General & Functional Sealants Product Guide





The Key to a Better To Shin-Etsu Silicone always supp

About Shin-Etsu Silicone

In 1953, Shin-Etsu Chemical became the first firm in Japan to venture into the silicones business. In the decades since, Shin-Etsu has created a diverse line of products designed to exploit the unique and useful properties of silicones. The Company's operations have spread beyond Japan's shores; we now have production facilities and marketing bases in countries around the globe, including the USA, South Korea, China, Taiwan, Singapore, Thailand and the Netherlands.

We have organized our supply framework to enable direct access to the world's markets and enhance our responsiveness to customer needs. As a result, we have grown to become the No.1 silicone manufacturer in Japan and one of the leading firms in this industry worldwide.

MOHOW

orts your project.

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Features of Silicone Sealant

. Heat resi

Silicone sealants exhibit stable properties and elasticity throughout a wide range of temperatures typically between –40°C to +150°C.

2. Durability and v

Silicone sealants have excellent durability and are able to resist extremes in weather throughout all seasonal changes making them a natural choice for both glass and non-glass building facades.

3. Adhesio

Silicone sealants have excellent unprimed adhesion to most common building materials but for those difficult to bond to substrates there is a range of primers, which can be used to maximize adhesion.

4. Handling and use

Both the rheology and cured properties of silicone sealants remains almost unchanged throughout extremes in temperature and climatic conditions.

5. A variety of applications

Silicone sealants can be formulated for a wide range of applications including structural and insulated glazing, weather sealing and fire retardant applications to name but a few.

6. Resistance to salt damage

Silicone sealants are highly resistant to salt damage, therefore making them ideal for use in buildings and factories in coastal areas offering durability and sustainability.

Product Lists & Packaging Options

General Sealants

Parameter Product name	SEALANT-N	SEALANT-4588T	SEALANT-A	KEG-4202
Applications	General use	General use	General use	General use
	One-part	One-part	One-part	One-part
Features	Easy to use Neutral-curing	Antifungus Neutral-curing	Acid-curing	Acid-curing
Colors	White / Translucent / Black Light gray / Aluminum / Gray Dark brown / Ivory	A White / Translucent White / Translucent Ukite / Translucent Black		White / Translucent Black
Skin-Over Time 23°C/50%RH min	5	5	6	5
Density at 23°C* g/cm ³	1.04	1.05	1.05	1.06
Hardness Type A*	19	17	24	25
Maximum Tensile Stress* MPa	1.4	1.4	1.9	2.2
Elongation at Break* %	630	620	520	510
Specifications	ASTM C920, Class 25	ASTM C920, Class 25	_	FDA 177.2600, NSF certified list No.51
Packaging	300 mL	300 mL	300 mL	300 mL

* Test method is based on JIS K 6249

(Not specified values)

Functional Sealants

Parameter	Product name	SEALANT-90N	SEALANT-FC-295SG	SEALANT-FC-312
Applications		Structural Glazing Weather Sealant	Structural Glazing Weather Sealant in Factory Application	Insulating Glass
Fosturos		One-part	Two-part	Two-part
realures		Easy to use	Fast Cure	Fast Cure
Colors		Black / Gray / Light gray	Base : White Cat : Black	Base : White Cat : Black
Skin-Over Time 23°C/509	%RH min	10	20 to 50*1	30 to 60*1
Density at 25°C*	g/cm ³	1.4	1.4	1.4
Hardness Shore A ASTM	1 D2240	36	35	43
Joint Movement Capability	y ASTM C719 %	± 50	± 25	_
50% Tensile Stress	ASTM C1125 MPa	0.6	0.2*2	0.2*2
Maximum Tensile Stress	ASTWICTISS WIFA	1.5	1.3	1.2
VOC Content*3	g/L	30	15	_
		ASTM C920, Class 50	ASTM C920, Class 25	ASTM C920
Specifications		ASTM C1184	ASTM C1184	ASTM C1184
		KS F 4910 G-25HM	KS F 4910 G-25HM	KS F 4910 G-20HM
Packaging		300 mL, 600 mL	Base : 250 kg Cat : 19 kg	Base : 260 kg Cat : 20 kg

*1 Snap Time at 23°C *2 10% Tensile Stress
 *3 Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAQMD method 304-91.

