index of Aerospace Material Specifications.

This specification is under the jurisdiction of AMS Committee "G".

SAE Technical Board rules provide that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade or their use by governmental agencies is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."



AEROSPACE MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA. 15096

AMS7806A

Issued 7-15-63
Revised 3-15-66

MOLYBDENUM FORGINGS Powder Metallurgy, Sintered, Stress Relieved

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **FORM:** Forgings and forging stock.
3. **APPLICATION:** Primarily for structural parts requiring high modulus and uniform strength characteristics at temperatures up to at least 1700 F (927 C), and for rocket nozzles. This material is not recommended for use in oxidizing atmospheres at 1000 F (538 C) and above unless protected by a suitable coating.

4. **COMPOSITION:**

	min	max
Molybdenum	99.90	--
Iron	--	0.006
Nickel	--	0.001
Silicon	--	0.003
Carbon	--	0.005
Oxygen	--	0.0080 (80 ppm)
Hydrogen	--	0.0010 (10 ppm)
Nitrogen	--	0.0025 (25 ppm)

- 4.1 Unless otherwise specified, metallic elements shall be determined spectrographically, carbon shall be determined conductometrically, and molybdenum shall be determined by difference. Pending establishment of approved methods of analysis for oxygen, nitrogen, and hydrogen, deviations from these limits alone shall not be cause for rejection.

5. **CONDITION:**

- 5.1 **Forgings:** Hot-cold forged, descaled, and stress-relieved.
- 5.2 **Forging Stock:** Pressed and sintered, or recrystallized, as specified by purchaser.
 - 5.2.1 Extruded forging stock shall be supplied to the grain size specified by the purchaser and to a density not less than 0.355 lb per cu inch.
 - 5.2.2 Sintered forging stock shall have a density not less than 0.340 lb per cu inch.

6. **TECHNICAL REQUIREMENTS:**

6.1 **Forgings:**

- 6.1.1 **Heat Treatment:** Forgings shall be stress-relieved at such temperatures and for such times and cooling rates as may be necessary to meet the technical requirements of this specification.
- 6.1.2 **Grain Structure:** Forgings shall have a thoroughly wrought structure free of abnormal grain growth.

Section 8.3 of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no intent to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and applying technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."