



The Chemical Company

PRODUCT DATA

7 07 92 00 **Joint
Sealants**

SONOLASTIC® NP 2™

Multiple-component high-performance
polyurethane sealant

Description

NP 2™ is a three-component, highly flexible, nonpriming, high-performance polyurethane sealant. It has been successfully tested for joint movement of plus or minus 50%. Choose from 40 popular stock colors and 470 standard colors.

Yield

See page 3 for charts.

Packaging

1-1/2 gallon units in 2 gallon
(5.67 L) pails

3 gallon unit in 3-1/2 gallon
(11.3 L) pails

Available in pretinted colors: Precast
Gray and Limestone

1-1/2 gallon units in 2 gallon
(5.67 L) pails

3 gallon units in 3-1/2 gallon
(11.3 L) pails

Colors

40 standard, stocked colors are
available. Refer to the Popular Palette
for Sealants and Waterproofing.

470 standard (nonstocked) colors are
also available, and custom matching
can be done upon request. Refer to
the Sonneborn® Color Portfolio.

Shelf Life

Parts A and B:
1 year when properly stored

Color Packs:
5.5 years

Storage

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

Features

- Elastomeric, movement capability of $\pm 50\%$
- Resistant to weather, airborne pollutants, and chemicals
- Superior adhesion
- NP 2™ accelerator available
- Sonneborn® Color Portfolio available
- Excellent gunability over a broad temperature range
- Nonstaining
- UL listed
- Suitable for water immersion

Benefits

- Adds protection against unanticipated movement
- Long-lasting performance on all applications
- Requires no primer on many construction materials
- Use for cold climate applications; speeds initial cure
- Choose from 463 custom colors
- Speeds application
- Use where aesthetics are a primary concern
- Passes 4 hour, 4 inch, fire and hose stream test when used with Ultra Block® or mineral wool
- Documented performance in wet areas

Where to Use

APPLICATION

- Expansion joints
- Curtain walls
- Panel walls
- Precast units
- Perimeter window caulking
- EIFS
- Tilt-up panel joints
- Vinyl siding
- Wastewater treatment plants
- Dams
- Spillways and storm drains
- Wetwells and manholes
- Parking decks

LOCATION

- Horizontal and vertical joints
- Interior and exterior
- Immersed in water

SUBSTRATE

- Concrete
- Masonry
- Aluminum
- Marble
- Granite
- Brick
- Stucco
- Limestone

Sonneborn®

Technical Data

Composition

NP 2™ is a three-component polyurethane product.

Compliances

- ASTM C 920, Type M, Grade NS, Class 25, use NT, T, G*, 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
- Canadian approval for use in establishments that handle food
- USDA compliant for use in meat and poultry areas
- Underwriters Laboratories Inc.® classified (fire resistance only).

* NP2 not recommended for application on glass.

** 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 METHODS
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 At standard conditions After heat aging (max Shore A:50)	25 22	ASTM C 661
Tack-free time, hrs, (maximum 72 hrs)	< 48 hours	ASTM C 679
Bond durability*, %, on glass, 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 glass, aluminum, and concrete*, pli	> 10	ASTM C 794
Adhesion in peel,* after UV radiation through glass, 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 733; glass primed with 766.

Test results are typical values obtained under laboratory conditions. Reasonable variations can be expected.

How to Apply

Joint Preparation

1. The number of joints and the joint width should be designed for a maximum of ±25% movement.
2. The depth of the sealant should be one-half the width of the joint. The maximum depth is 1/2" (13 mm) and the minimum is 1/4" (6 mm) Maximum recommended joint width is 2". Refer to Table 1 on next page.

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)

3. In deep joints, the sealant depth must be controlled by Closed-Cell Backer-Rod or Soft Backer-Rod (see Form No.1026342). Where the joint depth does not permit the use of backer-rod, a bondbreaker (polyethylene strip) must be used to prevent three-sided adhesion. For horizontal joints, use Closed Cell Backer Rod.

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

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

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" (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 bondbreaker 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, water-proofings, curing and parting compounds and membrane materials.

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 and sound. Scrape away loose paint to bare wood. Any coating that cannot be removed must be tested to verify adhesion of sealant or determine an appropriate primer.

METAL

Remove scale, rust, and coatings from metal to expose a bright white 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 NP 2™. 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. NP 2™ 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. Refer to product data sheet on Primer 733 or 766 (Form No. 1017962), and consult Technical Service for additional information.

2. For immersion applications, Primer 733 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 overapply.

4. Allow primer to dry before applying NP 2™. 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.

Mixing

1. NP 2™ is a three-component system and must be thoroughly mixed before use. The oversize Part A container allows for the addition and mixing of Part B and Sonolastic® color pigment into Part A.