Parameter Product name	SEALANT-72N	SEALANT-456	SEALANT-456LS	SEALANT-556LS
Applications	Weather Sealant	Weather Sealant	Non Stain (ASTM C1248) Weather Sealant	Non Stain (ASTM C1248) Weather Sealant
	One-part	One-part	One-part	One-part
Features	Odorless	Excelent adhesion to Fluoro-polymer coating	Premium Grade	Standard Grade
Colors	Black / White / Gray Light gray / Ivory	Gray	Black / Gray	Black / White / Gray
Skin-Over Time 23°C/50%RH mit	10	25	40	8
Density at 25°C* g/cm	1.5	1.3	1.3	1.3
Hardness Shore A ASTM D2240	30	22	22	24
Joint movement capability ASTM C719 %	± 50	± 50	± 50	± 50
50% Tensile Stress	0.4	0.3	0.3	0.3
Maximum Tensile Stress	0.9	1.0	0.9	1.1
VOC Content*1 g/	. 23	52	54	52
Specifications	ASTM C920, Class 50	ASTM C920, Class 50	ASTM C920, Class 50 ASTM C1248	ASTM C920, Class 50 ASTM C1248
	KS F 4910 F-25HM	KS F 4910 F-25LM	KS F 4910 F-25LM	KS F 4910 F-25LM
Packaging	300 mL, 600 mL	300 mL	600 mL	600 mL

*1 Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAQMD method 304-91.

(Not specified values)

(Not specified values)

Functional Sealants **Product Applications**



Structural Glazing Sealant SEALANT-FC-295SG SEALANT-90N

Weather Sealant SEALANT-72N SEALANT-456

Weather Sealant (Non Stain ASTM C1248) SEALANT-456LS SEALANT-556LS

Insulating Glass Sealant SEALANT-FC-312

Color Chart

Colors Product name	Black	Gray	Light Gray	Dark Brown	Trans- lucent	lvory	White	White Ivory	Alumi- num
SEALANT-N	0	0	0	0	0	0	0		0
SEALANT-4588T			0		0		0	0	
SEALANT-A	0				0		0		
KEG-4202	0				0		0		
SEALANT-90N	0	0	0						
SEALANT-FC-295SG	0*								
SEALANT-72N	0	0	0			0	0		
SEALANT-456		0							
SEALANT-456LS	0	0							
SEALANT-556LS	0	0					0		
SEALANT-FC-312	0*								

* After mixing

Primers

Product name Parameter	PRIMER-AQ-P	PRIMER-AQ-1	X-33-253	PRIMER-MT
Applications	Glass, metal, plastic, vitreous surfaces, coated or painted aluminum	Glass, metal, enamel, tile, vitreous surfaces, plastic, various paint on metal	Various plastic, paint on metal	Mortar, concrete, stone, marble and timber
Appearance	Clear pale yellow liquid	Clear pale yellow liquid	Clear pale yellow liquid	Clear liquid
Viscosity	Low	Low	Low	High
Solvent	n-hexane	n-hexane	Ethyl acetate, IPA, Hydrocarbon	Toluene, IPA
Coverage rate g/m ²	50	50	50	200
Drying time at 23°C	Over 10 min	Over 30 min	Over 30 min	Over 1 h
Remark	A one-part, silicone resin based primer to a wide range of substrates. Shorter drying time than conventional primer.	A one-part, silicone resin based primer for use with Shin-Etsu sealants in many applications.	A one-part, film-forming primer for use with Shin-Etsu sealants on painted and plastic surfaces to promote fast adhesion. DO NOT USE FOR GLASS SUBSTRATE.	A one-part, film-forming primer for use with Shin-Etsu sealants on porous and cementitious surfaces to promote adhesion. DO NOT USE FOR GLASS SUBSTRATE.
Packaging	700 g can	250 g can	250 g can	250 g can
				(Not specified values)

Since the above information of primers is just a reference,

please make sure to conduct adhesion tests with actual substrates before using.

Also, as for the instructions for use and storage conditions of primers,

please refer to the Functional Sealants Technical Manual or contact the Shin-Etsu Sales Department.

