

**1. PRODUCT NAME
SILPRUF® SEALANT**

A One-part Low Modulus Silicone Weatherproofing Sealant

2. MANUFACTURER

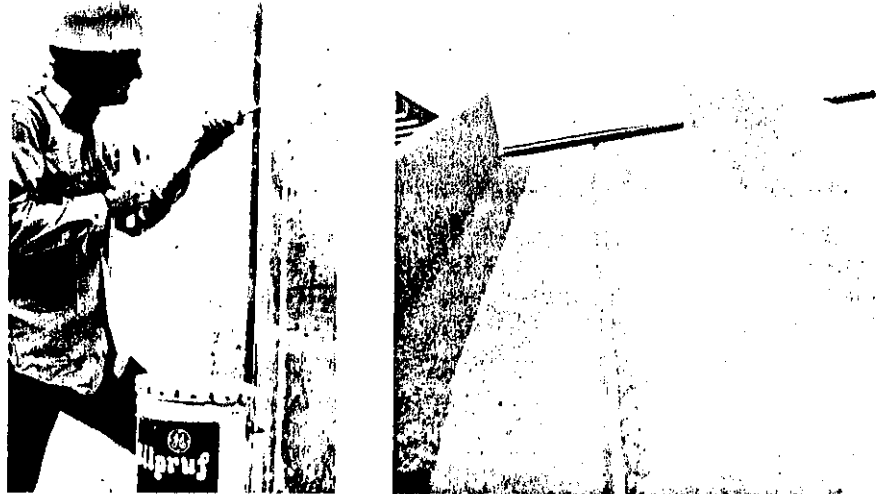
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Silicone Products Division
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3. PRODUCT DESCRIPTION

SILPRUF sealant is a one-part silicone sealant for use in most common weatherproofing applications on a wide variety of materials. After application, the sealant reacts with atmospheric moisture to produce a low modulus, long life, formed-in-place silicone rubber building joint and glazing sealant.

Basic Uses: SILPRUF silicone sealant may be used to seal assemblies of metals, masonry, concrete, coated surfaces, plastics, wood and other common construction materials. SILPRUF sealant is especially designed for use in butt joints or lap shear joints in weatherproofing and glazing applications subject to movement. The low modulus characteristic minimizes strain on the substrate surface and the elastomeric quality allows excellent recovery from extension and compression cycling. SILPRUF sealant may be factory or field applied to glass, metal and plastics in glazing and curtain-wall assemblies to produce a primary or secondary seal against water, air and dust penetration.

Limitations: SILPRUF silicone sealant is not recommended for use where abrasion or physical abuse is encountered or in horizontal joints on or below grade. The sealant is not recommended for use in locations subject to continuous water immersion. SILPRUF sealant should not be applied to:



A. Concrete surfaces which contain residual form oil or other bond breaking contaminants that may interfere with sealant adhesion.

B. Building materials which might bleed oil or solvents; these include, but are not limited to, impregnated wood and certain vulcanized rubber gaskets or foams, tapes, or failed sealants and caulking compounds. **WHEN SILPRUF SILICONE SEALANT IS USED IN REMEDIAL WORK, ALL OLD SEALANT MUST BE REMOVED.**

C. Areas where atmospheric contaminants might change the appearance of light colored sealants. Silicone sealant is weather resistant and resists chalking, degradation and erosion. As a result, environmental contaminants tend to cling to the sealant and the sealant surface may take on the color of the contaminant. Darker colors should be used to minimize this effect.

D. Reflecting, high gloss, or light-colored surfaces where aesthetics are critical, until adequate on-site sealant, surface and ambient atmospheric tests simulating building design are conducted to ascertain material compatibility and migration to adjacent surfaces under actual use conditions.

SPEC[®] DATA

This Spec-Data Sheet conforms to editorial style prescribed by The Construction Specifications Institute. The manufacturer is responsible for technical accuracy.

E. Unpredictably absorptive surfaces such as marble or limestone unless a standard of appearance has been agreed upon by the seller and the purchaser as a result of testing for stain or discoloration.

F. Totally confined spaces as the sealant requires atmospheric moisture for completion of cure and generation of properties.

