



DOW SILICONE SEALANTS/ADHESIVES TECHNOLOGY OVERVIEW

Initial considerations for product selection

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DOW SILICONE TECHNOLOGY OVERVIEW

Sealing

Silicone reactive hotmelts

Sealing & bonding

1-/2-part RTV sealants, room-temperature vulcanization

Sealing & bonding

1-/2-part HTV adhesives, high-temperature vulcanization

Gasketing

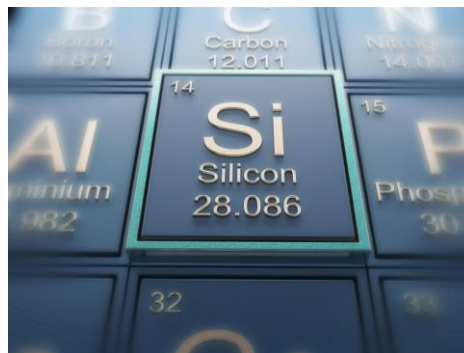
Cure-in-place gasket (CIPG), Dispensed foam gasket (DFG)

Adhesion promotion

Silane primers

Bonding

Pressure sensitive adhesives (PSA)



Rubber

Mold-making rubber, High-consistency rubber (HCR), Liquid silicone rubber (LSR), 3D printing, EMI shielding