Caution for Shipment

These primers contain solvents. When shipping by air or sea they fall under the definition of dangerous goods, as specified by the United Nations.

PRIMER-AQ-P	UN-1866 Class 3 Packing Group II
PRIMER-AQ-1	UN-1866 Class 3 Packing Group II
X-33-253	UN-1133 Class 3 Packing Group II
PRIMER-MT	UN-1866 Class 3 Packing Group II

Packages





CAT Pail

General Sealants

SEALANT-N

Features

SEALANT-N is a one-part neutral curing silicone sealant for general construction use.

Application Examples

Conventional glazing, weather sealing, sealing for general construction

Specifications

• ASTM C920 Type S, Grade NS, Class 25, Use NT, G, A, M

General Properties

Paramete	r Product name	SEALANT-N
Refere	Appearance	Paste
curina	Fluidity	Non-Sagging
	Skin-Over Time at 23°C/50%RH min	5
	Density at 23°C g/cm ³	1.04
After	Hardness Type A	19
curing*	Tensile Strength MPa	1.4
	Elongation at Break %	630

* Test method is based on JIS K 6249

⁽Not specified values)



SEALANT-4588T

Features

SEALANT-4588T is a one-part neutral curing silicone sealant for general construction use.

Application Examples

Areas where mold is likely to be a problem such as in kitchens, bathrooms

Specifications

• ASTM C920 Type S, Grade NS, Class 25, Use NT, G, A, M

General Properties

Paramete	r Product na	me	SEALANT-4588T
Poforo	Appearance		Paste
curina	Fluidity		Non-Sagging
o ann g	Skin-Over Time at 23°C/50%RH n	nin	5
	Density at 23°C g/c	m ³	1.05
After	Hardness Type A		17
curing*	Tensile Strength M	Pa	1.4
	Elongation at Break	%	620

* Test method is based on JIS K 6249

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(Not specified values)
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SEALANT-A

Features

SEALANT-A is a one-part, acid-curing silicone sealant for general construction use.

Application Examples

Conventional glazing, weather sealing, sealing for general construction

General Properties

Paramete	r Product name	SEALANT-A
Roforo	Appearance	Paste
curina	Fluidity	Non-Sagging
	Skin-Over Time at 23°C/50%RH min	6
	Density at 23°C g/cm ³	1.05
After	Hardness Type A	24
curing*	Tensile Strength MPa	1.9
	Elongation at Break %	520

* Test method is based on JIS K 6249





KEG-4202

Features

KEG-4202 is a one-part acid-curing silicone sealant complied with FDA 177.2600 and NSF certified for general purpose sealing applications.

Application Examples

Conventional glazing, weather sealing, sealing for general construction

Specifications

• FDA 177.2600

NSF certified list No.51

General Properties

Paramete	r	ct name	KEG-4202
Poforo	Appearance		Paste
curina	Fluidity		Non-Sagging
oug	Skin-Over Time at 23°C/50%RH	min	5
	Density at 23°C	g/cm ³	1.06
After	Hardness Type A		25
curing*	Tensile Strength	MPa	2.2
	Elongation at Break	%	510

* Test method is based on JIS K 6249

(Not specified values)



Structural Glazing Sealants

SEALANT-90N

Features

SEALANT-90N is a one-part, neutral-curing, odorless and non-corrosive silicone sealant. Once cured, this sealant becomes a high modulus and flexible silicone rubber suitable for structural and weatherseal applications.

Application Examples

Structural glazing and weatherseal applications

Specifications

- ASTM C1184*1
- ASTM C920*2 Type S, Grade NS, Class 50, Use NT, G, A
- KS F 4910*3 G-25HM

General Properties

*1 Standard Specification for Structural Silicone Sealants
*2 Standard Specification for Elastomeric Joint Sealants
*3 Sealants for sealing and glazing in buildings

Parameter	Produc	t name	SEALANT-90N
Skin-Over Time 23°C/50%F	RH	min	10
Density at 25°C		g/cm ³	1.4
Hardness Shore A ASTM D	36		
Joint Movement Capability	± 50		
50% Tensile Stress		MDe	0.6
Maximum Tensile Stress	ASTMUCTISS	wPa	1.5
VOC Content*		g/L	30

* Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAQMD method 304-91.



