MATERIAL DATA SHEET

AA3105 base sheet, 6 mm feed, tensile comparison (CC BY experimental)

Measured strength, elongation and exact chemistry for AA3105 base material from a CC BY study.

Field	Value
Material ID	elsevier-aa3105-base-sheet-6mm-reference
Category	Metal
Condition	AA3105 base material used as the tensile comparison in the direct-hot-rolling study | sheet
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	Unknown
Design release allowed	No
Source family	peer_reviewed_open_article
Confidence	Reference-grade
License	Open
Source note	Exact-grade condition-specific values from a CC BY 4.0 peer-reviewed article.
Citation	M. El Mehtedi, M. Carta, and P. Buonadonna, A novel direct hot rolling process for sustainable recycling of AA3105 aluminum chips using a protective envelopment, Manufacturing Letters 45 (2025) 70-74, https://doi.org/10.1016/j.mfglet.2025.06.208.
Valid temperature	Tensile-test temperature is not stated; no temperature extrapolation is allowed.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	AA3105 base material used as the tensile comparison in the direct-hot-rolling study
Uncertainty	Measured comparison values for the exact AA3105 base material used in one recycling study. The source identifies the feed as 6 mm sheet but does not state temper, tensile direction, temperature or the base-comparison processing state precisely. These values are not EN product minima and do not describe the AA1050-enveloped recycled laminate.
Last reviewed	2026-08-03
Reviewer	scripts/import_peer_reviewed_open_aluminum_public.py
Review status	Checked
Review scope	Checked explicit article CC BY 4.0 grant, DOI/source integrity, exact alloy identity, condition and geometry limits, value location, and measured/reported rather than specified-minimum semantics.

Field	Value
Notes	Measured comparison values for the exact AA3105 base material used in one recycling study. The source identifies the feed as 6 mm sheet but does not state temper, tensile direction, temperature or the base-comparison processing state precisely. These values are not EN product minima and do not describe the AA1050-enveloped recycled laminate.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	M. El Mehtedi, M. Carta, and P. Buonadonna

Material Condition

Field	Value
Condition	AA3105 base material used as the tensile comparison in the direct-hot-rolling study
Temper	not stated; do not infer O or an H temper
Heat treatment	base-comparison heat treatment is not stated
Product form	sheet
Thickness / diameter range	source feed sheet 6 mm; exact tensile-comparison specimen thickness not stated
Test direction	not stated
Processing route	commercial AA3105 sheet used to mill chips; base-comparison processing state is not explicit
Temperature range	Tensile-test temperature is not stated; no temperature extrapolation is allowed.
Notes	Measured comparison values for the exact AA3105 base material used in one recycling study. The source identifies the feed as 6 mm sheet but does not state temper, tensile direction, temperature or the base-comparison processing state precisely. These values are not EN product minima and do not describe the AA1050-enveloped recycled laminate.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Tensile yield strength	93.9	MPa	Experimental Measured Screening	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Ultimate tensile strength	132.04	MPa	Experimental Measured Screening	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Elongation	14.5	%	Experimental Measured Screening	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated

Composition

Property	Value	Unit	Type	Applies to
Silicon mass fraction	0.23	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Iron mass fraction	0.45	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Copper mass fraction	0.11	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Manganese mass fraction	0.51	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Magnesium mass fraction	0.7	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated

Property	Value	Unit	Type	Applies to
Titanium mass fraction	0.05	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Chromium mass fraction	0.006	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated
Zinc mass fraction	0.01	%	Measured Composition Reference	AA3105 base material associated with the source's 6 mm feed sheet; at least three base-material tensile specimens; supplied temper, test direction, test temperature and whether the base comparison underwent the complete rolling schedule are not stated

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