SUNSTAR

type NB

"Non-Contamination Principle"

Non-bleed Series.

Sealant for construction use

Penguin Seal

PU9000 type NB

Paint-finish joint sealant (Concrete/ALC)

Two-component polyurethane

JSIA F★★★★

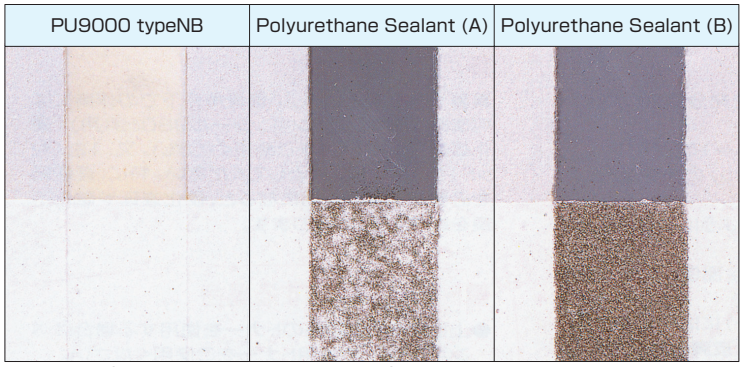
SUNSTAR, adopting "Non-Contamination Principle" as a slogan, is a pioneer in non-bleed sealant.

Non-paint-contamination, non-bleed

Non-bleed sealant with excellent adherability and non-paint-contamination

It contains no plasticizer, being compatible with most paints, causing no paint contamination, and providing excellent adherability.

Results of paint contamination tests



● Using aqueous paint ● Tested in volcanic-ash method

Excellent workability implements excellent finish

SUNSTAR's unique formulation technology prevents bleeding, stringiness, and contamination of joint circumferences, realizing excellent finish.

It conforms to JIS A 5758, F-25LM, PU-2-8020 (JIS mark certified product)

Intended purpose

Paint-finish joint sealant specific for

- sealing RC joints,
- sealing ALC panel joints, and
- sealing interfaces with sash frames of various materials

* Do not use the product for sealing exposed joints

Environmentally-friendly, lead-free Polyurethane sealant

Guidelines for indoor air pollution – Guideline values for indoor concentration

None of 13 volatile organic compounds (VOCs) that can cause sick-house syndrome is used.

It conforms to the Voluntary Regulations for Controlling Formaldehyde Pollution issued by Japan Sealant Industry Association (JSIA): Approval number: JSIA-004005 F ☆☆☆☆

Properties

	Base material	Hardener
Appearance	Light-yellow transparent liquid	White paste
Mixing ratio (weight ratio)	25/100	
Specific gravity (20℃)	0.97	
Shelf life	6 months (in storage at 25℃ or lower)	

Characteristics

Test item				Test results
Classification according to JIS 5758 (2004)				F25LM PU-2-8020
Slump(mm)	Vertical		50℃	0
			5℃	0
	Horizontal		50℃	0
			5℃	0
Elasticity recovery rate (%)				80
Tensile Property	Tensile Strength (N/mm²)	Aluminum plate	23℃	0.2
			-20℃	0.2
		Mortar plate	23℃	0.2
			-20℃	0.2
Adherability at maintained extension (at 23℃/-20℃)		Aluminum plate		No failure/No failure
		Mortar plate		No failure/No failure
Adherability after compressional heating and cooling at maintained extension		Aluminum plate		No failure/No failure
		Mortar plate		No failure/No failure
Adherability at maintained extension after immersion in water		Aluminum plate		No failure/No failure
		Mortar plate		No failure/No failure
Volume change (%)				9.7
Durability				Conforming to 8020

* Values shown in the tests results column are typical values.

Tensile adherability conforming to JIS A 1439 (2004)

Test substrate	Processing conditions	Test temperature	M_{50} (N/mm²)	T_{max} (N/mm²)	E_{max} (%)
Aluminum plate	After curing	23℃	0.11	0.30	600
	After heating	23℃	0.10	0.33	850
	After water immersion	23℃	0.09	0.26	650
Mortar Plate	After curing	23℃	0.10	0.29	620
	After heating	23℃	0.10	0.29	750
	After water immersion	23℃	0.08	0.23	600
ALC plate (Reference test)	After curing	23℃	0.12	0.24	450
	After heating	23℃	0.12	0.23	460
	After water immersion	23℃	0.11	0.23	460

* Values shown in the tests results column are typical values.

