MATERIAL DATA SHEET

AA7021 continuous-cast alloy, peak aged 124 degC for 32 h (CC BY experimental)

Tensile and Vickers-hardness measurements for laboratory continuous-cast AA7021 after the study's peak-ageing schedule.

Field	Value
Material ID	mdpi-aa7021-continuous-cast-peak-aged-124c-32h
Category	Metal
Condition	laboratory continuous-cast non-Cu AA7021 in the article's peak-aged condition | continuous-cast billet; machined hardness and ASTM E8 tensile specimens
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	Byung-Hoon Lee et al., Mechanical Properties and Very High Cycle Fatigue Behavior of Peak-Aged AA7021 Alloy, Metals 2018, 8, 1023, https://doi.org/10.3390/met8121023.
Valid temperature	Tensile- and hardness-test temperatures are not stated.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	laboratory continuous-cast non-Cu AA7021 in the article's peak-aged condition
Uncertainty	Experimental values for one laboratory continuous-cast AA7021 composition and peak-ageing schedule. The article calls the treatment T6, but billet product certification, tensile direction, test temperature, sample count and dispersion are not stated. Not a wrought sheet/extrusion minimum.
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	Experimental values for one laboratory continuous-cast AA7021 composition and peak-ageing schedule. The article calls the treatment T6, but billet product certification, tensile direction, test temperature, sample count and dispersion are not stated. Not a wrought sheet/extrusion minimum.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Byung-Hoon Lee et al.

Material Condition

Field	Value
Condition	laboratory continuous-cast non-Cu AA7021 in the article's peak-aged condition
Temper	study-designated T6 peak ageing; not a product-standard certification
Heat treatment	solution treatment at 470 degC for 4 h; ageing at 124 degC for 32 h
Product form	continuous-cast billet; machined hardness and ASTM E8 tensile specimens
Thickness / diameter range	billet dimensions not stated; hardness specimen 10 x 10 x 10 mm; tensile geometry per article Figure 1
Test direction	not stated
Processing route	laboratory continuous casting followed by solution treatment and artificial peak ageing
Temperature range	Tensile- and hardness-test temperatures are not stated.
Notes	Experimental values for one laboratory continuous-cast AA7021 composition and peak-ageing schedule. The article calls the treatment T6, but billet product certification, tensile direction, test temperature, sample count and dispersion are not stated. Not a wrought sheet/extrusion minimum.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Ultimate tensile strength	438.75	MPa	Experimental Measured Screening	laboratory non-Cu AA7021, Al-5.8Zn-1.6Mg wt.%, fabricated by continuous casting; solution treated 470 degC for 4 h and peak aged 124 degC for 32 h; ASTM E8 tensile specimen; tensile sample count, direction and test temperature not stated
Tensile yield strength	295.41	MPa	Experimental Measured Screening	laboratory non-Cu AA7021, Al-5.8Zn-1.6Mg wt.%, fabricated by continuous casting; solution treated 470 degC for 4 h and peak aged 124 degC for 32 h; ASTM E8 tensile specimen; tensile sample count, direction and test temperature not stated
Elongation	12.37	%	Experimental Measured Screening	laboratory non-Cu AA7021, Al-5.8Zn-1.6Mg wt.%, fabricated by continuous casting; solution treated 470 degC for 4 h and peak aged 124 degC for 32 h; ASTM E8 tensile specimen; tensile sample count, direction and test temperature not stated
Young's modulus	69.25	GPa	Experimental Measured Screening	laboratory non-Cu AA7021, Al-5.8Zn-1.6Mg wt.%, fabricated by continuous casting; solution treated 470 degC for 4 h and peak aged 124 degC for 32 h; ASTM E8 tensile specimen; tensile sample count, direction and test temperature not stated
Strain energy density	48.93	J/mm^3	Experimental Derived Screening	laboratory non-Cu AA7021, Al-5.8Zn-1.6Mg wt.%, fabricated by continuous casting; solution treated 470 degC for 4 h and peak aged 124 degC for 32 h; ASTM E8 tensile specimen; tensile sample count, direction and test temperature not stated

Property	Value	Unit	Type	Applies to
Modulus of resilience	1.65	J/mm^3	Experimental Derived Screening	laboratory non-Cu AA7021, Al-5.8Zn-1.6Mg wt.%, fabricated by continuous casting; solution treated 470 degC for 4 h and peak aged 124 degC for 32 h; ASTM E8 tensile specimen; tensile sample count, direction and test temperature not stated
Vickers hardness	148.0	HV	Experimental Measured Screening	laboratory non-Cu AA7021, Al-5.8Zn-1.6Mg wt.%, fabricated by continuous casting; solution treated 470 degC for 4 h and peak aged 124 degC for 32 h; ASTM E8 tensile specimen; tensile sample count, direction and test temperature not stated

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