

MasterSeal[®] NP 2

Multiple-component, high-performance, polyurethane sealant

DESCRIPTION

MasterSeal NP 2 is a multi-component, highly flexible, high performance, non-sag, polyurethane sealant. It has been successfully tested for joint movement of $\pm 50\%$. It is available in 40 colors using special **MasterSeal 900** color packs.

TYPICAL APPLICATIONS

MasterSeal NP 2 is the ideal material for high movement, vertical or horizontal expansion joints, to provide a durable, weathertight, elastomeric seal.

Typical applications include:

- Interior and exterior
- Above and below grade
- Water retaining structures (with primer)
- Horizontal and vertical expansion joints in buildings and structures
- Wide joints up to 75mm
- Panel walls
- Precast units
- Aluminum and wood window frames
- Roofing
- Fascia
- Parapets and vinyl siding
- Store front assemblies
- Parking structures
- Jersey barriers

ADVANTAGES

- 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
- 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 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 at elevated temperatures
- Resilient seal withstands pedestrian and vehicular traffic
- Non-sag formulation allows use in very wide vertical joints

PACKAGING AND COLORS

MasterSeal NP 2 is stocked in pre-tinted colors: precast grey and limestone

MasterSeal 900 color packs (0.29L) are available by air freight in 40 standard colors. Refer to Master Builders Solutions Color Portfolio for additional colors. **MasterSeal NP 2** is supplied in 5.7 litre without color packs.

STANDARDS

- 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
- U.S. 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.

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TYPICAL PROPERTIES*

Sealant Classification	ASTM C 920	Type M, Grade NS, use NT, T, A, M, O*, and I
Maximum joint width		75mm
Tensile strength, MPa	ASTM D 412	1.1
Movement capability	ASTM C 719	±50%
Ultimate elongation at break, %	ASTM D 412	280
Stain and color change	ASTM C 510	Passes (no visible stain)
Extrusion rate, sec, 3 hrs after mixing	ASTM C 603	6 Passes
Rheology @49°C (flow)	ASTM C 639	Non-sag
Hardness, Shore A - At standard conditions - After heat aging (max Shore A:50)	ASTM C 661	25 (pass) 22 (pass)
Tack-free time, hrs, (maximum 72 hrs)	ASTM C 679	<48 hours
Bond durability*, %, on aluminium and concrete	ASTM C 719	Passes
Weight loss, after heat aging, %	ASTM C 792	4.7
Cracking and chalking, after heat aging	ASTM C 792	None
Artificial weathering, Xenon arc, 2,000 hours	ASTM G 26	No surface cracking
Adhesion in peel, on aluminium and concrete*, pli	ASTM C 794	>10
Water immersion, 50°C	ASTM C 1247	Passes 10 weeks with movement cycle
Working time (pot life)		1 – 2 hrs @ 35°C
Shrinkage		None
Temperature range °C		- 40 to 82
VOC Content		64.4 g/L

*Primed for water immersion dictated by ASTM C 920.
Concrete, aluminum and glass primed with **MasterSeal P 101**.

APPLICATION GUIDELINES

The depth of the sealant should be ½ the width of the joint. The sealant joint depth (measured at the center) should always fall between the maximum depth of 13mm and the minimum depth of 6mm. Maximum recommended joint width is 75mm.

The sealant depth must be controlled by closed cell backer rod.

Closed cell backer rod should be about 3mm 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. Do not prime or puncture the backer rod as this may cause bubbling in the sealant.

SURFACE PREPARATION

It is essential that the surface of the joints to be sealed are structurally sound, clean and uncontaminated.

Concrete, stone and masonry surfaces should be prepared by grinding and vacuum away all dust.

Test other surfaces for adhesion before proceeding.

PRIMING

MasterSeal NP 2 is considered a non-priming sealant, but special circumstances e.g. when sealant will be constantly immersed, or substrates (e.g., certain coatings on aluminium) may require a primer **MasterSeal P 101**.

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. Consult Master Builders Solutions Technical Services for additional information.