SEALANT-FC-295SG

Features

SEALANT-FC-295SG is a two-part silicone sealant for unitized curtain wall systems. It is a fast-cure material with excellent adhesion to most glass and painted aluminum surfaces. Once cured, this sealant becomes a high modulus and flexible silicone rubber suitable for structural and weatherseal applications.

Application Examples

Structural glazing and weatherseal applications manufactured in factory

Specifications

- ASTM C1184*1
- ASTM C920*2 Type M, Grade NS, Class 25, Use NT, G, A
- KS F 4910*3 G-25HM

General Properties

*1 Standard Specification for Structural Silicone Sealants
*2 Standard Specification for Elastomeric Joint Sealants
*3 Sealants for sealing and glazing in buildings

Parameter	Produc	t name	SEALANT-FC-295SG
Snap Time at 23°C		min	20 to 50
Density at 25°C		g/cm ³	1.4
Hardness Shore A ASTM D2240		35	
Joint Movement Capability	ASTM C719	%	± 25
10% Tensile Stress	ASTM C1135	MPa	0.2
Maximum Tensile Stress			1.3
VOC Content*		g/L	15

* Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAQMD method 304-91.



Weather Sealants

SEALANT-72N

Features

SEALANT-72N is a one-part, neutral-curing, odorless, non-corrosive silicone sealant. Once cured, this sealant becomes a medium modulus and flexible silicone rubber suitable for conventional glazing and weatherseal applications (non-structural glazing).

Application Examples

- · Conventional glazing and weatherseal applications
- Polycarbonate and other plastic joint

Specifications

- ASTM C920*1 Type S, Grade NS, Class 50, Use NT, G, A, M
- KS F 4910*2 F-25HM
- *1 Standard Specification for Elastomeric Joint Sealants*2 Sealants for sealing and glazing in buildings

General Properties

Parameter	Product name	SEALANT-72N
Skin-Over Time 23°C/50%F	RH min	10
Density at 25°C	g/cm ³	1.5
Hardness Shore A ASTM D2240		30
Joint Movement Capability ASTM C719 %		± 50
50% Tensile Stress		0.4
Maximum Tensile Stress		0.9
VOC Content*	g/L	23

* Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAQMD method 304-91.

SEALANT-456

Features

SEALANT-456 is a one-part, neutral-curing silicone sealant. Once cured, this sealant becomes a medium modulus and flexible silicone rubber suitable for conventional glazing and weatherseal applications (non-structural glazing).

Application Examples

· Conventional glazing and weatherseal applications

Specifications

- ASTM C920*1 Type S, Grade NS, Class 50, Use NT, G, A, M
- KS F 4910*2 F-25LM

*1 Standard Specification for Elastomeric Joint Sealants*2 Sealants for sealing and glazing in buildings

General Properties

Parameter	Product name	SEALANT-456
Skin-Over Time 23°C/50%F	RH min	25
Density at 25°C	g/cm ³	1.3
Hardness Shore A ASTM D2240		22
Joint Movement Capability	ASTM C719 %	± 50
50% Tensile Stress		0.3
Maximum Tensile Stress	ASTIVICITISS IVIFA	1.0
VOC Content*	g/L	52

* Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAQMD method 304-91.





Weather Sealants

SEALANT-456LS

Features

SEALANT-456LS is a one-part, neutral-curing, low stain premium silicone sealant. This sealant has reduced staining and bleeding properties on the substrates than conventional sealant. Once cured, this sealant becomes a medium modulus silicone rubber suitable for conventional glazing and weatherseal applications (non-structural glazing).

Application Examples

Conventional glazing and weatherseal applications

Specifications

- ASTM C920*1 Type S, Grade NS, Class 50, Use NT, G, A, M
- KS F 4910*2 F-25LM
- ASTM C1248 Pass
- *1 Standard Specification for Elastomeric Joint Sealants*2 Sealants for sealing and glazing in buildings

General Properties

Parameter	Produc	t name	SEALANT-456LS
Skin-Over Time 23°C/50%F	RH	min	40
Density at 25°C		g/cm ³	1.3
Hardness Shore A ASTM D2240		22	
Joint Movement Capability	ASTM C719	%	± 50
50% Tensile Stress		MPa	0.3
Maximum Tensile Stress	ASTIVICTISS		0.9
VOC Content*		g/L	54

* Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAQMD method 304-91.

