MATERIAL DATA SHEET

AA7049A commercial extrusion, 50 mm, composition (CC BY review)

Review-tabulated exact-AA7049A mass fractions for a commercial 50 mm extrusion.

Field	Value
Material ID	mdpi-review-aa7049a-commercial-extrusion-50mm-composition
Category	Metal
Condition	commercial AA7049A extrusion as represented in the quench-sensitivity review | commercial extruded rod
Unit system	Common SI
Unit contract	Material properties stored in SI engineering units.
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Source and Validity

Field	Value
Quality	Catalog record
Design release allowed	No
Source family	Catalog record
Confidence	Reference-grade
License	Open
Source note	Exact-grade commercial-extrusion composition tabulated in a CC BY 4.0 peer-reviewed review.
Citation	Benjamin Milkereit, Marco J. Starink, Paul A. Rometsch, Christoph Schick, and Olaf Kessler, Review of the Quench Sensitivity of Aluminium Alloys: Analysis of the Kinetics and Nature of Quench-Induced Precipitation, Materials 12(24), 4083 (2019), https://doi.org/10.3390/ma12244083.
Valid temperature	Composition is condition-independent within this identified heat; no mechanical-temperature validity is claimed.
Valid pressure	Pressure dependence is not represented as a general material function.
Valid phase / condition	commercial AA7049A extrusion as represented in the quench-sensitivity review
Uncertainty	Only the mass-fraction row for the exact AA7049A commercial 50 mm extrusion is transcribed from Appendix A, Table A1; the adjacent atomic-fraction row is not mixed with it. The rounded mass fractions sum to 100.02%, and no renormalization is applied. Titanium and zirconium are blank in the source. DSC and hardness figures are not digitized. Temper and analytical uncertainty are unstated. This composition reference is not a mechanical-property replacement, product standard or design allowable.
Last reviewed	2026-08-03
Reviewer	scripts/import_additional_open_aluminum_public.py

Field	Value
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.
Notes	Only the mass-fraction row for the exact AA7049A commercial 50 mm extrusion is transcribed from Appendix A, Table A1; the adjacent atomic-fraction row is not mixed with it. The rounded mass fractions sum to 100.02%, and no renormalization is applied. Titanium and zirconium are blank in the source. DSC and hardness figures are not digitized. Temper and analytical uncertainty are unstated. This composition reference is not a mechanical-property replacement, product standard or design allowable.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	Benjamin Milkereit, Marco J. Starink, Paul A. Rometsch, Christoph Schick, and Olaf Kessler

Material Condition

Field	Value
Condition	commercial AA7049A extrusion as represented in the quench-sensitivity review
Temper	not stated
Heat treatment	not assigned to the composition row
Product form	commercial extruded rod
Thickness / diameter range	50 mm rod diameter
Test direction	not applicable to composition
Processing route	commercial extrusion; earlier billet and thermomechanical route not stated in Table A1
Temperature range	Composition is condition-independent within this identified heat; no mechanical-temperature validity is claimed.
Notes	Only the mass-fraction row for the exact AA7049A commercial 50 mm extrusion is transcribed from Appendix A, Table A1; the adjacent atomic-fraction row is not mixed with it. The rounded mass fractions sum to 100.02%, and no renormalization is applied. Titanium and zirconium are blank in the source. DSC and hardness figures are not digitized. Temper and analytical uncertainty are unstated. This composition reference is not a mechanical-property replacement, product standard or design allowable.

Properties

Chemical

Property	Value	Unit	Type	Applies to
Silicon mass fraction	0.25	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1
Iron mass fraction	0.35	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1
Copper mass fraction	1.9	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1
Manganese mass fraction	0.2	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1
Magnesium mass fraction	2.9	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1
Chromium mass fraction	0.22	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1
Zinc mass fraction	8.2	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1
Aluminum mass fraction	86.0	%	Review Tabulated Material Composition Screening	commercial AA7049A extrusion, 50 mm diameter rod; mass-fraction row in Appendix A, Table A1

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