MATERIAL DATA SHEET

EN AW-6012 initial T3 tensile and hardness reference (CC BY experimental)

Room-temperature tensile, modulus and HV10 values for exact EN AW-6012 in the initial T3 state.

Field	Value
Material ID	acta-en-aw-6012-t3-round-tensile
Category	Metal
Condition	EN AW-6012 AlMgSiPb, initial T3 | source form not stated; machined round tensile specimen
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	Exact-grade condition-specific values from a CC BY 4.0 peer-reviewed article.
Citation	Anna Liskova, Petra Lackova, Maria Mihalikova, and Robert Kocisko, Impact of Plastic Deformation on the Properties of a Selected Aluminium Alloy, Acta Polytechnica 56(5), 353-359 (2016), https://doi.org/10.14311/AP.2016.56.0353.
Valid temperature	20 ... 20 degC (The paper states room temperature; 20 degC is a catalog nominal, not a reported chamber setpoint.)
Valid pressure	Pressure dependence is not represented as a general material function.
Valid phase / condition	EN AW-6012 AlMgSiPb, initial T3
Uncertainty	The article's exact T3 label, investigated-heat composition, six-measurement tensile means and ten-position hardness method are retained. Original stock form, processing direction, T3 schedule and dispersion are not stated. Values are experimental means, not standard minima or design allowables.
Last reviewed	2026-08-03
Reviewer	scripts/import_additional_open_aluminum_public.py
Review status	Checked
Review scope	Checked the article-level CC BY 4.0 grant, DOI and pinned-file hash, exact alloy identity, condition/form/geometry, source value location, and measured or fitted property semantics.

Field	Value
Notes	The article's exact T3 label, investigated-heat composition, six-measurement tensile means and ten-position hardness method are retained. Original stock form, processing direction, T3 schedule and dispersion are not stated. Values are experimental means, not standard minima or design allowables.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Anna Liskova et al.

Material Condition

Field	Value
Condition	EN AW-6012 AlMgSiPb, initial T3
Temper	T3 as identified by the article
Heat treatment	solution annealed and naturally aged; exact T3 schedule not stated
Product form	source form not stated; machined round tensile specimen
Thickness / diameter range	8 mm tensile-specimen diameter; remaining Figure 1 dimensions not numerically transcribed
Test direction	specimen long axis; relation to original processing direction not stated
Processing route	initial T3 material, machined round specimen, room-temperature tensile and cross-section hardness tests
Temperature range	20 ... 20 degC
Notes	The article's exact T3 label, investigated-heat composition, six-measurement tensile means and ten-position hardness method are retained. Original stock form, processing direction, T3 schedule and dispersion are not stated. Values are experimental means, not standard minima or design allowables.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Tensile yield strength	309.0	MPa	Experimental Measured Screening	EN AW-6012 AlMgSiPb, initial T3; room-temperature uniaxial tensile test on 8 mm diameter round specimens at initial strain rate 2.5e-4 1/s; tensile values are six-measurement means
Ultimate tensile strength	350.0	MPa	Experimental Measured Screening	EN AW-6012 AlMgSiPb, initial T3; room-temperature uniaxial tensile test on 8 mm diameter round specimens at initial strain rate 2.5e-4 1/s; tensile values are six-measurement means
Elongation	17.0	%	Experimental Measured Screening	EN AW-6012 AlMgSiPb, initial T3; room-temperature uniaxial tensile test on 8 mm diameter round specimens at initial strain rate 2.5e-4 1/s; tensile values are six-measurement means
Reduction of area	23.0	%	Experimental Measured Screening	EN AW-6012 AlMgSiPb, initial T3; room-temperature uniaxial tensile test on 8 mm diameter round specimens at initial strain rate 2.5e-4 1/s; tensile values are six-measurement means
Young's modulus	75.0	GPa	Experimental Measured Screening	EN AW-6012 AlMgSiPb, initial T3; room-temperature uniaxial tensile test on 8 mm diameter round specimens at initial strain rate 2.5e-4 1/s; tensile values are six-measurement means
Vickers hardness HV10	103.0	HV10	Experimental Measured Screening	EN AW-6012 AlMgSiPb, initial T3; cross-section HV10, 10 s dwell

Chemical

Property	Value	Unit	Type	Applies to
Silicon mass fraction	1.13	%	Reported Material Composition Screening	investigated EN AW-6012 heat; aluminum reported as balance
Iron mass fraction	0.37	%	Reported Material Composition Screening	investigated EN AW-6012 heat; aluminum reported as balance
Manganese mass fraction	0.53	%	Reported Material Composition Screening	investigated EN AW-6012 heat; aluminum reported as balance
Magnesium mass fraction	0.83	%	Reported Material Composition Screening	investigated EN AW-6012 heat; aluminum reported as balance
Chromium mass fraction	0.2	%	Reported Material Composition Screening	investigated EN AW-6012 heat; aluminum reported as balance
Bismuth mass fraction	0.51	%	Reported Material Composition Screening	investigated EN AW-6012 heat; aluminum reported as balance
Lead mass fraction	0.83	%	Reported Material Composition Screening	investigated EN AW-6012 heat; aluminum reported as balance

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