

MasterSeal[®] NP 2[™]

Multi-component high performance polyurethane sealant

Packaging

– 11/2 gallon units in 2 gallon
(5.67 L) pails

– 3 gallon unit in 31/2 gallon
(11.3 L) pails

available in pre-tinted colors:
Precast Gray and Limestone

Colors

40 standard, stocked colors
are available. Refer to Master
Builders Solutions Color
Portfolio for additional colors.

Yield

See page 3 for charts

Storage

Store in unopened containers in a
cool, clean, dry area. Do not open
containers until ready for use.

Shelf Life

Parts A and B
1 year when properly stored

MasterSeal 900 Color
Packs 5.5 years

Mixed VOC Content

When mixed, product contains less than
64.4 g/L less water and exempt solvents

Description

MasterSeal NP 2 is a multi-component, highly flexible, non-priming, high performance polyurethane sealant. It has been successfully tested for joint movement of $\pm 50\%$. It can be tinted to multiple colors.

PRODUCT HIGHLIGHTS

- Movement capability of $\pm 50\%$ adds protection against unanticipated movement
- Weather resistant for long-lasting weathertight seals
- Easy to gun and tool to speed up application and make neater joints
- MasterSeal 905 accelerator available for use in cold climate applications to help speed initial cure
- No primer required for most construction materials, lowering installation costs
- Wide temperature application range makes MasterSeal NP 2 suitable for all climates
- UL listed; Passes 4-hour, 4-inch, fire and hose stream test when used with Ultra Block or mineral wool
- Suitable for water immersion with documented performance in wet areas
- Chemical cure allows for faster turnaround time
- Bulk packaging results in less waste
- Long pot life provides extended working time
- Formulated to withstand pedestrian and vehicular traffic

Applications

- Interior and exterior
- Above and below grade
- Immersed in water
- Expansion joints
- Panel walls
- Precast units
- Aluminum and wood window frames
- Roofing
- Fascia
- Parapets
- Vinyl siding
- Store front assemblies
- Parking structures

How to Apply Joint Preparation

1. The product may be used in sealant joints designed in accordance with SWR Institute's Sealants - The Professional's Guide.
2. In optimal conditions, the depth of the sealant should be $\frac{1}{2}$ the width of the joint. The sealant joint depth (measured at the center) should always fall between the maximum depth of $\frac{1}{2}$ " and the minimum depth of $\frac{1}{4}$ ". Maximum recommended joint width is 3". Refer to Table 1.

Technical Data

Composition

MasterSeal NP 2 is a multi-component polyurethane product.

Compliances

- ASTM C 920, Type M, Grade NS, Class 25, use NT, T, A, M, O* and I
 - Federal Specification TT-S-00227E, Type II, Class A
 - Corps of Engineers CRD-C-506
 - Canadian Standards Board CAN/CGSB-19.24-M90, Classification MCG-2-40-A-N, No. 81029
 - CFI accepted
 - USDA compliant for use in meat and poultry areas
 - Underwriters Laboratories Inc.® classified (fire resistance only).
- * Refer to substrates in Where to Use.

Typical Properties

Property	Value
Temperature range, ° F (° C)	-40 to 180 (-40 to 82)
Shrinkage	None

Test Data

Property	results	test Method
Tensile strength, psi (MPa)	160 (1.1)	aSTM D 412
Ultimate elongation at break, %	280	aSTM D 412
Stain and color change	Passes (no visible stain)	aSTM C 510
Extrusion rate, sec, 3 hrs after mixing	6 Passes	aSTM C 603
Rheological (flow), at 120° F (49° C)	nonsag	aSTM C 639
Hardness, Shore A		aSTM C 661
At standard conditions	25	
After heat aging (max Shore A:50)	22	
Tack-free time, hrs, (maximum 72 hrs)	< 48 hours	aSTM C 679
Bond durability*, %, on aluminum and concrete	±25	aSTM C 719
Weight loss, after heat aging, %	4.7	aSTM C 792
Cracking and chalking, after heat aging	none	aSTM C 792
Artificial weathering, Xenon arc, 250 hours	Passes	aSTM C 793
Artificial weathering, Xenon arc, 2,000 hours	no surface cracking	ASTM G 26
Adhesion in peel, on aluminum and concrete*, pli	> 10	aSTM C 794
Water immersion, 122° F (50° C)	Passes 10 weeks with movement cycle	ASTM C 1247

