MATERIAL DATA SHEET

Stainless steel 301 full-hard sheet (NASA historical reference)

Historical AMS minimum tensile properties for full-hard Type 301 sheet/strip over 0.015 in plus room-temperature density.

Field	Value
Material ID	nasa-stainless301-full-hard-sheet-reference
Category	Metal
Condition	Type 301 full-hard sheet or strip; historical AMS minimums | sheet or strip
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:01

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-123780, Materials Data Handbook: Stainless Steel Type 301, 1972, NASA Technical Reports Server record 19720022812; property locations: PDF page 48 (handbook page 40), Table 7.121; PDF page 84, Chapter 9; https://ntrs.nasa.gov/citations/19720022812. NTRS marks the document 'Work of the US Gov. Public Use Permitted.'
Valid temperature	21 ... 21 degC (Room-temperature historical reference.)
Valid pressure	Pressure dependence is not represented by these solid reference values.
Valid phase / condition	Type 301 full-hard sheet or strip; 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Uncertainty	Historical reference data transcribed with the stated property semantics and SI conversions.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
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.

Field	Value
Notes	Historical reference only; not a current supplier certificate or procurement allowable.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/19720022812
Attribution	National Aeronautics and Space Administration

Material Condition

Field	Value
Condition	Type 301 full-hard sheet or strip; historical AMS minimums
Temper	full hard
Heat treatment	cold worked to full-hard condition
Product form	sheet or strip
Thickness / diameter range	greater than 0.015 in (0.38 mm)
Test direction	for width >=9 in, perpendicular to rolling; for width <9 in, parallel to rolling
Processing route	cold-worked austenitic stainless sheet or strip
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	8083	kg/m^3	Nominal	Room temperature; converted from 0.292 lb/in^3.

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength	1275.53	MPa	Historical Specified Minimum	Full-hard sheet/strip >0.015 in; converted from 185 ksi.
Tensile yield strength	965.266	MPa	Historical Specified Minimum	Full-hard sheet/strip >0.015 in; converted from 140 ksi.
Elongation	9	%	Historical Specified Minimum	Minimum in 2 in for full-hard sheet/strip >0.015 in.

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