



SYL-OFF™ Q2-7785 Release Coating **SYL-OFF™ Q2-7560 Crosslinker**

Solvent-based fluorosilicone release coating

Features & Benefits

- Addition-curing system
- Suitable for casting (transfer coating) of DOWSIL™ Q2-7735 Adhesive and DOWSIL™ 7657 Adhesive directly onto the release liner
- Provides consistent, stable release

Composition

- Fluorosilicone polymer dispersion

Applications

- Production of release substrates coated from solvent
- Release of industrial-grade silicone pressure sensitive adhesives; major uses with silicone PSAs include:
 - Transfer films
 - Industrial tapes greater than 2 inches wide
 - Labels
 - Die cut constructions
 - Double-sided tapes
 - Silicone foam or rubber tapes
 - In-process liner for easier handling of jumbo rolls
 - Transfer to heat sensitive or non-solvent-castable backings

This release coating may prove suitable for release of some organic PSAs that are difficult to release from traditional dimethyl silicone release coatings; however, minimal data has been generated on these applications.

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Property	Unit	Result	
		SYL-OFF™ Q2-7785 Release Coating	SYL-OFF™ Q2-7560 Crosslinker
Physical Form		Solvent solution	Liquid
Solvent		Heptane	No solvent
Color		Clear to hazy, pale yellow	Amber
Active Ingredient	Percent	80	100
Viscosity at 25°C (77°F)	cSt		35

Description

SYL-OFF™ Q2-7785 Release Coating is an addition-curing, fluorosilicone coating suitable for use as a release coating for specially formulated dimethyl silicone pressure-sensitive adhesives. This coating can be used to coat either single- or double-sided release liners for labels, two-liner and self-wound transfer films, and two-sided tapes.

SYL-OFF™ Q2-7785 Release Coating is supplied as an 80 percent solution of base polymer in heptane with SYL-OFF™ Q2-7560 Crosslinker, a crosslinker supplied at 100 percent.

SYL-OFF™ Q2-7785 Release Coating, when used with SYL-OFF™ Q2-7560 Crosslinker, is designed for the production of release substrates coated from solvent. The primary application is the release of industrial grade silicone pressure-sensitive adhesives. DOWSIL™ Q2-7735 Adhesive and DOWSIL™ 7657 Adhesive have been specially designed to provide consistent, stable release with this release coating. Use of other silicone PSAs may yield highly variable release and subsequent adhesive properties.

How to Use

Substrate Selection

Suitable substrates for coating SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker include:

- Polyester
- Polypropylene
- Low density polyethylene
- Polyethylene coated kraft
- High density polyethylene
- Supercalendered kraft

Some plastic films contain plasticizers that inhibit the cure of the coating. In addition, films such as polyethylene and polypropylene require a pretreatment such as corona discharge prior to application of the release coating to improve anchorage of the cured coating. Depending on the application, the surface of kraft paper may prove too rough for optimum performance.

Therefore, it is important for users of SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker to check the compatibility of the coating and substrates. A typical procedure is to laboratory coat the substrate and measure the cure time at a selected temperature for cure to no migration.

Bath Preparation

The following procedure is recommended for the preparation of the coating bath. Equipment should be clean and dry, preferably constructed from stainless steel or glass.

1. Disperse the coating in the process solvent to a level of 20 to 50 percent silicone solids by weight. Recommended solvents include heptane or hexane.
2. Add crosslinker and disperse thoroughly. The recommended release coating:crosslinker ratio is 100:3.2 parts by weight.

NOTE: SYL-OFF™ Q2-7785 Release Coating and SYL-OFF™ Q2-7560 Crosslinker are NOT RECOMMENDED for use with any other SYL-OFF™ materials.

How to Use (Cont.)

Bath Life

The life of the catalyzed bath and stock solutions varies considerably with bath concentration, solvent, and temperature of the surroundings. Table I contains typical bath life cure performance data. Figure 1 shows the viscosity rise over time of a formulated bath at 80 percent solids. Under normal conditions, the bath should be usable up to 7 hours.

