MATERIAL DATA SHEET

T300/Code 69 autoclaved strip damage reference (NASA)

Exact-system autoclaved laminate configurations, tensile-test context and reproducible damage geometry.

Field	Value
Material ID	nasa-tm75351-t300-code69-strip-damage-reference
Category	Composite
Condition	autoclaved T300/Code 69 UD-prepreg multidirectional strip laminates with reproducible star-punch surface damage | UD prepreg built into multidirectional Sample A and cross-ply Sample B strip laminates
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	Government materials report
Confidence	Reference-grade
License	Open
Source note	Exact-system historical experimental conditions; no absolute strength/modulus or inferred ply properties imported.
Citation	R. Aoki and D. Wurzel, Composite Components Under Impact Load and Effects of Defects on the Loading Capacity, NASA-TM-75351 (1979), NASA NTRS 19800007844, https://ntrs.nasa.gov/citations/19800007844.
Valid temperature	20 ... 20 degC (Only the reported 20 degC static/cyclic tensile condition is represented.)
Valid pressure	Autoclave and test pressure values are not supplied.
Valid phase / condition	autoclaved T300/Code 69 UD-prepreg multidirectional strip laminates with reproducible star-punch surface damage
Uncertainty	NASA-TM-75351 identifies the exact carbon/epoxy system and documented laminate-strip test configurations, but does not tabulate absolute lamina modulus, strength, strain, thermal expansion, interlaminar shear, density, resin fraction or glass-transition temperature. Its strength and fatigue results are primarily normalized plots. PropLib imports no curve-digitized values, does not infer ply thickness from total laminate thickness, and does not convert the report's qualitative damage-strength discussion into a numerical property. The 175 degC description is a system/process reference, not a fully specified cure cycle or glass-transition temperature.
Last reviewed	2026-08-03

Field	Value
Reviewer	scripts/import_nasa_code69_public.py
Review status	Checked
Review scope	Checked NTRS public-use status, PDF identity/hash, exact T300/Code 69 label, layups, dimensions, test conditions, approximate damage geometry, and absence of clean absolute lamina-property tables.
Notes	NASA-TM-75351 identifies the exact carbon/epoxy system and documented laminate-strip test configurations, but does not tabulate absolute lamina modulus, strength, strain, thermal expansion, interlaminar shear, density, resin fraction or glass-transition temperature. Its strength and fatigue results are primarily normalized plots. PropLib imports no curve-digitized values, does not infer ply thickness from total laminate thickness, and does not convert the report's qualitative damage-strength discussion into a numerical property. The 175 degC description is a system/process reference, not a fully specified cure cycle or glass-transition temperature.
License ID	US-GOV-PUBLIC-USE
License URL	https://ntrs.nasa.gov/citations/19800007844
Attribution	National Aeronautics and Space Administration; Aoki and Wurzel

Material Condition

Field	Value
Condition	autoclaved T300/Code 69 UD-prepreg multidirectional strip laminates with reproducible star-punch surface damage
Temper	not applicable
Heat treatment	Code 69 described as a 175 degC high-pressure, high-bleed system; detailed cure dwell/pressure not supplied
Product form	UD prepreg built into multidirectional Sample A and cross-ply Sample B strip laminates
Thickness / diameter range	2.4 mm total laminate (A) and 1.7 mm total laminate (B); no ply thickness inferred
Test direction	strip longitudinal tensile loading; exact relation to every ply axis depends on stated layup
Processing route	autoclave-prepared T300/Code 69 UD-prepreg laminates
Temperature range	20.0 ... 20.0 degC
Notes	NASA-TM-75351 identifies the exact carbon/epoxy system and documented laminate-strip test configurations, but does not tabulate absolute lamina modulus, strength, strain, thermal expansion, interlaminar shear, density, resin fraction or glass-transition temperature. Its strength and fatigue results are primarily normalized plots. PropLib imports no curve-digitized values, does not infer ply thickness from total laminate thickness, and does not convert the report's qualitative damage-strength discussion into a numerical property. The 175 degC description is a system/process reference, not a fully specified cure cycle or glass-transition temperature.

Properties

Physical

Property	Value	Unit	Type	Applies to
Sample A laminate thickness	2.4	mm	Experimental Condition Reference Screening	autoclaved Sample A, (0_2/+45/-45/0_2/90)s, 250 x 16 x 2.4 mm
Sample B laminate thickness	1.7	mm	Experimental Condition Reference Screening	autoclaved Sample B, (0/90)3s, 250 x 16 x 1.7 mm

Damage condition

Property	Value	Unit	Type	Applies to
Star-punch force	5.0	kN	Experimental Condition Reference Screening	majority damage condition for autoclaved Sample A, (0_2/+45/-45/0_2/90)s, 250 x 16 x 2.4 mm and autoclaved Sample B, (0/90)3s, 250 x 16 x 1.7 mm; pointed angle approximately 160 deg
Sample A damage penetration depth	317.0	um	Experimental Condition Reference Screening	autoclaved Sample A, (0_2/+45/-45/0_2/90)s, 250 x 16 x 2.4 mm
Sample B damage penetration depth	300.0	um	Experimental Condition Reference Screening	autoclaved Sample B, (0/90)3s, 250 x 16 x 1.7 mm
Sample A visibly damaged area	12.0	mm^2	Experimental Condition Reference Screening	autoclaved Sample A, (0_2/+45/-45/0_2/90)s, 250 x 16 x 2.4 mm
Sample B visibly damaged area	9.0	mm^2	Experimental Condition Reference Screening	autoclaved Sample B, (0/90)3s, 250 x 16 x 1.7 mm

Processing

Property	Value	Unit	Type	Applies to
Nominal system cure temperature	175.0	degC	Source Reported Process Reference Screening	T300/Code 69 unidirectional prepreg system described in NASA-TM-75351

Test condition

Property	Value	Unit	Type	Applies to
Tensile test temperature	20.0	degC	Experimental Condition Reference Screening	autoclaved Sample A, (0_2/+45/-45/0_2/90)s, 250 x 16 x 2.4 mm; autoclaved Sample B, (0/90)3s, 250 x 16 x 1.7 mm; static and variable-amplitude tensile loading
Cyclic tensile test frequency	5.0	Hz	Experimental Condition Reference Screening	autoclaved Sample A, (0_2/+45/-45/0_2/90)s, 250 x 16 x 2.4 mm; autoclaved Sample B, (0/90)3s, 250 x 16 x 1.7 mm; variable-amplitude tensile loading

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