Coating application

Silicone coatings

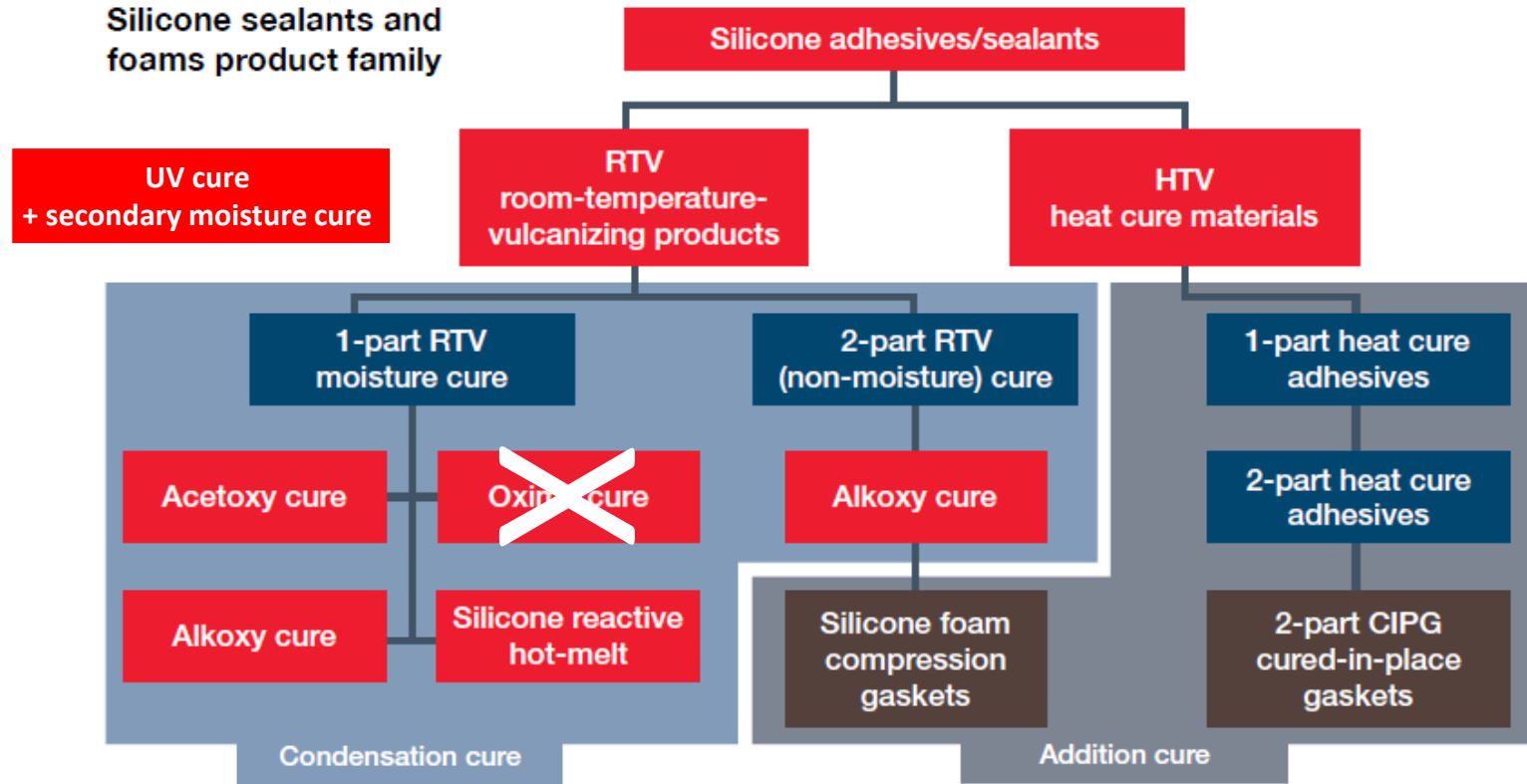
Encapsulation & protection

Silicone gels & potting materials

Thermal management

Thermally conductive (TC) and thermal interface materials (TIM)

DOWSIL™ SEALANT/ADHESIVE & GASKET TECHNOLOGIES

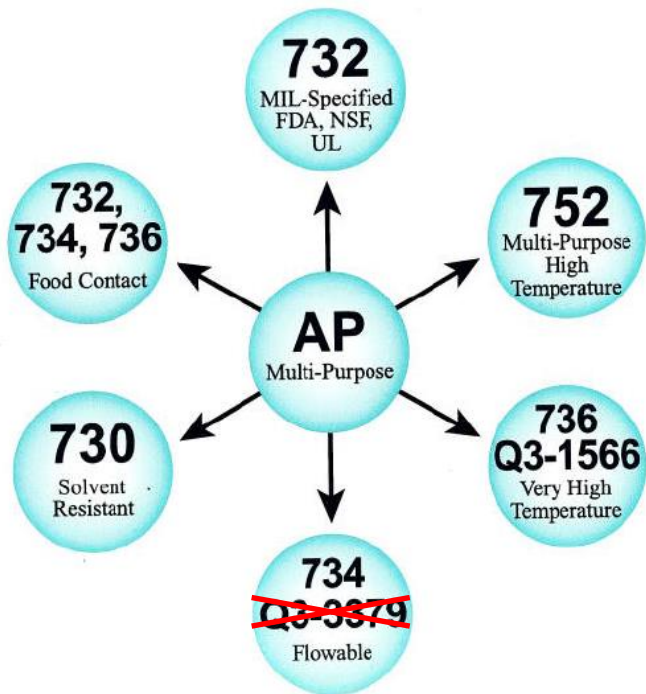


RTV SEALANT & ADHESIVE PRODUCTS PORTFOLIO

- 1P RTV Acetoxy Sealants
- 1P RTV Alkoxy Sealants
- 2P RTV Alkoxy Adhesives
- 2P RTV Addition-Cure Adhesives
- DOWSIL™ Silicone Reactive Hotmelts

