BASF

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Technical Data Guide

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Joint Sealants

MasterSeal® NP 100™ and NP 100™ Tint Base

High-performance hybrid sealant

PACKAGING

NP 100

– 300 ml (10.1 fl oz) cartridges, 30 per carton
– 590 ml (20 fl oz) ProPaks, 20 per carton

NP 100 TINT BASE

– 1.5 gallon plastic pail (5.7L) units
– MasterSeal 906 accelerator available in 8g tubes, 10 per carton

COLORS

NP 100

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

NP 100 TINT BASE

– 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 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

1 year when properly stored

VOC CONTENT

0.24 lbs/gal or 29 g/L

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.

MasterSeal NP 100 Tint Base is a one-component, tintable, non-sag, hybrid sealant. It can be tinted to multiple colors to meet aesthetic needs.

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
- Meets all State and Federal VOC regulations
- Low emitting material suitable for use in classrooms, health care facilities, private offices, and single family homes
- MasterSeal NP 100 Tint Base is available to meet a wide variety of color requirements
- MasterSeal NP 100 Tint Base is packaged in an easy open and seal plastic pail for job site convenience
- MasterSeal 906 accelerator can be added to MasterSeal NP 100 Tint Base to speed cure times
- Can adhere to green concrete up to 72 hours after pour

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

- PVDF Coatings
- EIFS
- Stucco
- Aluminum
- Concrete
- Masonry
- Wood
- Stone
- Metal
- Vinyl
- Fiber cement siding

MASTER® BUILDERS SOLUTIONS

Technical Data

Composition

MasterSeal NP 100 is a formulation based on hybrid technology.

Compliances

- ASTM C 920, Type S, Grade NS, Class 50, Use T and NT, M, A, and O**
- ASTM C 1382 for use with EIFS wall systems at 100% extension
- 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
- CDPH/EHLB/Standard Method Version 1.1, 2010, compliance as a low emitting material for use in classrooms, private offices, and single family residences

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

Typical Properties

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

SEALANT • WATERPROOFING & RESTORATION INSTITUTE

Issued to: BASF Corporation
Product: MasterSeal NP 100

C719: Pass ✔ Ext:+50% Comp:-50%

Substrate: Primed Mortar, Unprimed Aluminum, Unprimed Glass & Unprimed Kynar [motar substrates were primed with MasterSeal P 179]

Validation Date: 12/28/15 - 12/27/20

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SEALANT VALIDATION
www.swrionline.org

Test Data

PROPERTY	RESULTS	TEST METHOD
Movement capability, %	± 50	ASTM C 719
100% modulus, psi (MPa)	25–50 (0.24–0.34)	ASTM D 412
Tensile strength, psi (MPa)	160-200 (1.1-1.38)	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])		ASTM C 794
Aluminum	20.32 (5.71)	
Glass	21.33 (5.89)	
Concrete	16.21 (3.75)	
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 ±50% 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 ⅛" 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)
¼ – ½ (6–13)	¼ (6)
½ – ¾ (13–19)	¼ – ⅜ (6–10)
¾ –1 (19–25)	⅜ – ½ (10–13)
1–1½ (25–38)	½ (13)

Yield

LINEAR FEET PER GALLON*

JOINT DEPTH (INCHES)	JOINT WIDTH (INCHES) ¼	⅜	½	⅝	¾	⅞	1
¼	308	205	154	122	–	–	–
⅜	–	–	–	82	68	58	51
½	–	–	–	–	51	44	38

* One gallon equals approximately 12 cartridges.

METERS PER LITER*

JOINT DEPTH (MM)	JOINT WIDTH (MM) 6	10	13	16	19	22	25
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.

TABLE 2
Working Time, hours

	STANDARD CONDITIONS 73 °F (23 °C) 50% RH	COLDER TEMPERATURE 40 °F (4 °C)
No accelerator	6–7	72–96
1 accelerator	1–2	3–5
2 accelerators	< 1	1.5–2.5

TABLE 3
Accelerator Recommendation

	STANDARD CONDITIONS 73 °F (23 °C) & 50% RH	HIGHER TEMPERATURE 100 °F (38 °C) & 95% RH	COLDER TEMPERATURE 35 °F (2 °C)
No accelerator	15 Days	3 Days	2.5 - 3 Months
1 accelerator	10 Days	3 Days	5 - 7 Weeks
2 accelerators	6 Days	1 Days	8 Days
3 accelerators	–	1 Days	6 Days

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 173.
   - 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 173.
   - For green concrete applications, MasterSea l P 173 or MasterSeal P 179 must be used..
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

NP 100

1. MasterSeal NP 100 comes ready to use. Apply using a professional grade caulking gun. Do not open cartridges or sausages 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.

NP 100 TINT BASE

1. MasterSeal NP 100 Tint Base comes ready to use. Do not open pails until preparatory work has been completed. To pigment material, transfer the entire contents of one MasterSeal 900 pigment into the MasterSeal NP 100 Tint Base. Add one can of MasterSeal 900 pigment to one 1.5 gallon pail of MasterSeal NP 100 Tint Base. Use a spatula or knife to remove all the pigment from the container. Mix with a slow speed drill and slotted paddle for 3-4 minutes until color is uniform. During the process, scrape the sides and bottom of the mixing container several times.
2. Apply using a professional grade bulk gun. Place the lid securely on the pail when not in use to maximize potlife.

CLEAN UP

1. Immediately after use, clean equipment with MasterSeal 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 ½" (13 mm) in width by ¼" (6 mm) in depth.
Skins: within 1 hour
Full cure: approximately 1 week
Full adhesion development: 10–14 days

MasterSeal NP 100 Tint Base has the same cure time as MasterSeal NP 100. However, MasterSeal 906 accelerator can help improve the MasterSeal NP 100 Tint Base cure time.

ACCELERATED CURING

Skins: approximately 35 minutes with 1 tube of MasterSeal 906 accelerator, 25 minutes with 2 tubes of MasterSeal 906 accelerator
Full adhesion development: approximately 10 days with 1 tube of MasterSeal 906 accelerator, 6 days with 2 tubes of MasterSeal 906 accelerator
NOTE: MasterSeal 906 affects potlife and working time. Accelerated material cannot be resealed for future use. Refer to Table 3.

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 PVDF based paints. Use MasterSeal P 173 on PVDF 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.
- In green concrete applications, sealing joints in concrete prior to 72 hours after concrete placement will impact the ability of sealant to gain adhesion. MasterSeal P 173 or MasterSeal P 179 should be used as a primer in all green concrete applications. It is always recommended to conduct a mock up when applying NP 100 to green concrete.
- 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

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

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