Hardening property

Shown below are pot life and tack-free time

Temperature at application	Pot life	Tack-free time
5℃	5 hours	Within 24 hours
23℃	4 hours	Within 24 hours
35℃	2 hours	Within 24 hours

Selecting primers

Application (Substrate)	Product name
Concrete, mortar, ALC, Metal sash	Primer BC-3

●Open time for Primer BC-3

Temperature	Time
5℃ - 20℃	30 minutes – 8 hours
20℃ –	20 minutes – 8 hours

●Standard applicable quantity for Primer BC-3

	Applicable length in meters (per can)
Non porous materials	180
Porous materials	90

* BC-3: 500 ml / can
* The values are calculated based on joint width of 10 mm x joint depth of 10 mm and application loss of 30%.

●Precautions for selection and use of primers

■Be sure to use Primer BC-3
■Before applying the primer, clean the joints thoroughly and check that the surface of the substrate is completely dry.
■Avoid using a brush that has been used for application of some other primers.
■Apply the primer in a thick coat to porous material surfaces and in a thin and even coat to non-porous material surfaces.
■If more than 8 hours have passed since the primer was applied, apply the primer again.
■Do not apply the primer to other than the application surfaces. If the primer is applied to other than the application surfaces, immediately wipe off the primer with a cloth immersed in a solvent.
■Once you open a primer can, use all the primer in the can within the day. If not, pour necessary amount of the primer into some other container and use it.
■Place the lid immediately after use, because the primer is very sensitive to moisture in the air
■The shelf life of Primer BC-3, when kept unopened in a dark cold place, is 6 months after the manufacturing date.

Compatibility with paint (Paint contamination/adherability)

Type of finish paint and common name			JASS18 JASS23	PU9000 typeNB		Competitors' PU-(Non-bleed type)	
				Contamination	Adherability	Contamination	Adherability
Finish paint	Exterior synthetic resin emulsion for thin coating	Resin lysine	Exterior thin coating E	○	○	○	○
	Flexible exterior synthetic resin emulsion for thin coating	Elastic lysine	Flexible exterior thin coating E	○	○	○	○
	Synthetic resin emulsion for multilayer coating	Acrylic tile	Multilayer coating E	○	○	○	○
	Reaction-hardening synthetic resin emulsion for multilayer coating	Aqueous epoxy tile	Multilayer coating RE	○	○	○	○
	Exterior synthetic resin emulsion for thick coating	Resin stucco	External thick coating E	○	○	○	○
	Waterproof exterior synthetic resin emulsion for thin coating	Single-layer elastic	Waterproof exterior thin coating E	○	○	○	○
	Waterproof synthetic resin emulsion for multilayer coating	Multilayer elastic	Waterproof multilayer coating E	○	○	○	○
	Flexible synthetic resin emulsion for repair coating	Slight elastic filler	Flexible repair coating E	○	○	○	○
Solvent	Acrylic resin enamel pain	Solvent-based acryl	AE	○	△	○	△
	2-liquid acrylic urethane resin enamel	Solvent-based urethane	2 - UE	○	△	○	△
Mild solvent	Turpene-soluble 1-liquid polyurethane resin enamel Turpene-soluble 1-liquid acrylic silicon resin enamel	—	—	※○	○	×	○
Aqueous paint	Glossy synthetic resin emulsion paint	Aqueous acryl	EP - G	○	○	○	×

[Contamination]: ○No contamination ×Contamination
[Adherability]: ○Good △Acceptable ×Poor

*Turpene-soluble 1-liquid polyurethane resin enamel and acrylic silicon resin enamel can increase drying time. Contact us for details of the results.

The above data are guidelines, and the results may differ depending on manufacturers of finish coatings and types of sealers. Conduct a check test as necessary.

[Caution] Some non-paint-contamination sealants (of non-breed type) can have poor adherablility or cause sticky surfaces. Conduct a check test prior to use. Avoid using oil paints (alkyd and phthalic acid resin paints), in particular, because they sometimes will not get dry. Some aqueous sealers and aqueous paints can be repelled when applied on the sealant. Check for applicability to the sealant prior to use through paint manufacturers or through contact with us.

General precautions for Penguin Seal PU9000 typeNB

■The sealant will not adhere to surfaces where no primer has been applied beforehand. Be sure to use a primer specified, and apply it thoroughly onto the intended surface. Make sure there is no portion left unprimed or unevenly primed.
■The base material (urethane polymer) contains isocyanate compounds. Do not let the base material come in contact with your skin or eyes.
■Do not try to simultaneously apply the sealant close to the area where a silicon, a modified silicon or an isobutylene sealant is being applied. (Otherwise, the cure time of the sealant may increase, or the sealant may not cure.)
■Prior to spraying a paint over the sealant, check that 48 hours or more have passed since the sealant was applied and that the surface of the sealant has cured.
■Penguin Seal PU9000 typeNB is specifically intended for paint finish. Do not use it as an exposed joint sealant.
■The product is a specific paint-finish sealant. If its surface is left unpainted for a long time, it can crack or discolor, turning reddish-brown.
■The shelf life of Penguin Seal PU9000 typeNB is 6 months (unopened, at 20℃).