1P RTV ACETOXY SEALANTS

Selection Guide – Acetoxy Cure Products

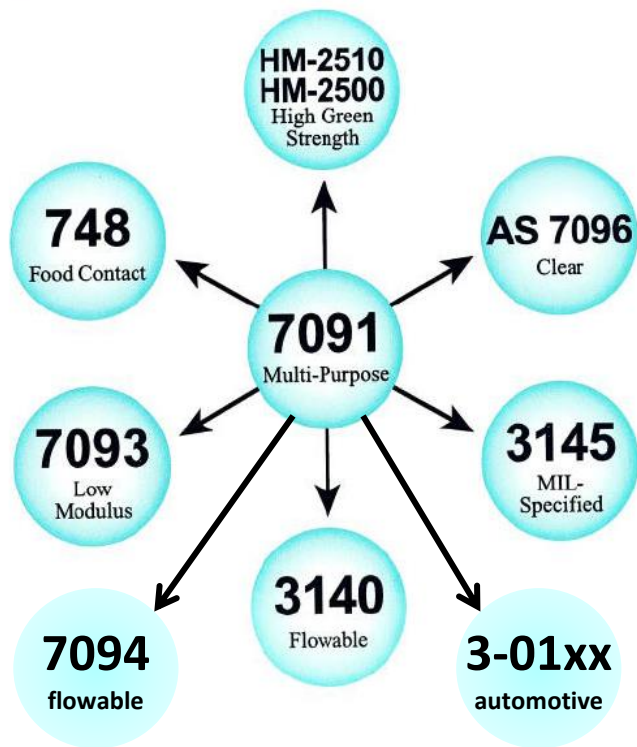


Considerations for product selection

- + **General industrial** sealing & bonding applications
 - **Silicone AP**
- + **FDA / NSF / MIL-Specified**
 - **732**
- + **Very high temperature resistant**
 - long-term 250°C, short term 275°C
 - **Q3-1566**
- + **Flowable sealant**
 - **734**
- + **Solvent resistant**
 - **730 FS** Sealant

1P RTV ALKOXY SEALANTS

Selection Guide – Neutral Cure Products



Considerations for product selection

- + **THE multi-purpose sealant**
 - **7091**
- + **Low modulus sealant**
 - **7093**
- + **Self-leveling sealant**
 - **7094**
- + **Strong mechanical properties**
 - **3145** non-flowing / **3140** flowable
- + **Food contact** (Complies with FDA 177.2600)
 - **748**
- + **Automotive fluid resistant**
 - **3-01xx** series
- + **High green strength** sealants
 - **HM-25xx** series

1P RTV ALKOXY SEALANTS

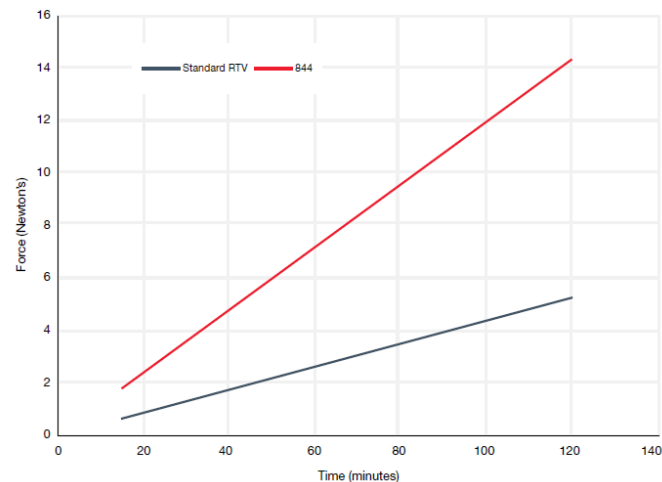
DOWSIL™ 844 RTV Adhesive Sealant

Considerations for product selection

- One-part, non-flowing moisture cure silicone adhesive
- **Fast cure, fast tack free & high green strength**
- High elongation for added stress relief
- Fast in-line processing with blowout resistance
- Durable adhesion to wide range of substrates
- Resistant to salt corrosion and UTH fluids

Lap Shear Adhesion Strength

DOWSIL™ 844 RTV Adhesive Sealant averages approximately 2-3x the green strength in early cure times of <8 hours



2P RTV ALKOXY ADHESIVES

Product	Handling Time, min.	Hardness (Shore A)	Elongation at Break, %	Tensile Strength, MPa
Q3-3526	10-20	38	280	2.0
EA2626	10-20	45	200	2.2
Q3-3636	10-20	35	250	1.9

2P System – Base + Catalyst

Mix ratio 100:10 to 100:14 (w:w)

