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: 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	Check Analysis 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	0.50 max	--	0.03
Copper	0.50 max	--	0.03
Tin	0.05 max	--	--
Aluminum	0.05 max	--	--

4. CONDITION: Cold drawn and annealed, 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 for 30 minutes and cooled in still air. Tensile strength of such specimens shall be not lower than 150,000 psi.