MATERIAL DATA SHEET

Aluminum 5052-O sheet/plate (MIL-HDBK-5H)

Historical public-release S-basis 5052-O sheet/plate reference.

Field	Value
Material ID	milhdbk-5052-o-sheet-plate
Category	Metal
Condition	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in | sheet and plate
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	Independent transcription from an official public-release U.S. government handbook.
Citation	U.S. Department of Defense, MIL-HDBK-5H, Metallic Materials and Elements for Aerospace Vehicle Structures, 1 December 1998, Table 3.5.1.0(b1) and (b2), PDF page(s) 505-506 (handbook page(s) 3-209 to 3-210); official DLA document record https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=53876. The official PDF carries Distribution Statement A: Approved for public release; distribution is unlimited.
Valid temperature	21 ... 21 degC (Room-temperature historical handbook values. Applicability is limited to the exact alloy, temper/condition, product form, size band, material axis, statistical basis, and specification identified by the cited table.)
Valid pressure	Pressure dependence is not represented by these solid-material reference values.
Valid phase / condition	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in
Uncertainty	Values are historical handbook table transcriptions with explicit SI conversion. They are not a substitute for a current material specification, supplier certificate, drawing allowable, or project approval.
Last reviewed	2026-08-02
Reviewer	scripts/import_milhdbk5h_public_metals.py
Review status	Checked

Field	Value
Review scope	Checked official DLA document identity, Distribution Statement A, PDF hash, table/page location, alloy/condition/form/size scope, basis semantics, and SI conversions.
Notes	Historical reference only; design release is explicitly disabled.
License ID	US-DOD-DISTRIBUTION-STATEMENT-A
License URL	https://www.dodcui.mil/Distribution-Statements/
Attribution	U.S. Department of Defense

Material Condition

Field	Value
Condition	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in
Temper	O
Heat treatment	annealed
Product form	sheet and plate
Thickness / diameter range	0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in
Test direction	L and LT where listed; elongation L
Processing route	wrought non-heat-treatable aluminum-magnesium sheet/plate
Temperature range	21 ... 21 degC
Notes	Room-temperature historical handbook values. Applicability is limited to the exact alloy, temper/condition, product form, size band, material axis, statistical basis, and specification identified by the cited table. Historical reference only; confirm the current procurement specification and material test report.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	2685	kg/m^3	Historical Nominal	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, L	172.369	MPa	Historical Public Release Table Value	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.; L direction
Tensile yield strength, L	65.5	MPa	Historical Public Release Table Value	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.; L direction
Ultimate shear strength	110.316	MPa	Historical Public Release Table Value	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.
Elongation, L	14	%	Historical Public Release Table Value	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.; L direction

Property	Value	Unit	Type	Applies to
Young's modulus	69.637	GPa	Historical Nominal	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.
Compression modulus	70.327	GPa	Historical Nominal	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.
Shear modulus	26.545	GPa	Historical Nominal	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.
Poisson's ratio	0.33	-	Historical Nominal	5052-O; sheet/plate; 0.008-3.000 in (0.203-76.2 mm); narrowed from the 0.006 in static table lower bound because elongation is not listed below 0.008 in; Static values are from Table 3.5.1.0(b1); elongation is the lowest listed longitudinal value over this card's Table 3.5.1.0(b2) thickness range.

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