Mix apply primer 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 installing **MasterSeal NP 2**.

Depending on temperature and humidity, primer will be tack free in 15 to 120 minutes. Priming and sealing must be done on the same work day.

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MIXING

MasterSeal NP 2 is either a two component pre-pigmented system consisting of Part A, Part B. Alternatively, when the neutral grade unpigmented system is used, a third component, the **MasterSeal 900 color pack** is added.

Mixing pre-pigmented 2 component system:
Transfer entire contents of Part B to Part A container using a spatula or margin trowel. With a slow-speed drill and a sealant mixing paddle, mix 2 - 3 minutes, and scrape down sides of pail with a spatula before mixing for a further 2minutes. Keep the paddle blade below the surface of the sealant to avoid whipping air into the sealant.

Mixing pre-pigmented 2 component system:
As above, add Part B to Part A and mix for 2 – 3 minutes. Before adding pigment, scrape sides of container to ensure complete mixing of Parts A and B. 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.

PLACING / APPLICATION

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.

Dry tooling is recommended. Proper tooling results in the correct bead shape, neat joints, and optimal adhesion.

Best practices dictate that all caulking and sealing be done when temperatures are above 4°C to avoid application to moisture-laden surfaces. Moisture on substrates will adversely affect adhesion.

CURING

The cure of **MasterSeal NP 2** varies with temperature and humidity. The following times assume 24°C, 50% relative humidity, and a joint 13mm in width by 6mm in depth.

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

CLEANING

Immediately after use and before sealant has cured, clean equipment with a suitable solvent such as Xylene. Cured sealant may be removed by cutting with a sharp-edged tool. Remove thin films by abrading.

COVERAGE / YIELD

Joint Depth (mm)	Joint Width (mm)				
	12.5	19	25	38	75
6	12.4	-	-	-	-
10	-	5.5	4.1	-	-
13	-	4.1	3.0	2.2	0.7

The above table shows the meters per litre of mixed material for the indicated joint widths and depths.

WATCHPOINTS

MasterSeal NP 2 may be paintable when fully cured. However, rigid paints will flake and debond as the joint expands or contracts. The contractor should always perform adhesion tests to satisfy himself whether any proposed coating is compatible.

Do not use as a cap, heel or toe bead for exterior glazing.

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.

Always use **MasterSeal P 101** primer when **MasterSeal NP 2** is used in areas subject to

continuous water immersion. Cure for 14 days at 23°C.

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Allow longer cure times at lower temperatures. 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 50°C.

Horizontal joints subject to traffic or intermittent ponding of water require the use of **MasterSeal P 101**.

Substrates such as copper, stainless and galvanized steel typically require the use of a primer; **MasterSeal P 101**.

An adhesion test is recommended for any other questionable substrate.

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

QUALITY AND CARE

All products originating from Master Builders Solutions Dubai, UAE facility are manufactured under a management system independently certified to conform to the requirements of the quality, environmental and occupational health & safety standards ISO 9001, ISO 14001 and ISO 45001.

* Properties listed are based on laboratory controlled tests.

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STORAGE AND SHELF LIFE

Store out of direct sunlight, clear of the ground on pallets protected from rainfall. Shelf life is 12 months when stored as above in original packaging.

HEALTH AND SAFETY

May cause skin, eye or respiratory irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Ingestion may cause irritation. **KEEP OUT OF THE REACH OF CHILDREN.** Use only with adequate ventilation. Prevent contact with skin, eyes, and clothing. Wash thoroughly after handling. Use impervious gloves, eye protection.

In case of eye contact, flush thoroughly with water 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 effects occur, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, **SEEK IMMEDIATE MEDICAL ATTENTION.**

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STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this Master Builders Solutions publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

NOTE

Field service where provided does not constitute supervisory responsibility. Suggestions made by Master Builders Solutions either orally or in writing may be followed, modified or rejected by the owner, engineer or contractor since they, and not Master Builders Solutions, are responsible for carrying out procedures appropriate to a specific application.

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