

NuFlex® 650 FLEXONE POLYURETHANE SEALANT / ADHESIVE



NuFlex® 650 High Performance Polyurethane Sealant is a one-part, flexible, polyurethane sealant and adhesive. It has superior above and below grade performance and joint movement capability of $\pm 35\%$. 650 bonds to most substrates without the use of a primer and provides a permanent seal.

■ FEATURES & TYPICAL USES:

Features:

- 100% polyurethane
- Joint movement capability of $\pm 35\%$
- Water immiscible
- Can be applied above & below grade
- Low VOC
- Weather resistant
- Adheres to most substrates
- Creates permanent seal

Basic uses include:

1. Sealing expansion joints
2. Adhering blocks and bricks
3. Sealing above and below grade penetrations in unrated construction

Bonds To:

- Stone
- Concrete
- Masonry
- Wood
- Metal (including aluminium)
- Painted surfaces
- Clay
- Vinyl

Other uses include:

4. General repairs
5. Sealing areas with constant water immersion

■ FOR BEST PERFORMANCE:

- Protect unopened containers from heat and direct sunshine.
- In cool or cold weather, store container at room temperature for at least 24 hours before using.
- Substrates such as copper, stainless, and galvanized typically require the use of a primer. An adhesion test is recommended for any questionable substrates.
- UV exposure may cause white 650 to discolour. This does not affect sealant performance.
- 650 can be applied below freezing temperatures only if substrates are completely dry, free of moisture, and clean.
- Lower temperatures and lower humidity will extend curing times.
- Pursuant to accepted industry standards and practices, using rigid paints and/or coatings over flexible sealants can result in a loss of adhesion of the applied paint and/or coating, due to the potential movement of the sealant. However, should painting and/or coating be desired it is required that the applicator of the paint and/or coating conduct on-site testing to determine compatibility and adhesion.

■ APPLICATION:

- 650 comes ready to use. Apply by caulking gun. Do not open cartridges until preparatory work has been completed.
- Fill joints from the deepest point to the surface by holding a properly sized nozzle against the back of the joint.
- Dry tooling is recommended. DO NOT use soapy water when tooling. Tooling results in the correct bead shape, a neat joint, and maximum adhesion.
- For roof tile applications apply a bead of 650 FLEXone sufficient to make a bond between two tiles on the upper surface of the down slope tile. Install the up-slope tile & press into the sealant bead to ensure good contact between the sealant and both tiles.

See detailed application instructions on PAGE 3.



NuFlex
SEALANTS

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TYPICAL PROPERTIES:

These values are not intended for use in preparing specifications. Spec Writers; please contact NUCO Inc. before writing specifications if any further information is required.

Description	Specification
As Supplied...	
Type:	One part polyurethane sealant
Tack free time (25°C (77°F)) and 50% relative humidity:	1-3 days
Cure time 13x6 mm (1/4"x 1/2") at 24°C (75°F), 50% humidity:	7 days
Water immersion:	21 days

As Cured - Physical - after 7 days at 25°C (77°F) and 50% relative humidity...

ASTM C 611 - Durometer Hardness Shore A, points	
At standard conditions:	25 - 30
After heat aging (max. Shore A: 50):	25
ASTM C795 - Weight loss, after heat aging:	3%
ASTM C792 - Cracking and chalking, after heat aging:	None
Shrinkage:	None
ASTM C510 - Stain and colour change:	Passes (no visible change)
ASTM D412 Die C - Tensile Strength, MPa (psi):	2.4 (350)
ASTM D412 Die C - Elongation at break, percent:	800%
ASTM C719 - Bond durability:	Passes ±35% movement
ASTM C639 - Rheological (sag in vertical displacement) at 49°C (120°F)	No sag
ASTM C603 - Extrudability, 3 seconds:	Passes
ASTM D1004 - Tear strength, kN/m (pli):	8.77 (50)
Joint movement capability:	+/- 35%
ASTM C1299 - Service temperature range:	-40° to 82°C (-40° to 180°F)
ASTM C793 - Artificial weathering, xenon arc, 250 hours	Passes
ASTM G26 - Artificial weathering, xenon arc, 3,000 hours	No surface cracking
ASTM C794 - Adhesion* in peel, pli (min. 5 pli):	Passes
ASTM C794 - Adhesion* in peel after UV radiation through glass (min 5 pli):	Passes
ASTM C1247 - Water immersion*, 50°C (122°F)	Passes 10 weeks with movement cycle

SPECIFICATIONS:

NuFlex® 650 FLEXone meets:

- ASTM C920, type S, Grade NS, Class 35, use NT,M,A,G*,O** and I
- Federal Specification TT-S-00230C, type II, Class A
- Corps of Engineers CRD-C-541, type II, Class A
- Canadian Specification CAN/CGSB-19.13-M87, Classification MCG-2-25-A-N, No. 81026
- USDA compliant for use in meat and poultry areas
- SWR Institute validated
- ISO 11600-F-25LM

LIMITED WARRANTY INFO:

NUCO Inc., warrants only that its product will meet its specifications for a period of 12 months following date of manufacture. NUCO shall in no event be liable for incidental or consequential damage, or improper storage. NUCO's liability, expressed or implied is limited to the stated selling price of any goods found to be defective.

Disclosure: The information and data contained herein is BASED ON INFORMATION WE BELIEVE TO BE RELIABLE. Please read all statements, recommendations or suggestions herein in conjunction with our CONDITIONS of SALE which apply to all goods supplied by us. We assume no responsibility for the use of these statements, recommendations or suggestions, nor do we intend them as recommendation for any use which would infringe any patent or copyright.

