MATERIAL DATA SHEET

EN AW-1200 rolled sheet, 0.8 mm, directional tensile reference (CC BY experimental)

Room-temperature directional tensile properties and measured density for exact EN AW-1200 0.8 mm rolled sheet.

Field	Value
Material ID	mdpi-en-aw-1200-sheet-0p8mm-directional
Category	Metal
Condition	EN AW-1200 (Al 99.0) rolled sheet substrate used in a pre-painted-sheet forming study | rolled sheet
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
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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	Dorin Luca, Vasile Schiopu, and Dorian D. Luca, Experimental Study on the Electromagnetic Forming Behavior of Pre-Painted Al 99.0 Sheet, Journal of Manufacturing and Materials Processing 2025, 9, 259, https://doi.org/10.3390/jmmp9080259.
Valid temperature	20 ... 20 degC (Tensile tests were performed at 20 degC only.)
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	EN AW-1200 (Al 99.0) rolled sheet substrate used in a pre-painted-sheet forming study
Uncertainty	Exact EN AW-1200 rolled-sheet grade, 0.8 mm thickness, directions and 20 degC test temperature are retained. Temper, sample count and dispersion are not stated. Directional moduli show substantial spread and remain unaltered. These are one-study measurements, not EN minima.
Last reviewed	2026-08-03
Reviewer	scripts/import_mdpi_open_aluminum_public.py
Review status	Checked
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.

Field	Value
Notes	Exact EN AW-1200 rolled-sheet grade, 0.8 mm thickness, directions and 20 degC test temperature are retained. Temper, sample count and dispersion are not stated. Directional moduli show substantial spread and remain unaltered. These are one-study measurements, not EN minima.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Dorin Luca

Material Condition

Field	Value
Condition	EN AW-1200 (Al 99.0) rolled sheet substrate used in a pre-painted-sheet forming study
Temper	not stated; do not infer O or an H temper
Heat treatment	substrate heat treatment is not stated
Product form	rolled sheet
Thickness / diameter range	0.8 mm
Test direction	0 deg (RD), 45 deg (DD) and 90 deg (TD) to rolling direction
Processing route	commercial rolled sheet; surface pretreatment/paint variants belong to later forming tests
Temperature range	20 ... 20 degC
Notes	Exact EN AW-1200 rolled-sheet grade, 0.8 mm thickness, directions and 20 degC test temperature are retained. Temper, sample count and dispersion are not stated. Directional moduli show substantial spread and remain unaltered. These are one-study measurements, not EN minima.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	2701.657	kg/m^3	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated

Mechanical

Property	Value	Unit	Type	Applies to
Young's modulus, RD	59.289	GPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; RD direction
Tensile yield strength, RD	109.096	MPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; RD direction
Ultimate tensile strength, RD	125.387	MPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; RD direction
Elongation A80, RD	2.174	%	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; RD direction
Young's modulus, DD	70.084	GPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; DD direction
Tensile yield strength, DD	107.237	MPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; DD direction

Property	Value	Unit	Type	Applies to
Ultimate tensile strength, DD	117.961	MPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; DD direction
Elongation A80, DD	3.229	%	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; DD direction
Young's modulus, TD	80.172	GPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; TD direction
Tensile yield strength, TD	123.172	MPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; TD direction
Ultimate tensile strength, TD	134.743	MPa	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; TD direction
Elongation A80, TD	2.853	%	Experimental Measured Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated; TD direction

Property	Value	Unit	Type	Applies to
Young's modulus	69.848	GPa	Reported Directional Average Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated
Tensile yield strength	113.168	MPa	Reported Directional Average Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated
Ultimate tensile strength	126.03	MPa	Reported Directional Average Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated
Elongation A80	2.749	%	Reported Directional Average Screening	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated

Composition

Property	Value	Unit	Type	Applies to
Minimum aluminum mass fraction	99.0	%	Reported Composition Limit Reference	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated
Maximum silicon plus iron mass fraction	0.6	%	Reported Composition Limit Reference	EN AW-1200 rolled sheet substrate, 0.8 mm thick; tensile coupons at 0, 45 and 90 deg to rolling direction; room temperature 20 degC; MTS 810.24 accuracy class 1; temper and sample count not stated

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