MATERIAL DATA SHEET

AA6351-T6 extruded rod, 19.05 mm, as-received (CC BY experimental)

Measured batch chemistry and as-received microhardness for an exact AA6351-T6 extruded rod.

Field	Value
Material ID	scielo-aa6351-t6-extruded-rod-19p05mm-reference
Category	Metal
Condition	AA6351-T6 extruded consumable rod in its as-received condition | extruded consumable rod
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	Reference-grade
License	Open
Source note	Exact AA6351-T6 as-received extruded-rod chemistry and Vickers microhardness from a CC BY 4.0 article.
Citation	Pedro Henrique Fernandes Oliveira, Juan Carlos Galvis, Juliana de Paula Martins, and Andre Luis Moreira Carvalho, Application of Friction Surfacing to the Production of Aluminum Coatings Reinforced with Al2O3 Particles, Materials Research 20, Suppl. 2 (2017) 603-620, https://doi.org/10.1590/1980-5373-MR-2017-0039.
Valid temperature	The article does not state the chemistry-analysis or microhardness-test temperature.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	AA6351-T6 extruded consumable rod in its as-received condition
Uncertainty	Exact AA6351-T6 as-received extruded rod. Table 1 batch chemistry and the explicitly stated 98.5 HV0.2 base-rod hardness are retained. Zinc is printed as a dash and is not converted to zero. The paper does not state the rod supplier, detailed T6 heat-treatment schedule, hardness repeat count or scatter. Values for drilled rods, Al2O3-filled rods, friction-surfaced deposits and the AA5052-H32 substrate are excluded. This research instance is not a current EN composition limit, minimum property or design allowable.
Last reviewed	2026-08-03
Reviewer	scripts/import_peer_reviewed_open_aluminum_public.py
Review status	Checked

Field	Value
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	Exact AA6351-T6 as-received extruded rod. Table 1 batch chemistry and the explicitly stated 98.5 HV0.2 base-rod hardness are retained. Zinc is printed as a dash and is not converted to zero. The paper does not state the rod supplier, detailed T6 heat-treatment schedule, hardness repeat count or scatter. Values for drilled rods, Al2O3-filled rods, friction-surfaced deposits and the AA5052-H32 substrate are excluded. This research instance is not a current EN composition limit, minimum property or design allowable.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Pedro Henrique Fernandes Oliveira et al.

Material Condition

Field	Value
Condition	AA6351-T6 extruded consumable rod in its as-received condition
Temper	T6
Heat treatment	T6 designation only; the prior solution-treatment and artificial-ageing schedule is not stated
Product form	extruded consumable rod
Thickness / diameter range	19.05 mm diameter; source rod length 130 mm
Test direction	composition not directional; microhardness indentation direction is not stated
Processing route	extruded rod in the as-received T6 condition; values retained before drilling, particle filling or friction surfacing
Temperature range	The article does not state the chemistry-analysis or microhardness-test temperature.
Notes	Exact AA6351-T6 as-received extruded rod. Table 1 batch chemistry and the explicitly stated 98.5 HV0.2 base-rod hardness are retained. Zinc is printed as a dash and is not converted to zero. The paper does not state the rod supplier, detailed T6 heat-treatment schedule, hardness repeat count or scatter. Values for drilled rods, Al2O3-filled rods, friction-surfaced deposits and the AA5052-H32 substrate are excluded. This research instance is not a current EN composition limit, minimum property or design allowable.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Vickers microhardness	98.5	HV0.2	Experimental Measured Screening	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation

Composition

Property	Value	Unit	Type	Applies to
Aluminum mass fraction	98.1	%	Experimental Measured Composition Reference	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation
Magnesium mass fraction	0.41	%	Experimental Measured Composition Reference	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation
Silicon mass fraction	0.86	%	Experimental Measured Composition Reference	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation
Chromium mass fraction	0.003	%	Experimental Measured Composition Reference	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation
Copper mass fraction	0.072	%	Experimental Measured Composition Reference	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation
Iron mass fraction	0.19	%	Experimental Measured Composition Reference	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation
Manganese mass fraction	0.42	%	Experimental Measured Composition Reference	as-received extruded AA6351-T6 consumable rod, 19.05 mm diameter and 130 mm length, used as feedstock for the source's friction-surfacing investigation

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