Q3-3526 Catalyst Grey

Q3-3526 Catalyst Black

Q3-3636 Catalyst Grey

Q3-3636 Catalyst Black

Q3-3636 Catalyst Special Black

Considerations for product selection

+ **Historical** product generation

- Q3-3526

+ **Faster curing** 2P RTV

- **EA-2626**

+ Fast curing + **reduced volatile** 2P RTV

- **EA-2727**

+ Fast curing + **low volatile** 2P RTV

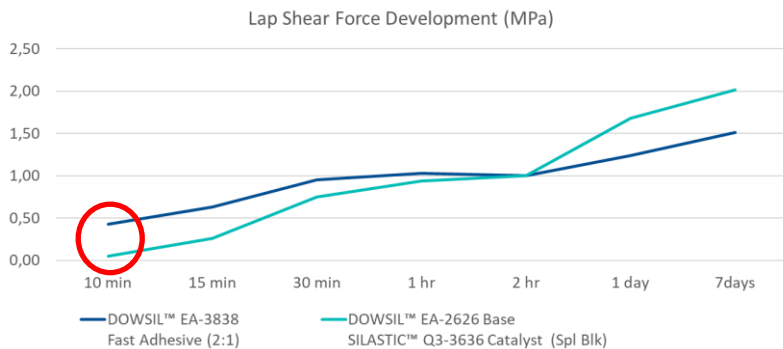
- **Q3-3636**

2P RTV ALKOXY ADHESIVES

DOWSIL™ EA-3838 Fast Adhesive

Considerations for product selection

- **Very fast cure speed**
- **Adjustable cure speed** due to variable 2:1 to 4:1 volumetric mix ratio
- Develops early primer-less adhesion on various substrates



DOWSIL™ EA-3838 Fast Adhesive				
		2:1 Vol	3:1 Vol	4:1 Vol
Snap time - spatula (min:sec)		2:50	3:15	4:45
Tack free time - PE foil (min:sec)		5:20	8:40	15:00
Lap shear force development	10 min	0.56	0.17	0.03
	15 min	0.76	0.56	0.10
	30 min	0.87*	0.90*	0.94
	1 hr	0.72	1.07	1.20*
	2 hr	0.76	0.98	0.92
	1 day	1.06	1.19	1.49
	7 days	1.40	1.48	1.50

* 100% Cohesive Failure on Stainless Steel Substrates

2P RTV ADDITION-CURE ADHESIVES

DOWSIL™ EA-4700 CV / EA-4710 CV / EA-4720 CV Adhesive

Considerations for product selection

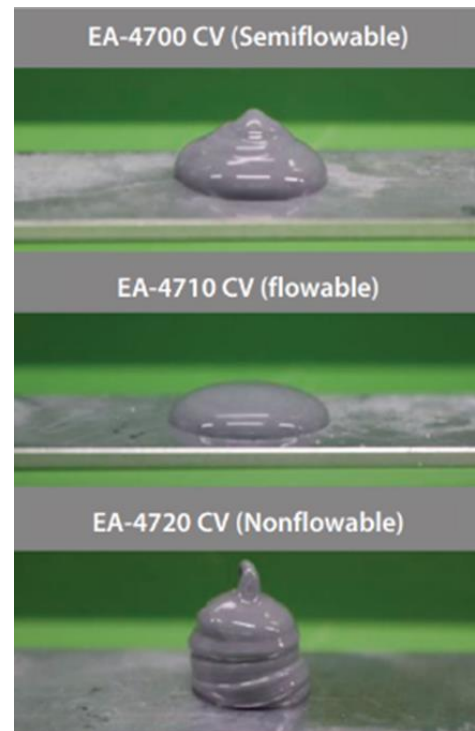
- **Addition-Cure** chemistry
- Mix ratio 1:1
- Cure time* at 25°C → 2 / 4 / 6 hours
- Cure rate is rapidly **accelerated with heat**
- **Controlled Volatility** (D4-D10) → 130** / 30*** / 80*** ppm