*Primed for water immersion dictated by ASTM C 920. Concrete and aluminum primed with MasterSeal P 173; glass primed with MasterSeal P 176
Test results are typical values obtained under laboratory conditions. Reasonable variations can be expected.

TABLE 1

Joint Width and Sealant Depth

Joint Width, In (MM)	Sealant Depth at Midpoint, IN (MM)
1-1/2 (6-13)	1/4 (6)
1/2-3/4 (13-19)	1/4-3/8 (6-10)
3/4-1 (19-25)	3/8-1/2 (10-13)
1-3 (25-75)	1/2 (13)

TABLE 2

Working Time, hours

	Standard conditions 73° F (23° C) 50% rh	Higher temperature 95° F (35° C), 5 – 90% rh	Colder temperature 40° F (4° C)
No accelerator	2 – 3	1 – 2	4 – 6
1 accelerator	1 – 2	< 1	2 – 3
2 accelerators	< 1	—	1.5 – 2.5

Yield

Linear Feet per Gallon*

Joint Depth, (inches)	1	3/8	1/2	5/8	3/4	7/8	1	1 1/2	2	3
1/4	308	205	154	122	—	—	—	—	—	—
3/8	—	—	—	82	68	58	51	—	—	—
1/2	—	—	—	—	51	44	38	26	19	12

Meters per Liter

Joint Depth, (MM)	6	10	13	16	19	22	25	38	50	75
6	24.8	16.5	12.4	9.8	—	—	—	—	—	—
10	—	—	—	6.6	5.5	4.7	4.1	—	—	—
13	—	—	—	—	4.1	3.5	3.0	2.2	1.5	0.7

- 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, a bond breaker (polyethylene strip) 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

Substrates must be structurally sound, fully cured, dry and clean. Substrates should always be free of the following: dirt, loose particles, oil, grease, asphalt, tar, paint, wax, rust, waterproofing or curing and parting compounds, membrane materials and sealant residue.

Concrete, stone, and other masonry
Clean by grinding, sandblasting or wire brushing to expose a sound surface free of contamination and laitance.

Wood

New and weathered wood must be clean, dry and sound. Scrape away loose paint to bare wood. Any coatings on wood must be tested to verify adhesion of sealant or to determine an appropriate primer.

Metal

Remove scale, rust and loose coatings from metal to expose a bright white surface. Any coatings on metal must be tested to verify adhesion of sealant or to determine an appropriate primer.

Priming

- MasterSeal NP 2 is 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. Refer to product data sheet on MasterSeal P 173 and MasterSeal P 176, and consult Technical Service for additional information.
- For immersion applications, MasterSeal P 173 must be used.
- 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.
- Allow primer to dry before applying MasterSeal NP 2. Depending on temperature and humidity, primer will be tack-free in 15–20 minutes. Priming and sealing must be done on the same day.

Mixing

- MasterSeal NP 2 is a multi-component system with a configuration of Part A, Part B and a color pack.
- Transfer entire contents of Part B to Part A container using a spatula or margin trowel.
- Part B must be mixed thoroughly with Part A. Before adding pigment, scrape sides of container to ensure complete mixing of Parts A and B. With a slow-speed drill and a sealant mixing paddle, mix 4–6 minutes. Keep the paddle blade below the surface of the sealant to avoid whipping air into the sealant.
- Transfer the entire contents of one MasterSeal 900 pigment can into the mixed Part A and B. Use a spatula or knife to remove all the pigment from the container. Continue mixing with a slow-speed drill and slotted paddle until color is uniform. During the process, scrape the sides and bottom of the mixing container several times to obtain a complete mix.
- The pot life of mixed MasterSeal 905 accelerator is influenced by temperature. See Table 2 for specific data. MasterSeal 905 accelerator may be added to adjust the initial cure rate.

