

Silicone 40A

SOFT AND DURABLE SILICONE FOR FUNCTIONAL ELASTOMERIC PARTS

Silicone 40A is a 100% silicone material intended for soft, pliable, and durable printed components. Published post-cured specimen data indicate strong elongation, tear resistance, rebound resilience, thermal stability, and compatibility with selected aqueous chemicals. Final performance should be verified for the intended geometry, processing, and service environment.

Design Advantages

- Shore 40A hardness for soft, compliant components
- Published elongation at break of 230% and tensile strength of 5 MPa
- Published tear strength of 12 kN/m and compression set of 20%
- More than 500,000 Ross flexing cycles reported at 23 C and -10 C

Material Specifications

ITEM	PUBLISHED VALUE
Material family	100% silicone elastomer
Published hardness	Shore 40A
Published color	Dark gray
Ultimate tensile strength	5 MPa
Elongation at break	230%
Glass transition temperature	-107 C

Application Fit

- Seals, gaskets, connectors, and compliant interfaces
- Wearables, grippers, soft-touch components, and consumer prototypes
- Soft fixtures and reusable casting molds
- Skin-contacting components requiring application-specific biocompatibility review

Mechanical Properties

PROPERTY	TEST METHOD	PUBLISHED VALUE
Ultimate tensile strength	ASTM D412-06 Type C	5 MPa
Elongation at break	ASTM D412-06 Type C	230%
Tear strength	ASTM D624-00 Type C	12 kN/m
Stress at 50% elongation	ASTM D412-06 Type C	0.4 MPa
Stress at 100% elongation	ASTM D412-06 Type C	1.0 MPa
Stress at 150% elongation	ASTM D412-06 Type C	2.1 MPa
Compression set, 23 C for 22 h	ASTM D395-03 B	20%
Bayshore resilience	ASTM D2632	34%
Ross flex fatigue, 23 C	ASTM D1052, notched	>500,000 cycles
Ross flex fatigue, -10 C	ASTM D1052, notched	>500,000 cycles

General and Thermal Properties

PROPERTY	TEST METHOD	PUBLISHED VALUE
Shore hardness	ASTM D2240	40A
Color	Not specified	Dark gray
Viscosity at 35 C	Not specified	7,800 cP
Glass transition temperature	ASTM D4065	-107 C

Skin Contact Biocompatibility Endpoints

STANDARD	PUBLISHED RESULT
ISO 10993-5:2009	Not cytotoxic
ISO 10993-23:2021	Not an irritant
ISO 10993-10:2021	Not a sensitizer

These results support the tested material and processing condition; they do not by themselves establish regulatory clearance or finished-device compliance.

Solvent Compatibility

FLUID	24 H WEIGHT GAIN
Bleach, about 5% NaOCl	<0.1%
Distilled water	<0.1%
Acetic acid, 5%	<0.1%
Hydrochloric acid, 10%	0.4%
Sodium hydroxide, 0.025%	<0.1%
Salt water, 3.5% NaCl	<0.1%
Hydrogen peroxide, 3%	<0.1%
Isopropyl alcohol	5.9%
Acetone	11.5%
Gasoline, ISO 1817 liquid C	69.8%
Diesel, Chevron No. 2	32.9%
Skydrol 5	23.2%
Hydraulic oil	10.0%
Butyl acetate	92.3%

Additional Qualification Data

PROPERTY	PUBLISHED VALUE	METHOD
Outgassing total mass loss	1.34%	ASTM E595-15
Collected volatile condensable material	0.61%	ASTM E595-15
Water vapor recovered	0.2%	ASTM E595-15

Published Processing Basis

The published mechanical data were measured on Type C tensile specimens produced at 100 micrometre layers, washed for 20 minutes in 80% isopropyl alcohol and 20% butyl acetate, and post-cured at 60 C for 30 minutes while submerged in water. These conditions describe the source specimens and are not a universal processing specification.

Published Data and Qualification

The values in this sheet are based on published post-cured specimen data and are provided for design reference and material comparison. Lucent Additive has not independently generated every published value. Properties can vary with geometry, orientation, process settings, temperature, and disinfection or sterilization method. UV-aging and thermal-aging trends were published graphically, but exact values were not tabulated. Validate the finished component under its intended mechanical, chemical, thermal, cleaning, and regulatory conditions.

Start an Application Review

Send Lucent Additive your CAD model, quantity, load conditions, operating temperature, chemical exposure, cleaning method, compliance needs, and target schedule. Our team can review material fit, production strategy, and validation needs before quoting.

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