

SUNSTAR

PS169N

Lead-free polysulfide sealant,
friendly to global
environment,

Construction Sealant

Penguin Seal

PS169N

Stone, tile, and concrete joints (Metal/PCa)

Two-component polysulfide

JSIA F★★★★



The Sealant PS169N excels in totally balanced adherability, workability and design.

|| The sealant will implement long-sought totally-balanced performances

It will provide well-balanced performances in application to non-working joints widely used in low/medium-rise RC construction buildings, to various joints of stones, tiles, as well as to paint-finish joints.

|| Once cured, it shows least surface tack, providing excellent design

Least surface tack will resist contamination, creating outstanding joint finish.

|| Excellent workability and outstanding finish will improve work efficiency.

The sealant will provide sufficient pot life in summer and excellent cure in winter. It especially excels in providing quick and outstanding corner finish.

|| Conformance to JIS A 5758, Type F-25LM, Durability Classification 8020 (JIS mark certified product.)

Applications

- Various joint sealing of RC construction
- Joint sealing of stones and tiles
- Joint sealing of various sash frames
- Sealing in plants

* In using the sealants for working joints, perform joint designing referring to "Precautions for designing joint"

|| Lead-free, environment-friendly polysulfide 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-004003 F ☆☆☆☆

Properties

	Base material	Hardener	Toner
Appearance	White paste	Light-yellow transparent liquid	Paste of various colors
Mixing ratio (weight ratio)	100/23/4.7		
Specific gravity (20°C)	1.32		
Shelf life	6 months		

Characteristics JIS A 5758:2010

Test item		Test results		
Classification according to JIS 5758:2010		F25LM-8020 (PS-2)		
Slump(mm)	Vertical	50°C	0	
		5°C	0	
	Horizontal	50°C	0	
		5°C	0	
Elasticity recovery rate (%)		98		
Tensile Property	Tensile Strength (N/mm ²)	Aluminum plate	23°C	0.1
			-20°C	0.2
		Mortar plate	23°C	0.2
			-20°C	0.2
Adherability at maintained extension (at 23°C /-20°C)		Aluminum plate	No failure/No failure	
		Mortar plate	No failure/No failure	
Adherability after compressional heating and tensile cooling		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 (%)		3.1		
Durability		Conforming to 8020		

* Test results show typical values.

Tensile adherability conforming to JIS A 1439:2010

Test substrate	Processing conditions	Test temperature	M ₅₀ (N/mm ²)	T _{max} (N/mm ²)	E _{max} (%)
Aluminum plate	After curing	23°C	0.12	0.35	435
	After heating	23°C	0.10	0.34	507
	After water immersion	23°C	0.11	0.35	516
Mortar Plate	After curing	23°C	0.11	0.35	412
	After heating	23°C	0.08	0.34	460
	After water immersion	23°C	0.09	0.24	407

* Test results show typical values.

Note for designing joints

To fully enjoy the 100% waterproof performance of Penguin Seal PS169N, the dimensions of joints should be designed so 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 JIS A5758:2010
	M1	M2	M1	M2	
Penguin Seal PS169N	10%	20%	20%	40%	8030

M1: Movement with temperature change considered

M2: Movement with wind, earthquake, and vibration considered

Hardening property Shown below are pot life and tack-free time

Temperature at application	Pot life	Tack-free time
5°C	3 hours	Within 24 hours
23°C	3 hours	Within 24 hours
35°C	2 hours	Within 24 hours

Selecting primers

Application (Substrate)	Product name
Metal and varnished metal surfaces	Primer UM-3
Stone, tile, concrete and other porous material surfaces	Primer UM-3

