MATERIAL DATA SHEET

Aluminium 6110A-T6 study context, model inputs (CC BY reference)

Elastic model inputs contextually associated with the article's exact 6110A-T6 study alloy.

Field	Value
Material ID	mdpi-6110a-t6-study-context-model-inputs
Category	Metal
Condition	article-identified 6110A-T6 study alloy with contextually associated generic aluminium vehicle-model inputs | aluminium sheet/substrate coupons; Al-Al epoxy-joint substrates are 2 mm thick
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	Engineering estimate
License	Open
Source note	6110A-T6 study context with a visibly qualified generic-aluminium model-input association from a CC BY 4.0 article.
Citation	Yiding Liu, Callum Carnegie, Helen Ascroft, Wenjun Li, Xiaotao Han, Hongtao Guo, and Mike K. H. Leung, Investigation of Adhesive Joining Strategies for the Application of a Multi-Material Light Rail Vehicle, Materials 14 (2021) 6991, https://doi.org/10.3390/ma14226991.
Valid temperature	The generic aluminium model row does not state a temperature basis or validity range.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	article-identified 6110A-T6 study alloy with contextually associated generic aluminium vehicle-model inputs
Uncertainty	The article explicitly identifies the investigated aluminium alloy as 6110A-T6 and later reports one generic 'Aluminium' row for the vehicle model. Associating that row with 6110A-T6 is a contextual inference; the table itself does not print the alloy or temper. The 2 mm Al-Al substrate statement also does not repeat the grade. The retained values are therefore low-confidence screening inputs, not measured coupon properties, current EN minima, supplier guarantees or design allowables.
Last reviewed	2026-08-03

Field	Value
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.
Notes	The article explicitly identifies the investigated aluminium alloy as 6110A-T6 and later reports one generic 'Aluminium' row for the vehicle model. Associating that row with 6110A-T6 is a contextual inference; the table itself does not print the alloy or temper. The 2 mm Al-Al substrate statement also does not repeat the grade. The retained values are therefore low-confidence screening inputs, not measured coupon properties, current EN minima, supplier guarantees or design allowables.
License ID	CC-BY-4.0
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Attribution	Yiding Liu et al.

Material Condition

Field	Value
Condition	article-identified 6110A-T6 study alloy with contextually associated generic aluminium vehicle-model inputs
Temper	T6 for the investigated alloy; Table 1 does not repeat the temper
Heat treatment	T6 designation only; prior solution-treatment and ageing schedule not stated
Product form	aluminium sheet/substrate coupons; Al-Al epoxy-joint substrates are 2 mm thick
Thickness / diameter range	2 mm for the Al-Al epoxy-joint substrates; generic Table 1 vehicle row has no thickness
Test direction	isotropic vehicle finite-element input; coupon rolling direction is not stated
Processing route	not stated; coupon surfaces were sanded or grit blasted and solvent cleaned for adhesive bonding
Temperature range	The generic aluminium model row does not state a temperature basis or validity range.
Notes	The article explicitly identifies the investigated aluminium alloy as 6110A-T6 and later reports one generic 'Aluminium' row for the vehicle model. Associating that row with 6110A-T6 is a contextual inference; the table itself does not print the alloy or temper. The 2 mm Al-Al substrate statement also does not repeat the grade. The retained values are therefore low-confidence screening inputs, not measured coupon properties, current EN minima, supplier guarantees or design allowables.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	2700.0	kg/m^3	Source Reported Model Input Screening	6110A-T6 aluminium study context; the article identifies the coupon alloy exactly, while Table 1 labels the vehicle-model row only as Aluminium

Mechanical

Property	Value	Unit	Type	Applies to
Young's modulus	69.0	GPa	Source Reported Model Input Screening	6110A-T6 aluminium study context; the article identifies the coupon alloy exactly, while Table 1 labels the vehicle-model row only as Aluminium
Poisson's ratio	0.3	-	Source Reported Model Input Screening	6110A-T6 aluminium study context; the article identifies the coupon alloy exactly, while Table 1 labels the vehicle-model row only as Aluminium
Shear modulus	26.54	GPa	Derived	Calculated from Young's modulus / (2 * (1 + Poisson's ratio)).

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