BASF
The Chemical Company

Technical Data Guide

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Joint Sealants

MasterSeal® NP 100™

High performance hybrid sealant

PACKAGING
300 ml (10.1 fl oz) cartridges,
30 cartridges per carton

COLORS
White, Stone,Limestone,Black,Medium Bronze, Aluminum Gray, Tan, Off White, Special Bronze, Redwood Tan, Hunter Green, Buff and Anodized Aluminum

YIELD
See page 3 for charts.

STORAGE
Store in original, unopened containers in a cool, dry area. Protect unopened containers from heat and direct sunshine. Storing at elevated temperatures will reduce shelf life.

SHELF LIFE
12 months when properly stored

VOC CONTENT
0.24 lbs/gal or 29 g/L

RELATED DOCUMENTS
- MasterSeal NP 100 SDS

DESCRIPTION
MasterSeal NP 100 is formulated with unique BASF polymers that allow for versatile adhesion to a variety of substrates while accommodating high movement and providing long term durability. MasterSeal NP 100 is a high performance, low modulus, high movement, non-sag, fast curing, ready-to-use hybrid sealant. It combines the best qualities of organic and silicone sealants to keep moving joints weathertight.

PRODUCT HIGHLIGHTS
- Superior adhesion to a variety of substrates resulting in a long term bond
- Low modulus, formulated for joint movement of ±50%
- Resists chalking, cracking and fading to maintain long lasting weathertight seals
- Compatible with elastomeric coatings and can be painted soon after installation
- Easy to gun and tool, which speeds up application and makes neater joints
- Fast curing helps to speed up jobsite production
- Wide temperature application range
- Non-staining formula for use on stone and other sensitive substrates
- Available in six standard colors
- Meets all State and Federal VOC regulations

APPLICATIONS
- Vertical or horizontal
- Exterior or interior
- Above grade
- For sealing a variety of building joints against water and air intrusion
- Joints with extreme movement
- Store front systems
- Expansion joints
- Panel walls
- Precast units
- Aluminum, vinyl, and wood window frames
- Fascia
- Parapets
- Sanitary applications
- Roofing

SUBSTRATES
- Kynar
- Stucco
- Aluminum
- Concrete
- Masonry
- Wood
- Stone
- Metal
- Vinyl
- Fiber cement siding

Technical Data

Composition

MasterSeal NP 100 is a formulation based on hybrid technology.

Compliances

- ASTM C 920, Type S, Grade NS, Class 50, Use NT, M, A, and O**
  - capable of +100/-50% movement under typical field conditions.
- Federal Specification TT-S-001543A, Type II, Class A, Type Nonsag
- Federal Specification TT-S-00230C, Type II, Class A
- Corps of Engineers CRD-C-541, Type II, Class A
- USDA compliant for use in areas that handle meat and poultry

* MasterSeal NP 100 not recommended for application on glass
** Refer to substrates in Where to Use.

Typical Properties

PROPERTY	VALUE
Service temp range, ° F (° C)	-40 to 185 (-40 to 85)
Shrinkage	None

Test Data

PROPERTY	RESULTS	TEST METHOD
Movement capability, %	± 50	ASTM C 719
100% modulus, psi (MPa)	40 – 50 (0.28 – 0.34)	ASTM D 412
Tensile strength, psi (MPa)	200 (1.38)	ASTM D 412
Tear strength, lb/in (kg/cm)	22 (3.90)	ASTM D 1004
Ultimate elongation at break, %	700 – 900	ASTM D 412
Rheological, (sag in vertical displacement), at 120° F (49° C)	No sag	ASTM C 639
Extension rate, mL/min	48.10	ASTM C 1183
Hardness, Shore A, at standard conditions	17 – 23	ASTM C 661
Weight loss, after heat aging, %	≤ 1	ASTM C 1246
Tack-free time, hrs (maximum 72 hours) **Tack-free time by touch,** min	Pass 3 – 6 hrs 50 – 70	ASTM C 679
Stain and color change	Passes (no visible stain)	ASTM C 510
Bond durability,* pli on glass, aluminum, and concrete, ± 50% movement	Passes	ASTM C 719
Adhesion* in peel, pli (kg/cm), (minimum 5 pli [0.89 kg/cm]) Aluminum Glass Concrete	 20.32 (5.71) 21.33 (5.89) 16.21 (3.75)	ASTM C 794
Adhesion in peel, pli (kg/cm), after UV radiation through glass, (minimum 5 pli [0.89 kg/cm])	33 (5.89)	ASTM C 794
Artificial weathering, Xenon arc, 2,000 hrs	No Cracking	ASTM G 155

*Concrete primed with MasterSeal P 179 for water immersion as indicated in ASTM C 920.
Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

HOW TO APPLY

JOINT PREPARATION

1. Design the number of joints and the joint width for a maximum of ±25% movement.
2. In optimum conditions, the depth of the sealant should be 1/2 the width of the joint. The sealant joint depth (measured at the center) should always fall between the maximum depth of ½ " and the minimum depth ¼ ". Refer to Table 1.
3. In deep joints, control the sealant depth by installing Closed-Cell Backer-Rod or Soft Backer-Rod. Where the joint depth does not permit the use of backer-rod, use a bond breaker (polyethylene strip) to prevent three-sided adhesion.
4. 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" 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. Because the sealant does not adhere to the backer-rod, no separate bond breaker is required. Do not prime or puncture the backer-rod.