● Open time for Primer UM-3

Temperature	Time
5°C - 20°C	30 minutes - 8 hours
20°C -	20 minutes - 8 hours

● Standard applicable quantity for Primer UM-3

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

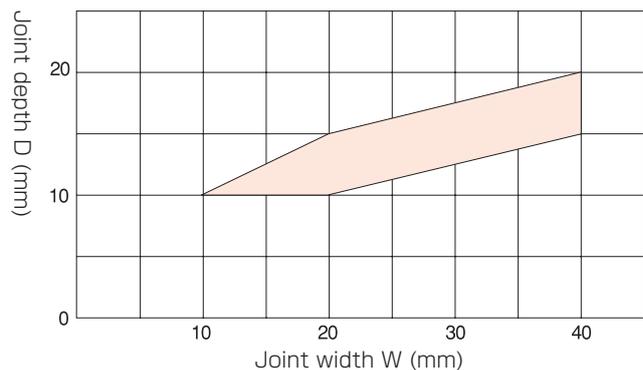
*UM-3, 500 ml / can

*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 UM-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 UM-3, when kept unopened in a dark cold place (at 25°C or lower), is 6 months after the manufacturing date.

● Acceptable range of joint width and joint depth



General precautions for Penguin Seal PS169N

- 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 hardener contains isocyanate compounds. Do not let it 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 application to poorly adherable substrates, including acrylic mat-finish electropainted substrates and fluoropolymer painted substrates, and to various molded rubbers and gaskets, check for adherability to determine whether or not the sealant should be used.
- The cleaning detergent for exterior walls remaining on the sealant can cause discoloration. Rinse the cleaning detergent thoroughly.
- Prior to spraying a paint over the sealant, check that 48 hours or more (at 20°C) have passed since the sealant was applied and that the surface of the sealant has cured.
- Some aqueous sealers and aqueous paints can be repelled when applied on the sealant. Besides, they can cause contamination (surface tack and discoloration) with time. Check for applicability to the sealant prior to use through paint manufacturers or through contact with us.
- Avoid using oil paints (alkyd and phthalic acid resin paints) and 1-liquid mild solvent soluble urethane resin paint and other oxidation polymerization paints because they will not get dry.
- The sealant is not applicable to glass materials in general except for glass blocks. For application to glass blocks, use "Primer SS-2".
- Application to marble stone can contaminate joint peripherals. Contact us beforehand.
- The shelf life of Penguin Seal PS169N is 6 months (unopened)

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 application 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 and a specified toner. 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 paddle size 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 general industry use. Do not use it for other than the intended purposes.
- Store the sealant in a dry, well-ventilated, dark and cold place (at 25°C 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 treatment

- 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 treatment, emergency measures (including fire and leakage), and disposition, refer to the Material Safety Data Sheet (MSDS).

Volume and packing

● Metal can specifications (Can diameter φ 217)

Product name	Volume	Quantity
Penguin Seal PS169N (Base material and hardener set)	4-liter set	2
Toner for common use for MS2500/MS2500typeNB/ IB7000/PS169N/MS2970typeNS /PU979	200g	20 packages x 2

● Eco-can specifications

Product name	Volume	Quantity
Penguin Seal PS169N Eco-can (Base material and hardener set)	4-liter set	2
Toner for common use for MS2500/MS2500typeNB/ IB7000/PS169N/MS2970typeNS /PU979	200g	40 packages x 2

*For mixing, a blender specific for Eco-CAN is required. Use the paddles for cans of φ 217 in diameter.

● Eco-pack specifications

Product name	Volume	Quantity
Penguin Seal PS169N Eco-pack (Base material and hardener set)	2-liter set	4
Toner for common use for MS2500/MS2500typeNB/ IB7000/PS169N/MS2970typeNS /PU979	100g	40 packages x 2

*The specific mixing can blender is intended for cans of φ 232 in diameter

Color

- Toner for common use for MS2500/MS2500typeNB/ IB7000/PS169N/MS2970typeNS /PU979

Light-gray, Con-gray, New-gray, Dark-gray, Black,
Amber, Dark amber, Beige, Stainless-steel color, White

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 the specific "PS169N Hardening Retarder."
- Hardening accelerator: Use the specific "PS169N 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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