SEALANT-556LS

Features

SEALANT-556LS is a one-part, neutral-curing, low stain silicone sealant. This sealant has reduced staining and bleeding properties on the substrates than conventional sealant. Once cured, this sealant becomes a medium modulus silicone rubber suitable for conventional glazing and weatherseal applications (non-structural glazing).

Application Examples

Conventional glazing and weatherseal applications

Specifications

- ASTM C920*1 Type S, Grade NS, Class 50, Use NT, G, A, M
- KS F 4910*2 F-25LM
- ASTM C1248 Pass

*1 Standard Specification for Elastomeric Joint Sealants*2 Sealants for sealing and glazing in buildings

General Properties

Parameter	Produc	t name	SEALANT-556LS
Skin-Over Time 23°C/50%F	RH	min	8
Density at 25°C		g/cm ³	1.3
Hardness Shore A ASTM D2240		24	
Joint Movement Capability ASTM C719 %		± 50	
50% Tensile Stress		MPa	0.3
Maximum Tensile Stress	ASTIVICTISS		1.1
VOC Content*		g/L	52

* Reported Volatile Organic Compound (VOC) content was expressed as grams of volatile organic compounds per litre of submitted sample and was calculated using the formula set out in the Part 31 of the SCAOMD method 304-91.





Project Support Service

We provide technical service support throughout the project from drawing and print reviews at the beginning of your project to sealant application training and final inspection. Project quality can be easily managed by using our Project Support Service (PSS).





Project Review

By completing and submitting a project review and drawing details, Shin-Etsu are able to confirm the sealant selection and the joint dimension for a project based upon the information given.

Laboratory Testing Service

At our Tech-Center, Shin-etsu will perform adhesion and compatibility testing to all substrates and ancillary materials that are in either direct contact or close proximity to the sealant. If required we are also able to carry out stain tests to natural stone or sensitive porous substrates. Following competition of the testing, we will issue individual reports for adhesion, and compatibility confirming any pretreatment or primer required as well as the suitability of ancillary materials tested. If requested a stain test report may also be issued for each project.

Quality Control

Also within our PSS, we offer training for the use of our products as well as a managed approach to the application by means of daily report forms, peel adhesion tests and deglaze tests that can be done either in the fabricators factory or at the project site.

For more information concerning this, please contact your local distributor or Shin-Etsu sales office.

Outdoor Exposure Test



Pump Maintenance



Application Support

Sunshine Weather Meter Test

Project References



Tokyo Sky Tree (Japan)



Toranomon-Hills (Japan)



from left:Tamara Center / Lippo Plaza / BCD Tower / Bali (Indonesia)



Sompo Japan Nipponkoa Yokohama Bashamichi Building (Japan)



National Museum of Emerging Science and Innovation (Japan)



Seagate (Singapore)



Prugio City (Korea)



Toshima-ku City Hall (Japan)

Project References



Hong Kong International Air Port (China)



Kobe Crystal Tower (Japan)



Aloft Hotel (Korea)



Menera Imperium Jakarta (Indonesia)



都曾大亨 (Taiwan)



Yurakucho Center Building (Japan)

Handling Precautions

Important

- Please insure that the application procedures and quality control are in strict compliance with the latest Shin-Etsu published Project Support Services and Functional Sealants Technical Manual. Before the commencement of any sealant application, fabricators and applicators are required to obtain and read the contents of the manual.
- It can be downloaded from the Shin-Etsu website. http://www.shinetsusilicone-global.com/
- 2. All quality control test results must be logged and archived.
- 3. The Shin-Etsu Sales Department is available for specific advice.
- 4. It is necessary to determine whether a primer is required before application of sealant.

