

Dymonic 100

Table of Contents

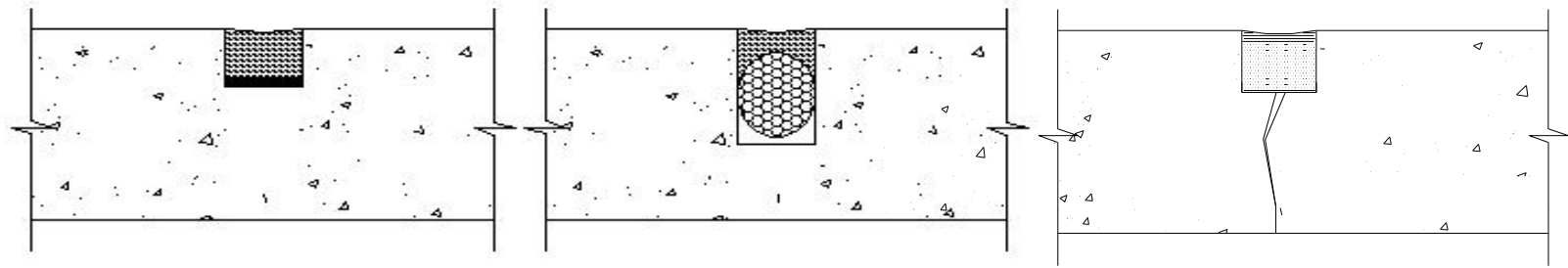
Backer Rod Selection Guide - EN	1
Cold Temperature Sealant Application Rec. - EN	3
Detailing the Rough Opening-Comparing Your Choices - EN	5
Dymonic 100 Competitive Comparison-Fluid Flashing - EN	6
Dymonic 100 Rough Opening Install Instructions - EN	7
Globally Harmonized System (GHS) Guide and Classification - EN	8
Jet Fuel Resistant Sealants - EN	10
Paintability of Polyurethane Sealants - EN	11
Tremco Sealant Maintenance Instructions - EN	12
Vulkem 45SSL & Dymonic 100 on Green Concrete - EN	13

Technical Service Bulletin S-15-07

Sealant Backing Material Selection Guide

Backer rod and bond breaker tape are an integral component of a sealant joints and provide three main functions that allow the sealant joint to perform.

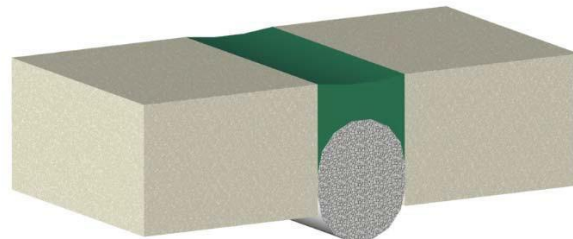
1. The backer rod most importantly acts as a bond breaker, preventing what is commonly referred to as threesided adhesion. This is when the sealant is adhered to the bottom and both sides of the joint. In this configuration the sealant cannot move nearly as well as when it is only bonded to the sides of the joint.



2. The backer rod supports tooling so after installation of material the sealant can be pushed to the bond line with a spatula, ensuring wet-out of the sealant to the substrate.



3. The final main feature of the backer rod is that it promotes an hour glass shape. This maximizes the bond area but keeps the depth of sealant consistent in the middle allowing for movement.



The backer rod comes in three main types, closed cell, open cell, and a hybrid that has closed outer

cells but open interior cells. Each one of these types of backer rod has its own niche that it thrives in.

- Open cell backer rod is great in terms of application, it is very easy to compress and it can even help facilitate the cure of the sealant from both sides instead of an outside to inside direction, or top down. Typically, sealants will cure through a reaction with atmospheric moisture or evaporation. Using a permeable backer rod will allow the sealant to react with atmospheric moisture to cure on the interior side. Open cell backer rod should not be used in flat or horizontal joints that can have water ponding on them as they can wick moisture to the underside of the sealant.
- The closed cell backer rod is best in horizontal or flat joints as its closed cell structure keeps moisture from wicking through it. It is much more robust which can make installation more challenging when compressing the backer rod into joints. This backer rod should be installed carefully because if it is punctured and then sealant installed directly over top a void is created. That void, filled with air, will then expand as it is heated through typical day to day temperatures and sunlight causing unsightly bubbles. This is commonly referred to as outgassing.
- The hybrid style backer rod is easy to install with the internal open cell structure it can compress easily. Since the backer rod has a closed cell exterior it can be installed in horizontal or flat work because it won't wick moisture through itself.
- Bond breaker tape is used in joints that are too shallow to install a backer rod. This type of tape is made of polyolefin or Teflon and provides a non-stick surface to prevent sealant 3-sided adhesion.

As mentioned previously each backer rod or bond breaker tape has its own niche that it excels in and this information should be considered when selecting your backing material for your next sealant project. Should you have any further questions or concerns please consult your local Tremco representative or Technical Services in Beachwood, Ohio for assistance.

Technical Service Bulletin No. S-08-44 rev 2

COLD TEMPERATURE SEALANT CAULKING RECOMMENDATIONS

The following outlines procedures and recommendations for using Tremco sealants at temperatures lower than 40°F (4°C). At temperatures below 32°F (0°C), the cure rate of our sealants is diminished and the presence of ice and frost on bonding surfaces becomes more likely. Both of these conditions can affect the overall cure, adhesion and ultimate performance of the sealants in application.

The following guidelines should be followed in order to optimize the performance of our sealants in cold weather.

