

AEROSPACE

MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York 17, N.Y.

AMS 5591D

Issued 10-1-45
Revised 7-15-61

STEEL TUBING, SEAMLESS, CORROSION RESISTANT 12.5Cr (SAE 51410)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. APPLICATION: Primarily for parts and assemblies, such as oil lines and air passages, requiring oxidation resistance up to 1000 F, but useful at the higher temperatures only when stresses are low.

3. COMPOSITION:

Ø	Carbon	0.15	max
	Manganese	1.00	max
	Silicon	1.00	max
	Phosphorus	0.040	max
	Sulfur	0.030	max
	Chromium	11.50 - 13.50	
	Nickel	0.75	max
	Molybdenum	0.60	max
	Aluminum	0.05	max
	Nitrogen (See note)	0.08	max
	Copper	0.50	max
	Tin	0.05	max

Note. Routine determinations for nitrogen are not required.

- 3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2248.
4. CONDITION: Cold drawn, annealed, and descaled, unless otherwise specified.
- 4.1 Fabrication: Any surface finishing operation applied to remove objectionable pits and surface blemishes shall be performed prior to the final anneal. A light polish to improve surface appearance may be employed after the final anneal. Passivation treatment shall follow any polishing treatment.

5. TECHNICAL REQUIREMENTS:

- 5.1 Tensile Properties:

Tensile Strength, psi	100,000 max
Elongation, % in 2 in.	
Strip	20 min
Full Section	25 min

- 5.2 Hardenability: Tubing shall be capable of meeting the following test:

- 5.2.1 Specimens when placed in a furnace which is at 1750 F + 10, allowed to heat to 1750 F + 10, held at heat for 30 min., and cooled in still air shall have tensile strength not lower than 150,000 psi.