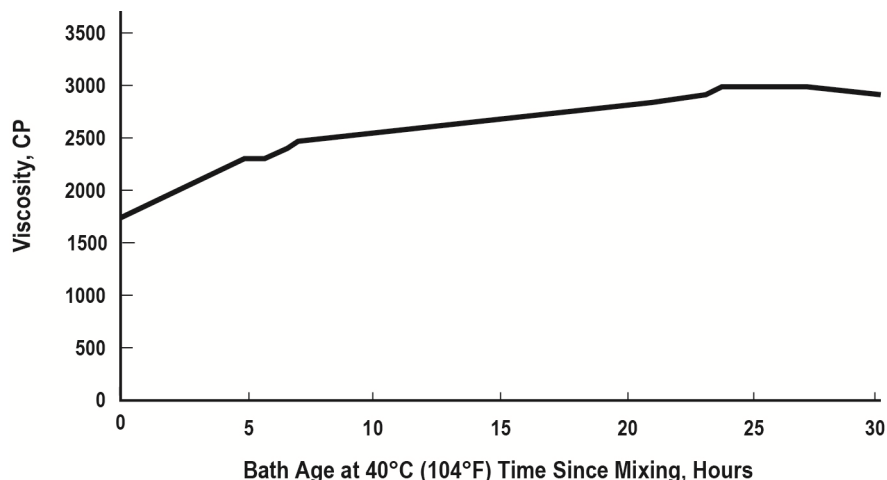


Figure 1: Formulated Bath Viscosity Rise Over Time – 80 Percent Silicone Solids

Application Techniques

SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker may be applied to substrates using Meyer rod, gravure, offset gravure, blade coater, smoothing bars or any other similar technique. Suitability of the coating method depends on bath solids, desired coat weight and substrate. When using offset roller systems, take care with the choice of the rubber-covered rolls; materials used to vulcanize the rubber may cause cure inhibition of the silicone coating. Choose a technique that does not cause excessive patterning or machine direction lines in the dry coating.

Application Levels

Coat weights can be varied by changing the coating technique and/or the concentration of silicone in the bath. In practice, coating baths vary from 20 to 50 percent silicone solids, resulting in dry coat weights from 0.3 to 1.0 lb/ream (3,000 sq ft). Recommended coat weights range from 0.5 to 0.7 lb/ream and should be sufficient to give complete coverage without pinholes.

Curing

The cure schedule for SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker is influenced by the substrate being coated. Typical cure time versus cure temperature is shown in Figure 2.

How to Use (Cont.)

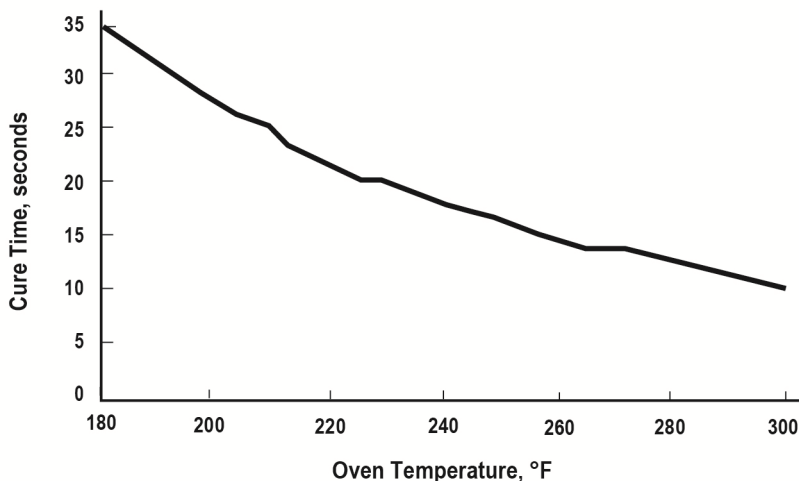


Figure 2: Cure Time Versus Cure Temperature

Many of the catalysts used in other paper coatings, such as tin salts and amine additives, cause inhibition of the cure of the SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker. Contamination with such materials should be avoided. Equipment used for processing both tin cure paper coatings and SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker should be thoroughly cleaned before switching from tin coatings to addition-curing fluorosilicones.

Equipment Cleanup

SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker is soluble in hexane, heptane, and chlorinated hydrocarbons. All equipment parts that come in contact with the coating solution should be washed at the completion of a run.¹

If regular cleaning after production is neglected, gels may begin to form, requiring more vigorous techniques, such as those described in the publication “Techniques for Cleaning Equipment Used in Applying SYL-OFF™ Systems.”

¹The solvents suggested for use as cleaning agents may be flammable. Avoid heat and open flame, provide adequate ventilation and follow all label instructions.

Table I:

Cure Retention of Aged Bath (Cured for 15 Seconds at 121°C [250°F])

Bath Age, Hours	Smear	Rub-off	Migration
0	Very slight	None	None
7	Slight	None	None
24	Moderate	None	Slight

Formulation Information

The recommended ratio of SYL-OFF™ Q2-7785 Release Coating to SYL-OFF™ Q2-7560 Crosslinker is 100:3.2. This is a 4.0 percent crosslinker based on SYL-OFF™ Q2-7785 Release Coating silicone solids. The bath solids should be chosen appropriately according to the coating method to be used. Figure 3 shows a typical dilution curve for SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker. The recommended bath solids range is 20 to 50 percent. Above 50 percent, the viscosity changes rapidly with changes in bath solids. Below 20 percent, the coating does not adequately wet-out film substrates such as polyester.