G. Surfaces which will be painted as painting over rubber, is not recommended. The paint film does not stretch with the extension of rubber and the adhesion of the paint to SILPRUF sealant is not adequate.

H. Surfaces with special or protective coatings, such as mirrors, or to surfaces such as Teflon®, polypropylene, or polyethylene, without the approval of the manufacturer of the article, plastic, or material.

I. Unprepared or wet surfaces.

J. Wet tooling techniques such as solvent, water or soap and water solutions.

Composition and Materials: SILPRUF silicone sealant is the result of the unique chemistry of silicones. Inorganic materials are usually chemically stable and show little change in physical properties with weathering. Organic compounds are flexible and more versatile

TABLE 1: SILPRUF® SILICONE SEALANT TYPICAL PROPERTIES'
(After 21 Days at 73°F (23°C) and 50% Relative Humidity)

PROPERTY	VALUE	TEST METHOD
Hardness (Shore A)	22	ASTM D 2240
Tensile Strength	245 psi (17.2 kgf/cm ²)	ASTM D 412
Peel Strength	50 ppi (9.9 kg/cm)	TT-S-001543A (COM-NBS)
Tear Strength ²	20 lbs/in (3.6 kg/cm)	ASTM D 624
Dynamic Movement Capability	± 50%	Cycled at 1/8" /hr, 1/8" /min.
Stress @ 50% Extension (1/2" x 1/2" Bead)	35 lbs/in (2.5 kgf/cm ²)	Extension at 1/2" /min.
Ultraviolet & Ozone Resistance	Excellent	Weatherometer Twin Arc 15,000 hrs
Staining on Concrete	None	TT-S-001543A (COM-NBS)
Tack-Free-Time	5-10 Hours	TT-S-001543A (COM-NBS)
Tooling Time	45 Minutes	
Sag; Slump	Nil	TT-S-001543A (COM-NBS)

¹Values are not intended for use as specifications.

²Tear is knotty and nonprogressive, i.e. it tends to turn in the direction of the force and stop at the joint side.

TABLE 2: ADHESION CHARACTERISTICS³

SILPRUF silicone sealant was used to adhere wire screening to a variety of common construction surfaces, prepared according to Part 5 of this data sheet, using the adhesion in peel configuration. After 21 days of 73°F (23°C)/50% RH followed by 7 days immersion in water the adhesive bonds were tested in a 180° peel-back test using a jaw separation speed of 2" per minute. The actual results are given in pounds force per inch of peel strength and percent cohesive failure.

SURFACE	21 Days 73°F/50% R.H. and 7 days water Immersion			
	21 Days 75°F/50% R.H. lbs. f/in. Cohesion %	100 %	lbs. f/in. Cohesion %	100 %
STAINLESS STEEL	57	100	33	60
MILL FINISH ALUMINUM (PRIMED)	58	100	45	75
ANODIZED ALUMINUM	65	100	56	100
CARBON STEEL	61	100	33	50
CONCRETE (PRIMED)	70	100	62	100
GLASS	63	100	50	100
ACRYLIC SHEET	62	100	57	100
LEXAN® POLYCARBONATE SHEET	62	100	46	100
POLYSTYRENE SHEET	46	100	—	—
PVC SHEET	63	100	32	60
RIP POLYESTER SHEET	60	100	54	100

³Values are not intended for use as specifications.

than inorganic materials, but are more subject to attack by the elements. Their physical properties are degraded by age and weathering.

SILPRUF silicone sealant combines the best of both categories. SILPRUF silicone sealant provides the versatility of organic compounds combined with the stability of the inorganics. When properly applied, SILPRUF silicone sealant provides excellent resistance to heat, cold ultra-violet radiation, ozone, sunlight and rain. This contributes to the extended life of the sealant.

SILPRUF silicone sealant is supplied as a ready-to-use, one-part sealant with a lightweight consistency. This consistency

is relatively unchanged over a temperature range of -35°F (-37°C) to 140°F to (60°C) allowing the sealant to be applied in any season.

SILPRUF silicone sealant cures on exposure to moisture in the air. The performance range after cure is from -55°F to 200°F.