2. 1-1/2 gallon (5.67 L) unit: Transfer entire contents of Part B to Part A container using a spatula or a margin trowel.

3. It is imperative that Part B be mixed thoroughly with Part A. Before adding Sonolastic® pigment, scrape sides of container to ensure complete mixing of Parts A and B.

TABLE 2

Working Times, 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

4. With a slow-speed drill and a sealant mixing paddle, mix 4 – 6 minutes. The paddle blade must be kept below the surface of the sealant to avoid whipping air into the sealant.
5. Transfer the entire contents of the Sonolastic® 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 (500 – 600 rpm) drill and slotted paddle until color is uniform. During the process, the sides and bottom of the container must be scraped several times to obtain a complete mix.
6. 3 gallon (11.37 L) unit: Use 2 Part B and 2 Sonolastic® pigment containers for each Part A container. Mix as instructed under 1-1/2 gallon (5.7 L) unit.
7. The pot life of mixed NP 2™ is influenced by temperature. See Table 2 for specific data. NP 2™ accelerator or extender may be added to adjust the initial cure rate.

Application

1. Except when unusual job conditions dictate the use of knife or spatula, apply 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. Proper tooling ensures the correct bead configuration and a neat joint. Equally important, it ensures maximum adhesion to the sides of the joint. For best results, dry tool. DO NOT use water or soapy water to tool. Avoid overtooling of sealant.
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 20° F (-6° C) if there is certainty that substrates are completely dry, free of moisture, and clean as described under Surface Preparation.

Clean Up

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

Curing

1. NP 2™ cures by a chemically controlled reaction. Initial cure is within 24 hours, and complete cure takes approximately 7 days. Allow 14 days cure at 70° F (23° C) prior to water immersion. Cure rates are dependent on temperature and humidity.
2. The initial cure rate of NP 2™ can be adjusted for seasonal and geographic climactic conditions. See Table 2 for use of accelerator and extender.

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 NP 2™ to come into contact with alcohol-based materials or solvents.
- Do not apply polyurethane sealants in the vicinity of uncured silicone sealants or uncured Sonolastic® 150 with VLM Technology or 150 Tint Base.
- 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 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.
- NP 2™ may yellow in the presence of unvented artificial heat; this is a surface phenomenon that does not affect sealant performance.
- When NP 2™ is to be 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 Primer 733.

- 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 typically require the use of a primer; Primers 733 or 766 are acceptable. For Kynar coating use Primer 733 only. An adhesion test is recommended for any other questionable substrate.
- Do not use as a cap, heel or toe bead for exterior glazing.
- Use only color packs designed for use with NP 2™.
- Make certain the most current versions of product data sheet and MSDS are being used; call Customer Service (1-800-433-9517) to verify the most current version.
- 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 and Safety

NP 2™ PART A

Warning

NP 2™ Part A contains Stoddard solvent, solvent naphtha (petroleum), light aromatic, 1, 2, 4 trimethyl benzene, silica crystalline quartz and toluenediisocyanate mix.

Risks

May cause skin and eye irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Inhalation may cause irritation and intoxication with headaches, dizziness and nausea. Ingestion may cause irritation. Reports associate repeated or prolonged occupational overexposure to solvents with damage to brain, nervous system, liver or kidneys. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. Use only with adequate ventilation. Keep container closed when not in use. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain hazardous residues. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials listed by the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content

0.44 - 0.67 lbs/gal or 53 - 80 g/L, less water and exempt solvents.

NP 2™ PART B

Warning

NP 2™ Part B contains toluene diisocyanate mix.

Risks

May cause skin, eye, or respiratory irritation. May cause dermatitis and allergic reactions. Potential skin and respiratory sensitizer. Ingestion may cause irritation.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes, and clothing. Wash thoroughly after handling. DO NOT take internally. Ingestion may cause irritation. Use only with adequate ventilation. Inhalation may cause irritation. Keep container closed. Use impervious gloves, eye protection, and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state, and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials which are known to the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content

When mixed, product contains less than 64.4 g/L or 0.54 lbs/gal, less water and exempt solvents.

NP 2™ ACCELERATOR

Caution

NP 2™ Accelerator contains 2-ethylhexanoic acid.

Risks

May cause skin, eye or respiratory irritation. May be absorbed through the skin. May cause dermatitis and allergic reactions. Ingestion may cause irritation. Repeated or prolonged absorption may affect the kidneys.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. DO NOT take internally. Use only with adequate ventilation. Inhalation may cause irritation. Keep container closed. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product does not knowingly contain materials which are known to the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content

0 lbs/gal or 0 g/L, less water and exempt solvents.

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

**BASF Construction Chemicals, LLC –
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Form No. 1017911 10/09
Printed on recycled paper including 10% post-consumer fiber.

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