* hardness completion; adhesion not completed

** Hexane extraction 24 hours

*** CTM0625B

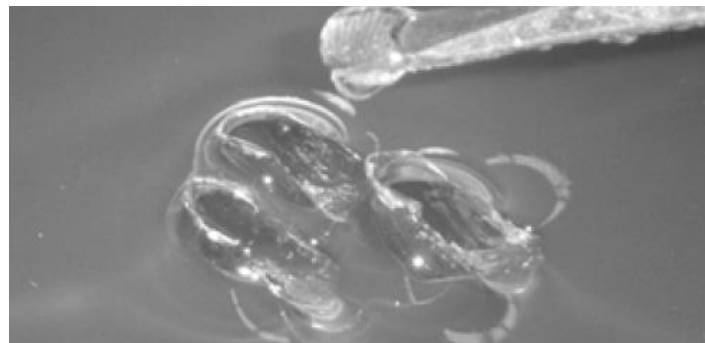
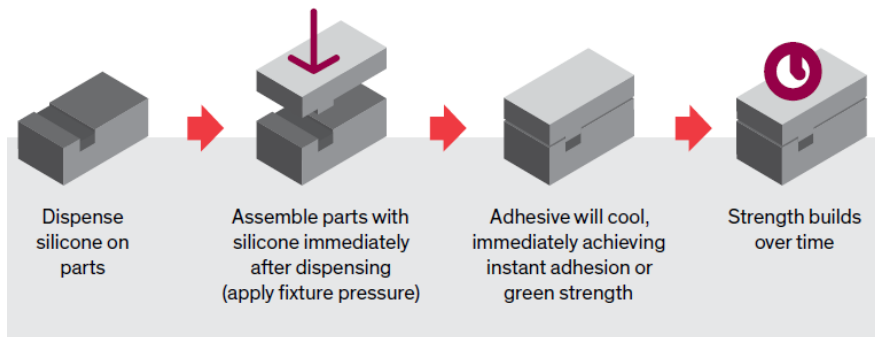
Adherend	Unit	EA-4700 CV	EA-4710 CV	EA-4720 CV
Aluminum A5052P		3.1	3.0	3.5
Die casted aluminum (ADC-12)		2.5	1.5	2.7
Polybutylene terephthalate (PBT)		2.1	2.0	1.1
Polyphenylene sulfide		2.4	2.4	2.4
Copper	MPa	2.4	1.1	0.6
SUS304		2.6	1.3	2.6
Phenol resin		2.2	2.1	2.5
Glass epoxy (FR-4)		2.4	2.3	2.9
Polyethylene terephthalate		2.6	2.1	2.6
Nylon 66		2.1	1.9	2.4
Polycarbonate		1.9	2.6	2.8
Glass		2.9	2.9	3.0



DOWSIL™ SILICONE REACTIVE HOTMELTS

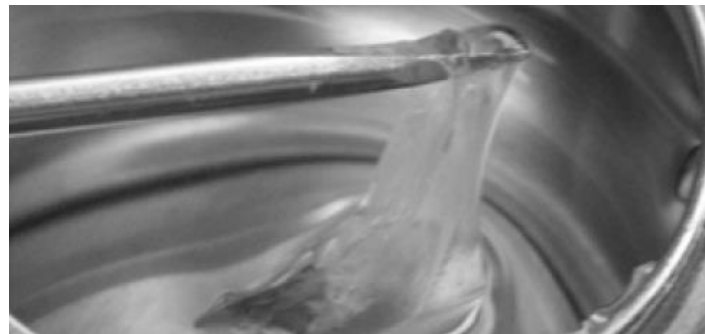
Considerations for product selection

- 1P RTV Alkoxy cure silicone sealant
- **Instant adhesion** for immediate handling of components
- **Primer-less adhesion** to most plastics and metals
- **Very high elongation > 1000%**



Before cure: Product is gummy, separates easily and remains on the tool when pulled away from the surface.

After cure: Product displays rubbery features, stretches and resists separation when pulled away from the surface.