Primers: SILPRUF silicone sealant has primerless adhesion characteristics, to many common construction materials, however, some materials such as concrete, mill finish aluminum, galvanized steel, fluoropolymer paint coatings and other materials with variable surface characteristics often required priming. In view of the unpredictability of surface character-

istics, trial applications should be made to check adhesion to the specific materials to be used on the project. SCP 3154 primer is recommended for concrete, paints and plastic surfaces.

Colors: General Electric SILPRUF silicone sealant is available in five (5) standard colors.

Product Designation	Color
SCS 2003	Black
SCS 2004	Limestone
SCS 2009	Aluminum/Gray
SCS 2020	Precast White
SCS 2097	Bronze

Applicable Standards: SILPRUF silicone sealant meets or exceeds the requirements of the following specifications:

TT-S-001543A (COM-NBS)
TT-S-0230C* (COM-NBS)
C.G.S.B. 19GP-9
ASTM C920-79

*Not recommended for plazas, decks, pavements, etc.

SILPRUF silicone sealant is non-toxic as defined by the Federal Hazardous Substances Act.

Fire Hazard Classification: SILPRUF silicone sealant has been tested according to Underwriters Laboratories, Inc. U.L. 723 "Test for surface burning characteristics" and ASTM E-814 "Vertical fire endurance test." Contact your local GE Technical Center for details.

Packaging: SILPRUF silicone sealant is available in 2-gal. (7.56 liters) plastic pails and 1/12-gallon (.315 liter) plastic cartridges packaged in cartons of 24 cartridges. The two units are designed for convenience in shipping and are easily handled by warehousemen and mechanics on scaffolds and staging.

4. TECHNICAL DATA

SILPRUF silicone sealant is basically unaffected by normal weathering conditions such as sunlight, ultraviolet radiation, rain, snow, and temperature extremes. Its weatherability enables it to retain its properties after years of exposure. The sealant has resistance to detrimental effects caused by polluted atmospheres and many chemicals and chemical solutions. See Table 1 for Typical Properties, Table 2 for Adhesion Characteristics.

Joints formed with this sealant can be expected to extend and compress 100% of the installation width with no more than 50% in a single direction without affecting the seal or adhesive.

SILPRUF silicone sealant is compatible with laminated glass, insulating glass units and acrylic and LEXAN® polycarbonate glazing sheet.

5. INSTALLATION

Joint Design: Figure 1 illustrates why a thin bead of silicone sealant will accommodate more movement than a thick bead. Obviously, a thin bead is the most desirable. SILPRUF silicone sealant should be no thicker than 3/8" (9.5mm) and no thinner than 1/8" (3.2 mm). Non-gassing polyethylene or flexible polyurethane foam rod is the recommended back-up material. If the joint is too

shallow to allow foam rod, use a polyethylene tape. (Fig. 2 & 3).

Curtainwall expansion joints should be designed to allow installation and retention of the bond-breaking back-up material during the installation and subsequent curing of SILPRUF silicone sealant.

The dimensions of curtainwall expansion joints and similar applications change daily as a result of solar heat gain, positive and negative buffeting from wind forces, and throughout the year because of seasonal changes. The movement in a sealant bead installed on the sun-side of a building or during the hottest portion of the day in metal, glass and plastic applications will be almost entirely in extension during the cold season or cycle, while the movement of a bead installed during the coldest condition will be almost entirely in compression during the hottest season. If SILPRUF silicone sealant cannot be installed when the design width is approximately halfway between the dimensional extremes, the designed joint width must be at least twice the total anticipated joint movement. For example, if the total anticipated movement in an expansion joint in which SILPRUF silicone sealant is to be installed is $\frac{1}{4}$ " (6.4 mm), the designed joint width must be $\frac{1}{2}$ " (12.7 mm).

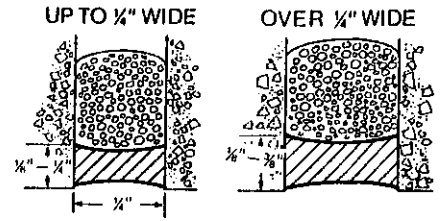
Lap shear joints should have a bead width which is equal to, or greater than, the total anticipated movement.