Application

- Except when unusual job conditions dictate the use of knife or spatula, apply MasterSeal NP 2 by professional bulk gun loaded at the jobsite. Fill joints from the bottom up to the exterior face by holding a properly sized nozzle against the joint bottom.

- 2. Dry tooling is recommended. Proper tooling results in the correct bead shape, neat joints, and optimal adhesion.
- 3. Best practices dictate that all caulking and sealing be done when temperatures are above 40° F (4° C) to avoid application to moisture-laden surfaces. Moisture on substrates will adversely affect adhesion.
- 4. Application may proceed as low as 40° F (4° C) if there is certainty that substrates are completely dry, free of moisture and clean as described under Surface Preparation.

Curing

The cure of MasterSeal NP 2 varies with temperature and humidity. The following times assume 75° F (24° C), 50% relative humidity, and a joint 1/2" (13 mm) in width by 1" (6 mm) in depth.

- Skins: within 3–4 hours
- Full cure: approximately 1 week

See Table 2 for use of MasterSeal 905 accelerator.

Clean Up

Immediately after use and before sealant has cured, clean equipment with MasterSeal 990 or xylene. Cured sealant may be removed by cutting with a sharp-edged tool. Remove thin films by abrading.

For Best Performance

- 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.
- Do not allow uncured MasterSeal NP 2 to come into contact with alcohol-based materials or solvents.
- Do not use as a cap, heel or toe bead for exterior glazing.
- Do not apply polyurethane sealants in the vicinity of uncured silicone sealants or uncured MasterSeal NP 150™.

- MasterSeal NP 2 should not come in contact with oil-based caulking, silicone sealants, polysulfides or fillers impregnated with oil, asphalt or tar.
- Do not apply epoxy-based coatings in the vicinity of uncured MasterSeal NP 2.
- Do not apply to freshly treated wood; treated wood must have weathered for at least 6 months.
- Do not open containers until ready for use.
- Units are premeasured; do not use partial units.
- MasterSeal NP 2 may yellow in the presence of unvented artificial heat; this is a surface phenomenon that does not affect sealant performance.
- When MasterSeal NP 2 is used in areas subject to continuous water immersion, cure for 14 days at 70° F (23° C). Allow longer cure times at lower temperatures. Always use Master Seal P 173.
- Do not use in swimming pools, or on other submerged conditions where the sealant will be exposed to strong oxidizers. Avoid submerged conditions where water temperatures will exceed 120° F (50° C).
- Horizontal joints subject to traffic or intermittent ponding of water require the use of primer. Call Technical Service for details.
- Substrates such as copper, stainless and galvanized steel typically require the use of a primer; MasterSeal P 173 or MasterSeal P 176 are acceptable. For Kynar coatings, use MasterSeal P 173 only. An adhesion test is recommended for any other questionable substrate.
- Use only MasterSeal 900 color packs designed for use with MasterSeal NP 2.
- Proper application is the responsibility of the user. Field visits by Master Builders Solutions personnel are for the purpose of making technical recommendations only and not for supervising or providing quality control on the jobsite.

Health, Safety and Environmental

Read, understand and follow all Safety Data Sheets and product label information for this product prior to use. The SDS can be obtained by visiting www.master-builders-solutions.com. Master Builders Solutions.us, e-mailing your request to MasterBuildersSolutionsbscst@MasterBuildersSolutions.com

or calling 1(800)433-9517. Use only as directed.

**For medical emergencies only,
call ChemTrec® 1(800)424-9300.**

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