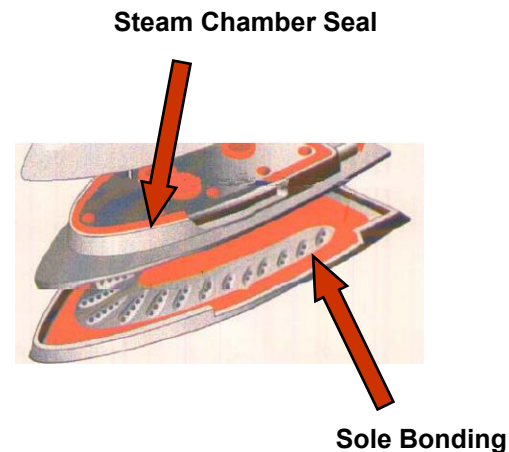
HTV SEALANT, ADHESIVE & GASKETING PRODUCTS PORTFOLIO

- 1P HTV Adhesives
- 2P HTV Adhesives
- Silicone Foam and CIPG products for gasketing applications

1P HTV ADHESIVES

Considerations for product selection

- + Historical product generation
 - XIAMETER™ ADH-6045 Adhesive
- + **General industry applications + High temperature resistance**
 - XIAMETER™ **ADH-6066** Adhesive - flowable
 - DOWSIL™ **3-6096** Adhesive - non-flowing
 - Typical **cure temperature 150°C**
- + Typical applications
 - **Steam Iron** sole bonding
 - Bonding of domestic **oven doors**
 - Assembling of ceramic **cooking hobs**



1P HTV ADHESIVES

DOWSIL™ EA-7300 Adhesive

Considerations for product selection

- 1P non-flowing, **low-temperature heat-cure** adhesive
- **Dual cure** -> rapid thermal radical cure + moisture cure
 - Cure time (to > 90% final adhesion) **30 minutes at 105°C**
 - Cure time (to > 90% final adhesion) 5 minutes at 125°C
- Excellent resistance to salt spray & thermal cycling

DOWSIL™ EA-7300 adhesive also has a **secondary moisture cure** which will occur over the course of several days following heat cure. During this secondary moisture cure, **physical properties and adhesion will continue to build for approximately 3-7 days**, depending on atmospheric conditions.

Parts can be moved and handled following the initial heat cure and properties will continue to build during storage or shipping.

2P HTV ADHESIVES

DOWSIL™ EA-6060 Adhesive

Considerations for product selection

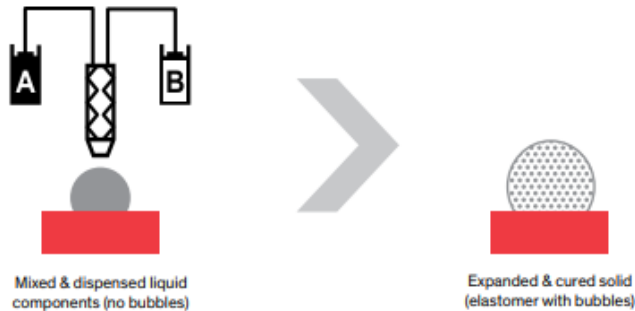
- **Low-temperature cure**
 - 10 minutes at 100°C
 - **30 minutes at 80°C**
- Durable adhesion to typical automotive substrates (i.e., PBT 30GF, PA 66, steel, aluminum)
- Use of a scavenger to reduce voids during cure
- UV dye for inspection

SILICONE FOAM AND CIPG PRODUCTS FOR GASKETING APPLICATIONS

DOWSIL™ 3-82xx / EF-65xx

Considerations for product selection

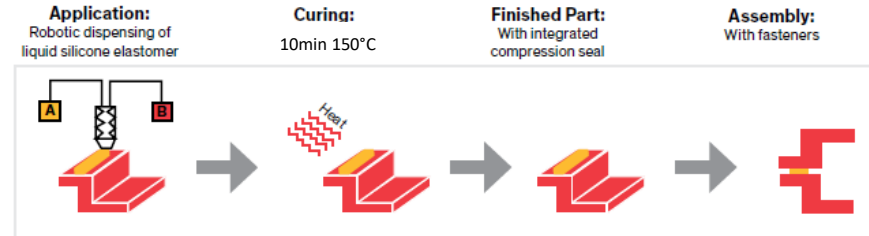
- 2P **RTV** Silicone foam
- Foam develops by **H2** generation from cure reaction
- Typical foaming time is 10 - 20 min
- Low modulus Silicone **foam** gaskets
- Product range density from 150 - 450 kg/m³



