MATERIAL DATA SHEET

AA3005 C1 first hot-rolling stage, longitudinal to rolling tensile reference (CC BY experimental)

Tensile and process-stage hardness reference for exact AA3005 after C1 first hot-rolling stage.

Field	Value
Material ID	csic-aa3005-c1-hot-rolled-longitudinal
Category	Metal
Condition	AA3005, C1 first hot-rolling stage | hot-rolled sheet from Hazelett continuous-cast strip
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	Exact-alloy process-stage values from a CC BY 4.0 peer-reviewed article.
Citation	M. D. Salvador, V. Amigo, L. Reig, C. Bloem, M. Carsi, and G. Caruana, Mechanical and microstructural evolution of a 3xxx aluminium alloy made by Hazelett process, Revista de Metalurgia 43(6), 424-433 (2007), https://doi.org/10.3989/revmetalm.2007.v43.i6.85.
Valid temperature	The tensile and hardness test temperature is not explicitly stated.
Valid pressure	Pressure dependence is not represented.
Valid phase / condition	AA3005, C1 first hot-rolling stage
Uncertainty	Values apply only to the investigated manufacturer-supplied AA3005 heat, stated Hazelett process stage, geometry and tensile direction (C1 first hot-rolling stage; longitudinal to rolling). No registered temper is inferred. Table III provides no replicate count or scatter. Its elongation-A heading and the accompanying reduction-of-area wording are retained as a disclosed source inconsistency. These are experimental process-development observations, not current EN product minima, supplier guarantees or design allowables.
Last reviewed	2026-08-03
Reviewer	scripts/import_csic_aa3005_public.py
Review status	Checked
Review scope	Checked the article-level CC BY 4.0 grant, DOI and pinned-file hash, exact AA3005 identity, process stage, thickness, direction, test method and table semantics.

Field	Value
Notes	Values apply only to the investigated manufacturer-supplied AA3005 heat, stated Hazelett process stage, geometry and tensile direction (C1 first hot-rolling stage; longitudinal to rolling). No registered temper is inferred. Table III provides no replicate count or scatter. Its elongation-A heading and the accompanying reduction-of-area wording are retained as a disclosed source inconsistency. These are experimental process-development observations, not current EN product minima, supplier guarantees or design allowables.
License ID	CC-BY-4.0
License URL	https://creativecommons.org/licenses/by/4.0/
Attribution	M. D. Salvador, V. Amigo, L. Reig, C. Bloem, M. Carsi, and G. Caruana

Material Condition

Field	Value
Condition	AA3005, C1 first hot-rolling stage
Temper	process stage only; no registered temper stated or inferred
Heat treatment	no separate heat treatment stated; thermal history is the continuous-casting and hot-rolling route
Product form	hot-rolled sheet from Hazelett continuous-cast strip
Thickness / diameter range	7 mm sheet; tensile specimen 200 mm long x 20 mm wide x full outgoing thickness
Test direction	longitudinal to rolling
Processing route	AA3005 melt entered the Hazelett caster at 680 +/- 10 degC; continuously cast at 8 m/min and exited at 590 +/- 10 degC and 19 +/- 0.05 mm; entered C1 at 550 +/- 10 degC and was reduced 63% from 19 mm to 7 mm
Temperature range	The tensile and hardness test temperature is not explicitly stated.
Notes	Values apply only to the investigated manufacturer-supplied AA3005 heat, stated Hazelett process stage, geometry and tensile direction (C1 first hot-rolling stage; longitudinal to rolling). No registered temper is inferred. Table III provides no replicate count or scatter. Its elongation-A heading and the accompanying reduction-of-area wording are retained as a disclosed source inconsistency. These are experimental process-development observations, not current EN product minima, supplier guarantees or design allowables.

Properties

Mechanical

Property	Value	Unit	Type	Applies to
Tensile yield strength	127.93	MPa	Experimental Measured Screening	manufacturer-supplied AA3005 heat, C1 first hot-rolling stage, longitudinal to rolling; UNE-EN 10002-1 tensile test on an Instron 4204 at 1 mm/min crosshead speed
Ultimate tensile strength	173.8	MPa	Experimental Measured Screening	manufacturer-supplied AA3005 heat, C1 first hot-rolling stage, longitudinal to rolling; UNE-EN 10002-1 tensile test on an Instron 4204 at 1 mm/min crosshead speed
Elongation A (source-reported metric)	27.0	%	Experimental Source Reported Elongation Screening	manufacturer-supplied AA3005 heat, C1 first hot-rolling stage, longitudinal to rolling; UNE-EN 10002-1 tensile test on an Instron 4204 at 1 mm/min crosshead speed
Rockwell hardness HRH	56.0	HRH	Experimental Measured Screening	AA3005 C1 first hot-rolling stage sheet process stage; Centaur HBRVU-187.5 with 1/8 inch ball and 60 kg load; the stage value is not assigned to a tensile direction
Source-reported Brinell-equivalent hardness	140.0	HB	Source Reported Hardness Conversion Screening	AA3005 C1 first hot-rolling stage sheet process stage; Centaur HBRVU-187.5 with 1/8 inch ball and 60 kg load; the stage value is not assigned to a tensile direction

Chemical

Property	Value	Unit	Type	Applies to
Silicon mass fraction	0.189	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Iron mass fraction	0.525	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Copper mass fraction	0.042	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Manganese mass fraction	1.123	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Magnesium mass fraction	0.221	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Chromium mass fraction	0.009	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Nickel mass fraction	0.006	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Zinc mass fraction	0.028	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Titanium mass fraction	0.034	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Gallium mass fraction	0.013	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance
Vanadium mass fraction	0.006	%	Manufacturer Reported Material Composition Screening	investigated manufacturer-supplied AA3005 heat; aluminum is balance

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