Solvent Choice

Recommended solvents include heptane and hexane.²

²When using any solvent, always keep away from heat and flame, provide adequate ventilation, and follow all label directions.

Crosslinker/Curing

Agent SYL-OFF™ Q2-7560 Crosslinker is the recommended crosslinker or curing agent for SYL-OFF™ Q2-7785 Release Coating. Other crosslinkers or curing agents used in dimethyl silicone paper coatings are not suitable for use with SYL-OFF™ Q2-7785 Release Coating. The recommended level of SYL-OFF™ Q2-7560 Crosslinker is 3.2 percent, by weight, of SYL-OFF™ Q2-7785 Release Coating as supplied.

Release Characteristics

The release characteristics of liner made with SYL-OFF™ Q2-7785 Release Coating are highly dependent on the specific silicone PSA used and how it is cured. Dow has developed three silicone PSAs that provide consistent, stable release when wet cast on this liner.

DOWSIL™ Q2-7735 Adhesive is a peroxide-curable silicone PSA.

Typical release values and subsequent adhesive properties for this PSA are shown in Table II in both dry laminating and wet-cast modes of use. Release and subsequent adhesive properties will be dependent on the type and level of peroxide used.

Additional information can be found in the DOWSIL™ Q2-7735 Adhesive Product and Application Information sheet or from your technical service representative.

DOWSIL™ 7657 Adhesive is a platinum-catalyzed, addition-cure PSA. This adhesive may show interaction with freshly coated SYL-OFF™ Q2-7785 Release Coating/SYL-OFF™ Q2-7560 Crosslinker. Typically a liner post cure of 7 days will result in stable release. Typical release and subsequent adhesive properties are shown in Table III. One of the unique characteristics of this addition-curing PSA is the ability to be cured at temperatures as low as 100°C (212°F), well below the 130–200°C (266–392°F) temperatures typically used for peroxide-cured PSAs.

**Formulation
Information (Cont.)**

Typical Formulation (20 Percent Silicone Solids)

Ingredient	Parts by Weight
SYL-OFF™ Q2-7785 Release Coating	25.00
Solvent	74.20
SYL-OFF™ Q2-7560 Crosslinker	0.80
	100.00

Table II:
DOWSIL™ Q2-7735 Adhesive (Peroxide Cure¹) Release and Subsequent Adhesive Performance

	Dry Laminated (Easy) Side	Transfer Film	Cast (Tight) Side
Liner		2 x 2-mil PET	
Adhesive Thickness, mils		1.7	
Total Thickness, mils		5.7	
Release			
at 12 ipm, gpi	1		13
at 400 ipm, gpi	8.8		37.3
Subsequent Properties (Transferred to 2 mil PET)			
Subsequent Adhesion ² , oz/in		60	
Subsequent Tack ³ , g		1100–1500	

¹Cured with 2 percent benzoyl peroxide.
²180° peel from stainless steel per PSTC-1.
³Polyken Tack: 1.0 second dwell time; 0.5 cm/sec draw speed.

Table III:
DOWSIL™ 7657 Adhesive¹ Release and Subsequent Adhesive Performance

	Dry Laminated (Easy) Side	Transfer Film	Cast (Tight) Side
Liner		2 x 2-mil PET	
Adhesive Thickness, mils		1.8	
Total Thickness, mils		5.8	
Release			
at 12 ipm, gpi	7.9		34.4
at 400 ipm, gpi	23.7		51.1
Subsequent Properties (Transferred to 2 mil PET)			
Subsequent Adhesion ² , oz/in		50	
Subsequent Tack ³ , g		1100–1600	

¹Cured according to the New Product Information sheet.
²180° peel from stainless steel per PSTC-1.
³Polyken Tack: 1.0 second dwell time; 0.5 cm/sec draw speed.

**Handling
Precautions**

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

**Usable Life and
Storage**

SYL-OFF™ Q2-7785 Release Coating has a shelf life of 18 months from date of manufacture when stored in original, unopened containers at temperatures between 20°C (77°F) and 50°C (122°F). Refer to product packaging for “Use By” dates.

SYL-OFF™ Q2-7560 Crosslinker has a shelf life of 18 months from date of manufacture when stored in original, unopened containers at temperatures between 25°C (77°F) and 50°C (122°F). Refer to product packaging for “Use By” dates.

**Packaging
Information**

This product is available in a variety of container sizes.

**Shipping
Limitations**

None.

Limitations

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

**Health and
Environmental
Information**

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, dow.com or consult your local Dow representative.

**Disposal
Considerations**

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

**Product
Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

dow.com

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