Small curtainwall panels and lights should allow a minimum width of $\frac{1}{8}$ " (3.2 mm) for the sealant bead. Larger panels and lights (or those in which a great deal of movement is expected) should allow a minimum width of $\frac{3}{16}$ " to $\frac{1}{4}$ " for the sealant bead. Glazing of plastic lights and sealing of wall panels fabricated from plastics require larger than usual joint dimensions due to the greater movement potential caused by plastic's higher coefficients of thermal expansion. Consult

with the nearest General Electric Technical Center for recommendations on large or unusual applications.

Joint Filler Materials: The depth of the SILPRUF silicone sealant bead is regulated by the depth of the backer rod. The rod stock should be 25%-50% greater than the width of the joint, thereby extending continuous pressure against the joint walls and expanding and contracting with the bead movement without pushing the sealant out of the joint during the compression cycle. RUBBER BACK-UP MATERIALS OFTEN STAIN SEALANTS AND ARE NOT RECOMMENDED, UNLESS TESTED FOR COMPATIBILITY.

BUTT JOINTS

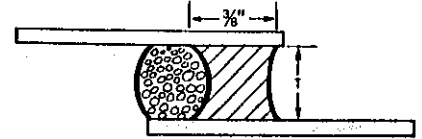


USE FOAM BACK-UP IF JOINT DEPTH EXCEEDS 1/2". OTHERWISE USE NONADHERING TAPE.

USE FOAM BACK-UP IF JOINT DEPTH EXCEEDS 3/4".

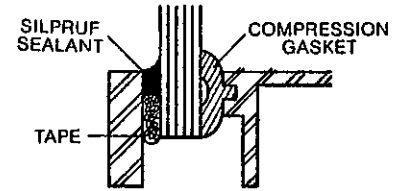
FIGURE 4

LAP JOINTS



WHERE APPRECIABLE MOVEMENT IS ANTICIPATED, SEALANT THICKNESS (T) SHOULD BE AT LEAST EQUAL TO EXPECTED MOVEMENT

EXTERIOR GLAZING OF GLASS



INTERIOR GLAZING OF GLASS

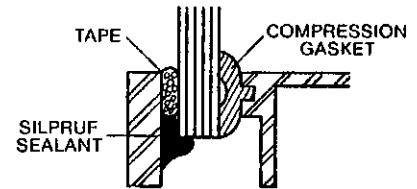
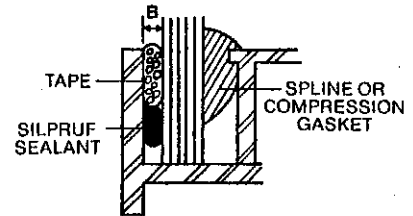


FIGURE 5

INTERIOR GLAZING OF PLASTIC



DIMENSION 'B': 1/4" MINIMUM
LIMITATION: SILPRUF SYSTEM SHOULD NOT BE USED IN PLASTIC GLAZING WHERE LONGEST DIMENSION EXCEEDS 60".