Limitations

- 1. SEALANT-90N and SEALANT-FC-295SG must not be used in any structural applications without pre-testing.
- 2. SEALANT-N, SEALANT-4588T, SEALANT-A, KEG-4202, SEALANT-72N, SEALANT-456, SEALANT-456LS, SEALANT-556LS and SEALANT-FC-312 must not be used and are not approved for structural glazing.
- 3. All products in this catalog must not be used in food, medical or pharmaceutical applications.
- 4. The contents of this catalog are believed to be correct, but project conditions regarding actual application and use of Shin-Etsu sealant are beyond Shin-Etsu's control.
- Therefore it is the users responsibility to confirm the product meets the requirements of the application.Shin-Etsu Silicone warrants only that the sealant will conferm to Shin-Etsu Silicone's product specifications at the time of shipment, and makes no further warranties in respect of the sealant.Warranty remedy for such failure is limited to refund of purchase price or replacement of product.

If applicators need extended warranty for performance of sealants,

please contact the Shin-Etsu Sales Department in advance of the project inception.

Instructions for use & Handling precaustions

Please read the latest Shin-Etsu published Functional Sealants Technical Manual. The manual can be obtained from the Shin-Etsu website. **http://www.shinetsusilicone-global.com/**

Storage Conditions

Temperature: Please read each of the products' Technical Data Sheets. * Seal container tightly and store in a cool, dark place (out of direct sunlight) with good ventilation. Keep away from heat and flame.

Shelf Life

12 months after production date under the above storage conditions in the original unopened container

Safety and Hygiene

 Uncured Sealants may cause skin irritation. When handling the products, take care to avoid contact with the skin and mucous membranes by wearing protective glasses and protective gloves. In case of skin contact, immediately wipe off with dry cloth and then flush thoroughly with running water. When using, be careful not to rub eyes with hands.
 In case of accidental eye contact, flush immediately with plenty of clean water for at least 15 minutes and then

In case of accidental eye contact, flush immediately with plenty of clean water for at least 15 minutes and then seek medical attention. Contact lens wearers must take special care.

If the products get into the eye, the contact lens may become stuck to the eye. 2. Be sure to provide adequate ventilation when using the product. During curing, a small amount of Methanol gas is gradually generated from SEALANT-72N, SEALANT-90N, SEALANT-FC-295SG, and SEALANT-FC-312. And a small amount of Methyl Ethyl Ketone Oxime (MEKO) gas is gradually generated from SEALANT-N, SEALANT-4588T, SEALANT-456, SEALANT-456LS and SEALANT-556LS. And a small amount of acetic acid gas is gradually generated from SEALANT-A and KEG-4202. If you become uncomfortable with inhaling vapors, move to an area with fresh air immediately.

- 3. Keep out of reach of children.
- 4. Please read the Safety Data Sheets (SDS) before use. SDS can be obtained from our Sales Department.



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- Users are solely responsible for making preliminary tests to determine the suitability of products for their intended use.
 Statements concerning possible or suggested uses made herein may not be relied upon, or be construed, as a guaranty of no patent infringement.
- For detailed information regarding safety, please refer to the Safety Data Sheet (SDS).
- The silicone products described herein have been designed, manufactured and developed solely for general industrial use only; such silicone products are not designed for, intended for use as, or suitable for, medical, surgical or other particular purposes. Users have the sole responsibility and obligation to determine the suitability of the silicone products described herein for any application, to make preliminary tests, and to confirm the safety of such products for their use.

- Users must never use the silicone products described herein for the purpose of implantation into the human body and/or injection into humans.
- Users are solely responsible for exporting or importing the silicone products described herein, and complying with all applicable laws, regulations, and rules relating to the use of such products. Shin-Etsu recommends checking each pertinent country's laws, regulations, and rules in advance, when exporting or importing, and before using the products.
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	The Development and Manufacture of Shin-Etsu Silicones are based on the following registered international quality and environmental management standards.	
	Gunma Complex ISO 9001 ISO 14001 (JCQA-0004 JCQA-E-0002)	
	Naoetsu Plant ISO 9001 ISO 14001 (JCQA-0018 JCQA-E-0064)	
160 1697 MS CM009	Takefu Plant ISO 9001 ISO 14001 (JQA-0479 JQA-EM0298)	

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