MATERIAL DATA SHEET

EN AW-1050A-H14 cold-rolled sheet, 0.8 mm (CC BY reference)

Manufacturer nominal strengths, reported constants and calibrated rolling-direction hardening parameters for exact EN AW-1050A-H14 sheet.

Field	Value
Material ID	mdpi-en-aw-1050a-h14-sheet-0p8mm
Category	Metal
Condition	EN AW-1050A-H14 low-strength, strain-hardened cold-rolled sheet supplied by Norsk Hydro ASA | cold-rolled sheet
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:02

Source and Validity

Field	Value
Quality	Experimental screening
Design release allowed	No
Source family	Experimental screening dataset
Confidence	Reference-grade
License	Open
Source note	Condition-specific base-material values from a CC BY 4.0 peer-reviewed article.
Citation	Kristoffer Aune Brekken et al., Sandwich Panels with Polymeric Foam Cores Exposed to Blast Loading: An Experimental and Numerical Investigation, Applied Sciences 2020, 10, 9061, https://doi.org/10.3390/app10249061.
Valid temperature	Tensile-test temperature is not stated; no temperature extrapolation is allowed.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	EN AW-1050A-H14 low-strength, strain-hardened cold-rolled sheet supplied by Norsk Hydro ASA
Uncertainty	Exact 0.8 mm EN AW-1050A-H14 sheet identity and nine-test campaign context are retained. The 100/116 MPa strengths are manufacturer nominal values, the Voce terms are calibrated to one representative RD curve, and Table 5 constants come from the article's prior source. No value is an EN minimum or design allowable.
Last reviewed	2026-08-03
Reviewer	scripts/import_mdpi_open_aluminum_public.py
Review status	Checked

Field	Value
Review scope	Checked article CC BY notice, DOI and PDF hash, exact alloy/temper, source geometry, table values, and reported or measured rather than specified-minimum semantics.
Notes	Exact 0.8 mm EN AW-1050A-H14 sheet identity and nine-test campaign context are retained. The 100/116 MPa strengths are manufacturer nominal values, the Voce terms are calibrated to one representative RD curve, and Table 5 constants come from the article's prior source. No value is an EN minimum or design allowable.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Kristoffer Aune Brekken et al.

Material Condition

Field	Value
Condition	EN AW-1050A-H14 low-strength, strain-hardened cold-rolled sheet supplied by Norsk Hydro ASA
Temper	H14
Heat treatment	H14 as supplied; detailed strain-hardening route is not stated
Product form	cold-rolled sheet
Thickness / diameter range	0.8 mm
Test direction	nominal strengths are not direction-specific; hardening calibration uses one representative rolling-direction (0 deg) tensile test
Processing route	commercial cold-rolled plate/sheet; dog-bone coupons cut at 0, 45 and 90 deg
Temperature range	Tensile-test temperature is not stated; no temperature extrapolation is allowed.
Notes	Exact 0.8 mm EN AW-1050A-H14 sheet identity and nine-test campaign context are retained. The 100/116 MPa strengths are manufacturer nominal values, the Voce terms are calibrated to one representative RD curve, and Table 5 constants come from the article's prior source. No value is an EN minimum or design allowable.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	2700.0	kg/m^3	Reported Prior Source Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests

Mechanical

Property	Value	Unit	Type	Applies to
Tensile yield strength	100.0	MPa	Reported Manufacturer Nominal Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Ultimate tensile strength	116.0	MPa	Reported Manufacturer Nominal Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Calibrated initial yield stress, RD	80.0	MPa	Calibrated Constitutive Parameter Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Extended Voce saturation stress Q1, RD	25.7	MPa	Calibrated Constitutive Parameter Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests

Property	Value	Unit	Type	Applies to
Extended Voce rate parameter C1, RD	1000.0	-	Calibrated Constitutive Parameter Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Extended Voce saturation stress Q2, RD	7.6	MPa	Calibrated Constitutive Parameter Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Extended Voce rate parameter C2, RD	21.4	-	Calibrated Constitutive Parameter Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Young's modulus	70.0	GPa	Reported Prior Source Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests

Property	Value	Unit	Type	Applies to
Poisson's ratio	0.3	-	Reported Prior Source Screening	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Shear modulus	26.92	GPa	Derived	Calculated from Young's modulus / (2 * (1 + Poisson's ratio)).

Composition

Property	Value	Unit	Type	Applies to
Silicon mass fraction	0.04	%	Reported Composition Reference	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Iron mass fraction	0.32	%	Reported Composition Reference	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Copper mass fraction	0.001	%	Reported Composition Reference	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests
Manganese mass fraction	0.002	%	Reported Composition Reference	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests

Property	Value	Unit	Type	Applies to
Titanium mass fraction	0.02	%	Reported Composition Reference	EN AW-1050A-H14 cold-rolled sheet manufactured by Norsk Hydro ASA, 0.8 mm thick; manufacturer nominal strengths apply to the supplied sheet, while calibrated hardening parameters apply to one representative 0 deg tensile test from nine total tests

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