SILASTIC™ RBL-9694-30P / RBL-9694-45M

Considerations for product selection

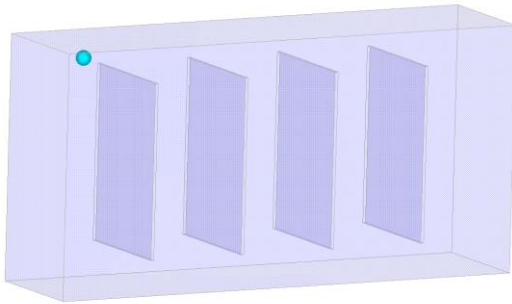
- 2P **HTV** Silicone Rubber
- Typical cure time 10 min at **150°C**
- Medium modulus Silicone **rubber** gaskets



SIMULATIONS WITH FOAM AND CIPG PRODUCTS

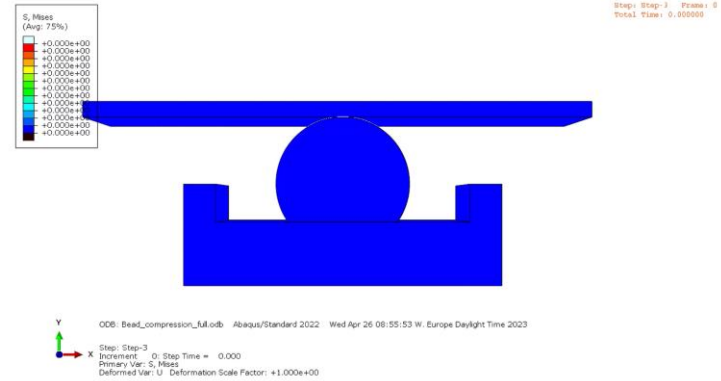
DOWSIL™ EF-6559

Foam filling simulation



SILASTIC™ RBL-9694-45M

Compression gasket simulation



UV CURE + SECONDARY MOISTURE CURE PRODUCTS PORTFOLIO

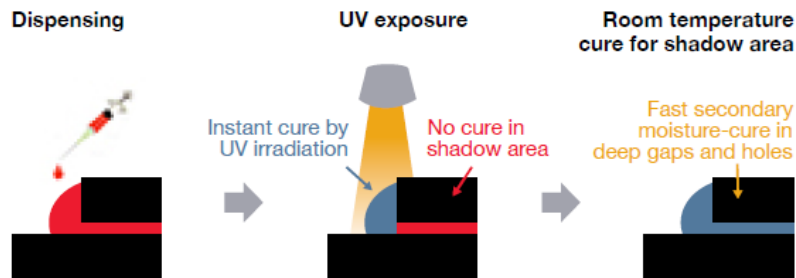
- 1P UV cure with secondary moisture cure Sealants

1P UV CURE WITH SECONDARY MOISTURE CURE SEALANTS

DOWSIL™ SE 91XX Dual Cure Silicone Adhesives

Features & benefits

- UV + RTV dual cure system
- **Instant material cure with UV irradiation** for fast in-line processing
- **Shadow area cure with fast secondary moisture cure**
- Excellent repairability after cure for cost saving from targeted substrates
- Excellent flowing and filling in small holes and gaps in applications



Solutions for faster assembly, low production cost and reliable performance

Products	DOWSIL™ SE 9160 Adhesive	DOWSIL™ SE 9103 Adhesive
Color	Clear blue	Transparent
Viscosity (cP)	20,000	350
Skin over time (min.)	30	50
Hardness (Shore A)	35	42
UV cure condition (mJ/cm²) UV LED (365 nm, 385 nm, 405 nm)	> 4,000 (UV V)	> 4,000 (UV A)



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