MATERIAL DATA SHEET

AA6261 remelted/stir-cast base control (CC BY research instance)

Exact-grade AA6261 source values and measured unreinforced base-control results from one laboratory study.

Field	Value
Material ID	pen-aa6261-remelted-stir-cast-base-control
Category	Metal
Condition	AA6261 source-labeled present alloy and remelted/stir-cast unreinforced base control | laboratory remelted/stir-cast base-control tensile and hardness specimens
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
Generated	2026-11-15 23:02

Source and Validity

Field	Value
Quality	Unknown
Design release allowed	No
Source family	peer_reviewed_open_article
Confidence	Unknown
License	Open
Source note	Exact-grade AA6261 source values and an unreinforced remelted/stir-cast research control from a CC BY 4.0 article.
Citation	Mamoon A. A. Al-Jaafari, A comparative study using silicon carbide and zirconium dioxide nano material's to improve the mechanical properties of 6261AA, Periodicals of Engineering and Natural Sciences 10(3) (2022) 323-333, Tables 1-2, 5-6, https://doi.org/10.21533/pen.v10.i3.666. CC BY 4.0.
Valid temperature	Tensile testing is reported at 28 degC. The hardness temperature text is malformed, so no hardness-test temperature is assigned and no temperature extrapolation is allowed.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	AA6261 source-labeled present alloy and remelted/stir-cast unreinforced base control
Uncertainty	Exact-grade research-instance data, not current EN product-standard minima or wrought-product allowables. The article contains identity and method inconsistencies: it prints EN AW-626 instead of EN AW-6261, elsewhere prints 6066/Al6066, gives yield strength as 98 MPa in Table 2 but 151 MPa for the experimental base-control tensile row in Table 6, labels the tensile conditions ASTM E10/18 although specimen preparation cites ASTM E8/E8M-09, and prints a malformed hardness-test temperature range. PropLib retains both yield observations with their table-specific scope, does not assign a test temperature, and excludes every nano-reinforced composite value.
Last reviewed	2026-08-03

Field	Value
Reviewer	scripts/import_pen_aa6261_public.py
Review status	Checked
Review scope	Checked official article identity and PDF hash, first-page CC BY 4.0 notice, exact AA6261 title/Table 1 identity, empirical composition, source-labeled present Table 2 values, base-control processing, specimen geometry, hardness repetitions and conditions, tensile Table 6 values, and the article's designation, alloy-number, standard-reference, yield-value and test-method inconsistencies.
Notes	Exact-grade research-instance data, not current EN product-standard minima or wrought-product allowables. The article contains identity and method inconsistencies: it prints EN AW-626 instead of EN AW-6261, elsewhere prints 6066/Al6066, gives yield strength as 98 MPa in Table 2 but 151 MPa for the experimental base-control tensile row in Table 6, labels the tensile conditions ASTM E10/18 although specimen preparation cites ASTM E8/E8M-09, and prints a malformed hardness-test temperature range. PropLib retains both yield observations with their table-specific scope, does not assign a test temperature, and excludes every nano-reinforced composite value.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Mamoon A. A. Al-Jaafari

Material Condition

Field	Value
Condition	AA6261 source-labeled present alloy and remelted/stir-cast unreinforced base control
Temper	not stated
Heat treatment	not stated; the paper does not identify a registered temper
Product form	laboratory remelted/stir-cast base-control tensile and hardness specimens
Thickness / diameter range	cast stock approximately 55 mm diameter x 150 mm long; tensile specimen nominal 6.00 mm diameter with 30.0 mm gauge length
Test direction	not stated
Processing route	starting AA6261 was shredded and melted; unreinforced 500 g control was stir cast at 1123 K; tensile specimens were CNC-machined from cast stock
Temperature range	Tensile testing is reported at 28 degC. The hardness temperature text is malformed, so no hardness-test temperature is assigned and no temperature extrapolation is allowed.
Notes	Exact-grade research-instance data, not current EN product-standard minima or wrought-product allowables. The article contains identity and method inconsistencies: it prints EN AW-626 instead of EN AW-6261, elsewhere prints 6066/Al6066, gives yield strength as 98 MPa in Table 2 but 151 MPa for the experimental base-control tensile row in Table 6, labels the tensile conditions ASTM E10/18 although specimen preparation cites ASTM E8/E8M-09, and prints a malformed hardness-test temperature range. PropLib retains both yield observations with their table-specific scope, does not assign a test temperature, and excludes every nano-reinforced composite value.

Properties

Physical

Property	Value	Unit	Type	Applies to
Density	2710.0	kg/m^3	Source Reported Present Value Screening	source-labeled present 6261 AA row; measurement method, specimen state and its exact relationship to the subsequently remelted base-control specimens are not stated

Mechanical

Property	Value	Unit	Type	Applies to
Young's modulus	78.0	GPa	Source Reported Present Value Screening	source-labeled present 6261 AA row; measurement method, specimen state and its exact relationship to the subsequently remelted base-control specimens are not stated
Yield strength (Table 2 present row)	98.0	MPa	Source Reported Present Value Screening	source-labeled present 6261 AA row; measurement method, specimen state and its exact relationship to the subsequently remelted base-control specimens are not stated
Brinell hardness	43.1	HB	Experimental Measured Arithmetic Mean Screening	source-labeled AA base-control row after shredding/remelting and stir casting at 1123 K; 500 g AA with no SiC or ZrO2 addition; no temper, prior product form, heat treatment, tensile direction, heat/batch identity or population statistic is stated; arithmetic mean of three readings taken at specimen middle
Ultimate tensile strength	160.0	MPa	Experimental Measured Screening	source-labeled AA base-control row after shredding/remelting and stir casting at 1123 K; 500 g AA with no SiC or ZrO2 addition; no temper, prior product form, heat treatment, tensile direction, heat/batch identity or population statistic is stated; tensile test reported at 28 degC and 45% moisture
Tensile yield strength	151.0	MPa	Experimental Measured Screening	source-labeled AA base-control row after shredding/remelting and stir casting at 1123 K; 500 g AA with no SiC or ZrO2 addition; no temper, prior product form, heat treatment, tensile direction, heat/batch identity or population statistic is stated; tensile test reported at 28 degC and 45% moisture

Property	Value	Unit	Type	Applies to
Elongation	17.0	%	Experimental Measured Screening	source-labeled AA base-control row after shredding/remelting and stir casting at 1123 K; 500 g AA with no SiC or ZrO2 addition; no temper, prior product form, heat treatment, tensile direction, heat/batch identity or population statistic is stated; tensile test reported at 28 degC and 45% moisture

Composition

Property	Value	Unit	Type	Applies to
Magnesium mass fraction	0.83	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Silicon mass fraction	0.58	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Manganese mass fraction	0.25	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Copper mass fraction	0.24	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Chromium mass fraction	0.0	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Iron mass fraction	0.37	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Zinc mass fraction	0.15	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Other elements mass fraction	0.15	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance
Titanium mass fraction	0.1	wt%	Experimental Reported Composition Screening	empirical AA6261 starting-alloy analysis; aluminium is reported only as Balance

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