FIGURE 6

CURTAINWALL PERIMETER SEALS

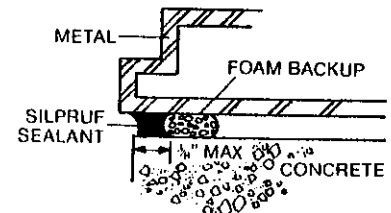


FIGURE 7

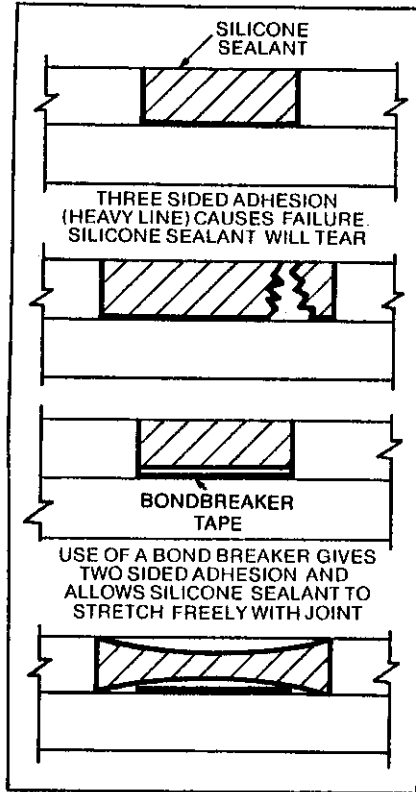


FIGURE 2

Recommended bond breaker

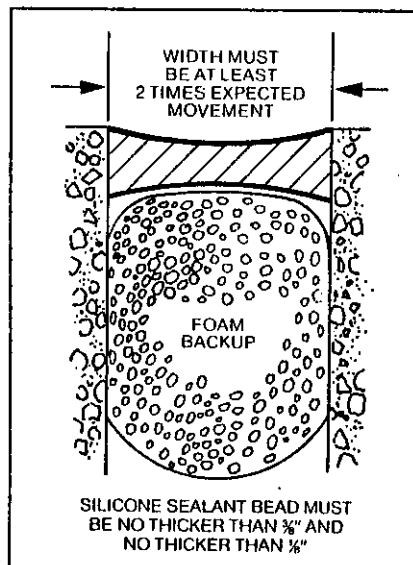


FIGURE 3

Recommended joint detail

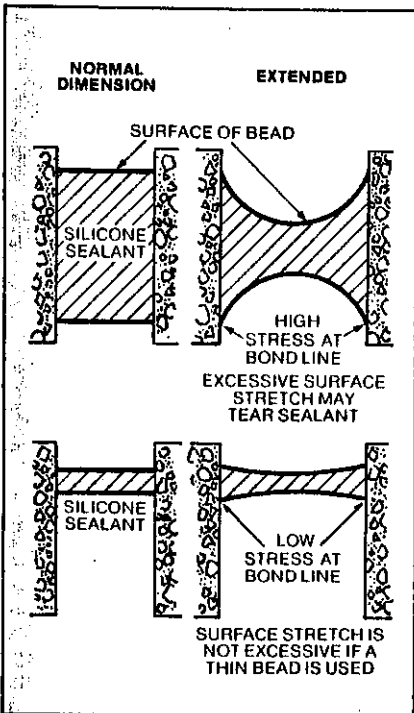


FIGURE 1

Why a thin bead of silicone sealant will accommodate more extension than a thick bead.

TABLE 3: ESTIMATING REQUIREMENTS

LINEAR FEET PER GALLON OF GENERAL ELECTRIC SILPRUF® SILICONE SEALANT FOR VARIOUS JOINT SIZES.

DEPTH, INCHES	WIDTH, INCHES						
	1/8	1/4	3/8	1/2	5/8	3/4	1
1/8	1232	616	411	307	246	205	154
1/4	—	411	275	205	164	137	103
3/8	—	307	205	154	123	103	77
1/2	—	—	137	103	82	68	51

Preparatory work: Clean all concrete, masonry and stone joints of all contaminants and impurities. Concrete form release agents, water repellents, concrete laitance, all old sealants and other surface treatments and protective coatings are examples of materials which must be removed from the joint surfaces to obtain proper sealant adhesion. Porous substrates should be cleaned where necessary by grinding, saw cutting, blast cleaning (sand or water), mechanical abrading or a combination of these methods are required to provide a sound, clean surface for sealant application. Dust, loose particles, etc. should be blown out of joints with oil-free compressed air or vacuum cleaned.

Metal, glass and plastic surfaces shall be cleaned by mechanical or solvent procedures. Detergent or soap and water treatments are not recommended. Protective films must be removed by a solvent recommended by the manufacturer of the substrate or other means which leave no residue. In all cases where used, solvents shall be wiped dry with a clean cloth or lintless paper towels. Cleaning solvents should not be allowed to air dry or evaporate without wiping. Architectural coatings, paints and plastics shall be cleaned with a solvent approved by the manufacturer of that product.