LIMITATIONS:

- Do not allow uncured 650 to come into contact with alcohol-based materials or solvents.
- Do not apply polyurethane sealants in the vicinity of uncured silicone.
- 650 should not come in contact with oil-based caulking, uncured silicone sealants, polysulfide, or fillers impregnated with oil, asphalt, or tar.
- Avoid submerged conditions where water temperatures will exceed 50°C (120°F).
- Do not use in swimming pool or other submerged conditions where the sealant will be exposed to strong oxidizers.
- Do not apply over freshly treated wood; treated wood must have weathered for at least 6 months.
- Not recommended for use on glass.

STORAGE AND SHELF LIFE:

- Shelf life is 12 months from the date of manufacture when stored in a clean, dry area.
- Store between 4° to 32°C (40° to 90°F).
- For best results, store the sealant in tightly closed containers when not in use.

CAUTION:

- Use in well ventilated areas and avoid breathing vapours.
- On contact, uncured sealant irritates eyes. Flush eyes with lukewarm water. Call physician.
- Avoid skin contact and DO NOT ingest.
- Consult Safety Data Sheet.

AVAILABLE SIZES & COLOURS:

SKU	Colour	Size	Format
65001	White	296 ml	Cartridge
65006	Grey	296 ml	Cartridge
65056	Grey	591 ml	Sausage

YIELD: Approx. meters per litre

	Joint Width		
	1/4"	3/8"	1/2"
1/4" Joint Depth	24.8 meters	16.5 meters	12.4 meters

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■ SURFACE PREPARATION & APPLICATION:

Before Use: Read the label in its entirety.

Joint Preparation:

- The number of joints and the joint width should be designed for a maximum of $\pm 35\%$ movement.
- The depth of the sealant should be $1/2$ the width of the joint. The maximum depth is $1/2"$ (13 mm) and the minimum is $1/4"$ (6 mm).
- In deep joints, the sealant depth must be controlled by Closed-Cell backer-Rod or Soft backer-Rod. Where the joint depth does not permit the use of backer-rod must be used to prevent three-point bonding.
- To maintain the recommended sealant depth, install backer-rod by compressing and rolling it into the joint channel without stretching it lengthwise. Closed-Cell backer-Rod should be about $1/8"$ (3 mm) larger in diameter than the width of the joint to allow for compression. Soft backer-Rod should be approximately 25% larger in diameter than the joint width. The sealant does not adhere to it, and no separate bond breaker is required. Do not prime or puncture the backer rod.

Surface Preparation:

Surfaces must be structurally sound, fully cured, dry, clean, free of dirt, moisture, loose particles, oil, grease, asphalt, tar, paint, wax, rust, waterproofing or curing and parting compounds, and membrane materials.

1. **Concrete, stone, and other masonry:** Clean by grinding, sandblasting, or wire brushing to expose a sound surface free of contamination and laitance.
2. **Wood:** New and weathered wood must be clean and sound. Scrape away loose paint to bare wood. Any coating that cannot be removed must be tested to verify adhesion of sealant or to determine an appropriate primer.
3. **Metal:** Remove scale, rust, and coatings from metal to expose a bare metal surface. Remove protective coatings as well as any chemical residue or film. Aluminum window frames are frequently coated with a clear lacquer that must be removed before the application of 650. Any coating that cannot be removed must be tested to verify adhesion of sealant or determine an appropriate primer. Remove any other protective coatings or finishes that could interfere with adhesion.

Priming:

1. NuFlex® 650 FLEXone is generally considered a non-priming sealant, but special circumstances or substrates may require a primer. It is the user's responsibility to check the adhesion of the cured sealant on typical test joints at the project site before and during application.
2. For immersion applications, a waterproofing primer must be used.
3. Apply primer full strength with a brush or clean cloth. A light, uniform coating is sufficient for most surfaces. Porous surfaces require more primer; however, do not over apply.
4. Allow primer to dry before applying 650. Depending on temperature and humidity, primer will be tack free in 15 – 120 minutes. Priming and sealing must be done on the same work day.

Application:

1. Cut nozzle to desired bead size and cut inner seal.
2. Using a caulking gun, dispense a bead of sealant to the prepared surfaces in a uniform thickness. 650 Flexone is supplied ready-to-use.
3. Smooth and tool bead immediately following installation. DO NOT use soapy water when tooling.
4. Allow sealant time to cure in an unconfined area.

Cure:

- Cure time is affected by humidity, degree of confinement, and cross-sectional thickness of the sealant.
- Sections up to 13 by 6 mm ($1/4"$ thick by $1/2"$ deep) at 24°C (75°F), 50% humidity:
Skins: 24 hours; **Functional:** 3 days; **Full cure:** 1 week; **Immersion service:** 21 days
- In applications where NuFlex 650 may be partially or totally confined during cure, the time required for proper cure is generally lengthened by the degree of confinement. Every application involving confinement should be thoroughly tested before production procures.
- Curing time increases with the thickness of the sealant.

Clean-up:

1. Uncured NuFlex® 650 polyurethane sealant cannot be removed with water.
2. Immediately after use, clean equipment with a lacquer thinner or xylene. Use proper precautions when handling solvents.
3. Remove cured sealant by cutting with a sharp-edged tool.
4. Remove thin films by abrading.

■ MANUFACTURER INFORMATION:

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