

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
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### 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:

#### Check Analysis Under Min or Over Max

Carbon	0.15 max.	--	0.01
Manganese	1.00 max	--	0.03
Silicon	1.00 max	--	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	11.50 - 13.50	0.15	0.15
Nickel	0.75 max	--	0.03
Molybdenum	0.60 max	--	0.03
Aluminum	0.05 max	--	--
Copper	0.50 max	--	0.03
Tin	0.05 max	--	--

- Ø 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 shall be heated to 1750 F + 10, held at heat for 30 min., and cooled in still air. Tensile strength of such specimens shall be not lower than 150,000 psi.

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