Precautions for application

■Do not try to apply the sealant when the application surface is wet, including when it is raining or snowing.
■Do not apply the sealant to damp or wet joint surfaces such as those of concrete, mortar, or ALC having a high water content. Otherwise, poor curing, poor adhesion, swelling and other failures may occur. Check that the surfaces are completely dry prior to application.
■Prevent water from mixing in the sealant.
■To clean the joining surfaces, select a cleaning detergent that will not damage the joining surface. Do not use alcohols.
■Blend to use the base materials and hardening materials provided in a set. Once you open the cans, try to finish them up at a time.
■To prevent poor hardening and pockmarks on the surface layer, always use a can-rotating mixer to provide stable mixing and reduce trapped bubbles. Prior to operation of the mixer, check that the size of the paddles is suitable for the volume of materials.
■Using a can-rotating mixer, mix the materials thoroughly until they are uniformly mixed (for 15 minutes). Be sure to follow the mixing ratio. Scrape the mixture off the paddles while mixing.

Precautions for handling

■The sealant is developed and manufactured for use in general industries. Do not use it for other than the intended purposes.
■Store the sealant in a dry, well-ventilated, dark and cold place (at 25℃ or lower) while avoiding direct sun and rain.
■Be sure to wear protective gloves and glasses in handling the sealant.
■Make sure the working area is well ventilated in handling the sealant.
■For disposal of vacant containers of the sealant, have a licensed industrial waste disposal contractor handle it.

In case it happens--- First-aid measures

■In case the sealant comes in contact with your skin, immediately remove it with a piece of cloth. Then thoroughly wash the skin with soap and water. If irritation or inflammation occurs, immediately consult a doctor.
■In case the sealant gets into your eyes, rinse them thoroughly with clean water for at least 15 minutes and immediately consult an eye doctor.
■In case you inhale a lot of vapor of the sealant, move to a fresh-air area, rest while keeping yourself warm. Then immediately consult a doctor.
■In case you ingest the sealant, rinse your mouth with water, and drink a lot of water to induce vomiting. Then immediately consult a doctor.
■In case the sealant is splashed onto your clothes, try to remove it with a piece of cloth. Since it will be very difficult to remove it completely, be careful not to splash it.

For more detailed information on storage, first-aid measures, emergency measures (including fire and leakage), and disposition, refer to the Material Safety Data Sheet (MSDS).

Note for joint designing

To fully enjoy the 100% waterproof performance of Penguin Seal PU9000 typeNB, the dimensions of joints should be so designed as to minimize the sealant fatigue that can be caused by possible movement of the sealant after joint sealing.
The required width of the joint should be determined with the following taken into consideration: acceptable distortion of the sealant. linear expansion coefficient of components, and temperature range.

Acceptable extension ratio and shear transformation ratio of the sealant

	Extension		Shear transformation		Durability Classification
	M1	M2	M1	M2	
Penguin Seal PU9000 typeNB	10%	20%	20%	40%	8020

M1: Movement with temperature change considered
M2: Movement with wind, earthquake, and vibration considered

Volume and packing

●Metal can specifications (Can diameterϕ217)

Product name	Volume	Quantity
Penguin Seal PU9000 typeNB (Base material and hardener set)	6-liter set	2

●Eco can specifications

Product name	Volume	Quantity
Penguin Seal PU9000 typeNB Eco-CAN (Base material and hardener set)	6-liter set	2

*For mixing, a blender specific for Eco-CAN is required. Use the paddles for cans of ϕ217 in diameter.

When a toner is used:

When using a toner of the same color as that of the finish coating paint, use a toner commonly used with Penguin Seals.
Note that toners contain plasticizer, which may adversely affect non-contamination property of the sealant

Pot- life regulators

Use a pot-life regulator (“hardening retardant” or “hardening accelerator”) when the sealant is applied under severe conditions such as in mid-summer or in mid-winter.
Use up to one bag of regulator per can (set). As to retardants, using a more-than-necessary amount of retardant may result in a delay in the initial setting time for hardening.

●Hardening retarder: Use “9000 Hardening Retarder.”
●Hardening accelerator: Use “9000 Hardening Accelerator.”

Notes:
The information and data contained in this catalogue are based on results of the tests we carefully conducted. However, the performances and the properties of the product may differ according to materials and application conditions. Carefully consider and check the above before use. The product descriptions contained in this catalogue are subject to change without notice.

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