TABLE 1
Joint Width and Sealant Depth

JOINT WIDTH, IN (MM)	SEALANT DEPTH AT MIDPOINT, IN (MM)
1/4 – 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 – 1-1/2 (25 – 38)	1/2 (13)

Yield

LINEAR FEET PER GALLON*

JOINT DEPTH (INCHES)	JOINT WIDTH (INCHES) 1/4	3/8	1/2	5/8	3/4	7/8	1
1/4	308	205	154	122	–	–	–
3/8	–	–	–	82	68	58	51
1/2	–	–	–	–	51	44	38

* One gallon equals approximately 12 cartridges.

METERS PER LITER*

JOINT DEPTH (MM)	JOINT WIDTH (MM) 1/4	3/8	1/2	5/8	3/4	7/8	1
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

* One liter equals approximately 3.33 cartridges.

SURFACE PREPARATION

Substrates must be structurally sound, fully cured, dry and clean. Substrates should be free of the following: dirt, moisture, 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.

METAL

1. Remove scale, rust and loose coatings from metal to expose a bright surface.
2. Test all coatings on metal that cannot be removed to verify adhesion of sealant or to determine an appropriate primer.

WOOD

1. New and weathered wood must be clean, dry and sound.
2. Scrape away loose paint to bare wood.
3. Test all coatings on wood that cannot be removed to verify adhesion of sealant or to determine an appropriate primer.
4. For freshly treated wood; allow six months for weathering.

PRIMING

1. MasterSeal NP 100 is considered a non-priming sealant, but special circumstances or substrates may require a primer.
   - Porous materials subject to intermittent water immersion require priming. Use MasterSeal P 179.
   - Certain architectural metal finishes may require priming with MasterSeal P 733.
   - 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 the technical data guides for MasterSeal P 179 and MasterSeal P 733.
2. Apply primer full strength with a brush or clean cloth. A light, uniform coating is sufficient for most surfaces. Very porous surfaces may require a second coat of MasterSeal P 179; however, do not over apply.
3. Allow primer to dry before applying MasterSeal NP 100. Depending on temperature and humidity, primer will be tack free in 15 – 30 minutes. Priming and sealing must be done on the same work day.

APPLICATION

1. MasterSeal NP 100 comes ready to use. Apply using a professional grade caulking gun. Do not open cartridges, sausages, or pails until preparatory work has been completed.
   NOTE: MasterSeal NP 100 is not a structural sealant.
2. Fill joints from the deepest point to the surface by holding an appropriately sized nozzle against the back of the joint.
3. Dry tooling is recommended. Proper tooling results in the correct bead shape, neat joints and optimal adhesion.
4. 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. Application may proceed as low as 20° F (-6° C) if there is certainty that substrates are completely dry, free of frost, and clean as described under Surface Preparation.

CLEAN UP

1. Immediately after use, clean equipment with Reducer 990 or xylene. Use proper precautions when handling solvents.
2. Remove cured sealant by cutting with a sharp-edged tool.
3. Remove thin films by abrading.

CURING TIME

The cure of MasterSeal NP 100 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 1/4" (6 mm) in depth.

Skins: within 1 hour
Full cure: approximately 1 week
Full adhesion development: 10 – 14 days

FOR BEST PERFORMANCE

- In cold weather, store container at room temperature for at least 24 hours before using.
- Do not allow uncured MasterSeal NP 100 to come into contact with alcohol-based materials or solvents.
- MasterSeal NP 100 should not be applied adjacent to other uncured sealants and certain petroleum based products.
- MasterSeal NP 100 can adhere to other residual sealants in restoration applications. For best results, always clean the joint as advised in the Surface Preparation section of this data guide. A product field adhesion test for MasterSeal NP 100 within the specific application is always recommended to confirm adhesion and suitability of the application.
- MasterSeal NP 100 should not be used for continuous immersion in water. Contact Technical Services for recommendations.
- Do not use MasterSeal P 179 on nonporous surfaces such as aluminum, steel, vinyl, or Kynar 500 based paints. Use MasterSeal P 733 on coated metals when testing dictates.
- Lower temperatures and humidity will extend curing times.
- MasterSeal NP 100 can be painted over after a thin film or skin forms on the surface.
- 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.
- Proper application is the responsibility of the user. Field visits by BASF 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 buildingsystems.basf.com, e-mailing your request to basfbscst@basf.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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