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# INCONEL alloy 718 annealed and aged sheet (NASA historical reference)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 23:12 |

## 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| Uncertainty | Historical reference data transcribed with the stated property semantics and SI conversions.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| Notes | Historical reference only; not a current supplier certificate or procurement allowable.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<br>Specified<br>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<br>Specified<br>Minimum | 0.2% offset, AMS 5596 sheet, strip, and plate; room temperature; converted from 150 ksi. |
| Elongation | 12 | % | Historical<br>Specified<br>Minimum | Minimum in 2 in, room temperature. |
| Rockwell hardness | 36 | HRC | Historical<br>Specified<br>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.