MATERIAL DATA SHEET

INCONEL alloy 718 annealed and aged sheet (NASA historical reference)

Historical AMS minimum tensile requirements for annealed-and-aged alloy 718 sheet, strip, and plate plus selected handbook physical data.

Field	Value
Material ID	nasa-inconel718-aged-sheet-reference
Category	Metal
Condition	Alloy 718 after 1750 degF (954 degC) anneal plus aging; historical AMS minimums | sheet, strip, and plate
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:00

Source and Validity

Field	Value
Quality	Catalog record
Design release allowed	No
Source family	Government materials handbook
Confidence	Reference-grade
License	Open
Source note	Named historical alloy reference transcribed from an official public-use NASA handbook.
Citation	NASA-CR-123774, Materials Data Handbook: Inconel Alloy 718, 1972, NASA Technical Reports Server record 19720022810; property locations: PDF page 42 (handbook page 35), Table 7.121; PDF page 80 (handbook page 73), Chapter 9; https://ntrs.nasa.gov/citations/19720022810. NTRS marks the document 'Work of the US Gov. Public Use Permitted.'
Valid temperature	21 ... 21 degC (Room-temperature minimum-properties column and near-room-temperature physical references.)
Valid pressure	Pressure dependence is not represented by these solid reference values.
Valid phase / condition	Alloy 718 after 1750 degF (954 degC) anneal plus aging; historical AMS minimums
Uncertainty	Historical reference data transcribed with the stated property semantics and SI conversions. Confirm against the official PDF, a current procurement specification, the actual product form and thickness, and a material test report before engineering use.
Last reviewed	2026-08-01
Reviewer	scripts/import_nasa_public_metals.py
Review status	Checked

Field	Value
Review scope	Checked official NTRS public-use status, report identity and PDF hash, cited tables, minimum/nominal semantics, condition text, and SI conversions. No claim of current specification validity or design release is made.
Notes	Historical reference only; not a current supplier certificate or procurement allowable.
License ID	US-GOV-PUBLIC-USE
License URL	https://ntrs.nasa.gov/citations/19720022810
Attribution	National Aeronautics and Space Administration

Material Condition

Field	Value
Condition	Alloy 718 after 1750 degF (954 degC) anneal plus aging; historical AMS minimums
Temper	annealed and aged
Heat treatment	1750 degF (954 degC) anneal plus aging; detailed aging schedule is in the cited handbook specification context
Product form	sheet, strip, and plate
Thickness / diameter range	room-temperature column applies to the listed sheet, strip, and plate product
Test direction	not stated in the cited table
Processing route	wrought nickel-base alloy sheet, strip, or plate
Temperature range	21 ... 21 degC
Notes	Historical reference data transcribed with the stated property semantics and SI conversions. Confirm against the official PDF, a current procurement specification, the actual product form and thickness, and a material test report before engineering use.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	8210	kg/m^3	Nominal	Aged alloy at room temperature.

Thermal

Property	Value	Unit	Type	Applies to
Specific heat capacity	435.136	J/kg/K	Nominal	Handbook alloy value converted from 0.104 cal/g/degC.

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength	1241.056	MPa	Historical Specified Minimum	AMS 5596 sheet, strip, and plate after 1750 degF anneal plus aging; room temperature; converted from 180 ksi.
Tensile yield strength	1034.214	MPa	Historical Specified Minimum	0.2% offset, AMS 5596 sheet, strip, and plate; room temperature; converted from 150 ksi.
Elongation	12	%	Historical Specified Minimum	Minimum in 2 in, room temperature.
Rockwell hardness	36	HRC	Historical Specified Minimum	Or equivalent, room-temperature AMS 5596 product.

Engineering note: seed solid-material values are reference values only. Verify against the project material specification or supplier data sheet before release.