Cleaning of all surfaces should be done on the same day in which the sealant is applied. **CAUTION! SOLVENTS MAY BE FLAMMABLE AND/OR TOXIC!**

Priming: (See Part 3.)

Masking: The use of masking tape is recommended where appropriate to insure a neat job and to protect adjoining surfaces. Do not allow masking tape to touch clean surfaces to which the silicone sealant is to adhere. Masking tape should be removed immediately after the finish tooling of the SILPRUF sealant is accomplished and before the sealant begins to cure.

Method of Application: Install backup material or joint filler, setting blocks, spacer shims and tapes as specified. Apply SILPRUF silicone sealant in a continuous operation, horizontally in one direction and vertically from the bottom to the top of the joint opening. A positive pressure adequate to properly fill and seal the joint width should be employed. Tool or strike the SILPRUF silicone sealant with light pressure to spread the material against the backup material and the joint surfaces. The lightweight consistency of SILPRUF silicone sealant responds easily to light tooling pressure and facilitates void free

placement. A tool with a concave profile is recommended to keep the SILPRUF silicone sealant within the joint.

In glazing, tool the sealant applied at the sill so that precipitation and cleaning solutions will not pool. SILPRUF silicone sealant can be applied at outdoor temperatures as low as -37°C (-35°F) provided that surfaces are clean, dry and frost free. Do not use water for tooling and do not apply to wet or damp surfaces.

Excess sealant should be cleaned from glass, metal and plastic surfaces while still uncured using solvent. On porous surfaces the excess sealant should be allowed to progress through the initial cure or set-up. It should then be removed by abrasion or other mechanical means.

Safety: Material Safety Data Sheets are available upon request from General Electric Company, Silicone Products Division. Similar information for solvents and other chemicals used with GE products may be obtained from your suppliers.

When solvents are used, proper safety precautions must be observed. All solvents must be used only in well ventilated areas. Exposure to high vapor concentrations must be avoided. When flammable solvents are used, storage, mixing and use must be in areas away from heat, sparks, flame or other sources of ignition.

6. AVAILABILITY AND COST

Availability: SILPRUF silicone sealant is available in the United States and Canada through distributors and building supply outlets.

Cost: Contact local distributor or nearest GE Technical Service Center.

7. WARRANTY

General Electric Company (hereinafter called the Company) warrants that each quantity of sealant delivered will be the kind designated or specified and no other warranty, except of title, shall be implied. The conditions of any tests designed to resolve any alleged breach of warranty shall be mutually agreed upon and the Company shall be notified of, and may be represented at, all such tests that may be made. The Company's obligations to the Purchaser in respect to such quantity of sealant shall be limited to (at its option) replacing F.O.B. its plant or such other point as it may designate, or refunding the purchase price of any such product found to be defective provided that written notice of such defect is received by the Company from the Purchaser within six

months from the date of shipment by the Company or within such other period as may be specified on the sealant label. The liability of the Company (except as to title) arising out of the supplying of said sealant, or its use, whether on warranties, contract, negligence or otherwise shall not in any case exceed the cost of corrective defects in the product as herein specified and upon the expiration of the applicable warranty period specified herein all such liability shall terminate.

THE FOREGOING SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDY OF THE PURCHASER AND THE SOLE AND EXCLUSIVE LIABILITY OF THE COMPANY. THE WARRANTIES STATED IN THIS PARAGRAPH ARE IN LIEU OF ALL OTHER WARRANTIES (EXCEPT OF TITLE) WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS OF PURPOSE.

Limitation of Liability

The Company in no event, whether claim is based on warranties, contract negligence or otherwise, is liable for incidental or consequential damages.

8. MAINTENANCE

No maintenance is needed. If silicone sealant becomes damaged, replace damaged portion. Clean surfaces in damaged area, and repair with fresh silicone sealant.

9. TECHNICAL SERVICES

Complete technical information and literature is available from General Electric Technical Centers. Laboratory facilities and application engineering are available on request from General Electric. Any technical advice furnished by the Company or any representative of the Company concerning any use or application of any sealant is believed to be reliable but the Company makes no warranty, express or implied, of any use or application for which such advice is furnished.

10. FILING SYSTEMS

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