1. Warm the primer / sealant for 24 hrs prior to use. Warming to room temperature will help to ensure adequate flow of the primer / sealant during application
2. Clean any dew, frost or ice from the substrates with an approved solvent such as MEK (methyl ethyl ketone), toluene or xylene. These solvents are more effective in lower temperatures than IPA (isopropyl alcohol).
3. When required, primers should be treated in a similar fashion to the sealants listed above. At temperatures lower than 32°F the primers in question will take longer to dry than at warmer temperatures. Care should be taken to ensure adequate primer dry time prior to sealant application. Tremco primers include TREMprime Silicone Metal Primer and TREMprime Silicone Porous primer for silicone sealants. Tremco polyurethane sealant primers include Primers 1, 171, 191 QD and TREMprime Multi-Surface Urethane primers.

The following are specific guidelines for applying Tremco sealants based on their composition.

1. Water based sealants: Water based sealants such as Tremflex 834 may freeze when stored at temperatures lower than 32°F (0°C). Care should be taken to store this sealant at temperatures warmer than 40°F (4°C) and to follow the general cold temperature recommendations listed above.
2. Solvent based Sealants: Solvent based sealants such as Tremco 830 and Butyl Sealant should also be stored and applied in accordance with the application procedures listed above. These sealants will cure at a slower rate at lower temperatures due to a reduced evaporation rate of their carrier solvents. Although these sealants will thicken in response to the lower temperatures they will not freeze. Warming the sealant prior to use will improve the sealant's flow properties.
3. Moisture cure sealants: Generally, these one-part sealants which cure by reaction with moisture vapor are also temperature dependant. Therefore, they will cure at a slower rate as

the temperature drops. Tremco polyurethane and silicone sealants are included in this category. Tremco polyurethane sealants include but are not limited to Vulkem 116, 45 SSL, 445 SSL, Dymonic, Dymonic 100, and hybrid urethane Dymonic FC. Tremco silicone sealants include Proglaze, Proglaze SSG, Spectrem 1,2,3,4, Tremsil 200, 400, 600, Spectrem 800 / 900 and TREMstop Fyre-Sil / TREMstop Fyre-Sil SL.

4. Tremco also provides a number of two-part silicone and polyurethane sealants that cure chemically although they are also somewhat affected by colder temperatures in a similar manner to the one-part sealants discussed above. Cold temperature application procedures listed above should also be observed when applying these sealants. These products include Dymeric 240, Dymeric 240 FC, THC-901 and Proglaze II.
5. Due to cold temperatures, length of cure time will be increased - installed material should be protected to prevent the displacement of the uncured sealant.

Minimum Temperature: Optimally sealants should be applied between 40°F (°4C) and 80°F (27°C). At temperatures between 0F (-18°C) and 40°F (4°C), the sealant should be applied as described above. High performance moisture curing silicone and polyurethane sealants have been applied successfully at temperatures as low as -20°F (-29°C) using these techniques.

In addition to temperature the following environmental conditions can affect the cure rate of the sealants in general.

1. Substrates: Moisture curing substrates (i.e. mortar, EIFS, concrete) require additional cure time in colder climates. Adequate time should be allowed for these substrates to cure prior to application of cleaners and primers prior to sealant application.
2. Dew Point: The dew point is the temperature at which condensation can develop. If the temperature is below the dew point, the affected substrates should be cleaned with solvent using the two-rag wipe method to remove the condensation prior to primer and sealant application.
3. Wind Chill: The major effect of wind chill is the accelerated cooling affect on the substrates and sealants. This will directly affect the time available for surface preparation and sealant application. The application characteristics of cooler sealants (i.e. reduced flow rate) result in less efficient tooling or wet out of the sealant to the substrate.

In general, any project should be evaluated on an individual basis since environmental conditions can vary significantly from day to day. These climatic variations are very pronounced during the cold weather months. When cold weather sealant application procedures are required please consult your local Tremco sales representative or Technical Services in Beachwood, Ohio for assistance.

Please contact Tremco Technical Service at 866-209-2404 with any questions regarding this bulletin.

Detailing the Rough Opening Comparing Your Options

Product	Dymonic 100	ExoAir 110	ExoAir 110AT	ExoAir 230 & Mesh
Permeance	Class III Vapor Retarder/Semi - Permeable	Class I Vapor Retarder/Impermeable	Class I Vapor Retarder/Impermeable	Permeable
High Solids	Yes	N/A	N/A	No
UV Exposure	No limit	30 Days	12 Months	12 Months
High Temperature Resistance	180°F (82°C)	158°F (70°C)	240°F (115°C)	240°F (115°C)
Cold Temperature Application	32°F (0°C) & Rising	40°F (5°C) & Rising	20°F (-6°C) & Rising	40°F (5°C) & Rising
NFPA 285 (Evaluated in an assembly)	Yes	No	Yes	Yes
Primer	Not Required	Required	Not Required	Not Required
Companion Products for Application	Dymonic 100 only	Dymonic 100 in the inside corners & to terminate the membrane; ExoAir Primer	Dymonic 100 in the inside corners and to terminate the membrane	Dymonic 100 in the inside corners and to fill voids; Tremco 2011 embedded in ExoAir 230
Packaging	10.1 oz cartridge 20 oz sausage	75' Rolls in widths of 6",9",12",18",24",36"	75' Rolls in widths of 4",6",9",12",18",24",36"	5 gal pail; 6" & 9" Rolls x 500'

12/18 MAT

Dymonic 100 Polyurethane Sealant Fluid Applied Rough Opening Detailing Sealant Competitive Comparison

Sealant	Dymonic 100	Prosoco FastFlash	Henry Air-Bloc LF	Meadows Air-Shield Liquid Flashing
Chemistry	Polyurethane	Silyl-Terminated Polyether	Silyl-Terminated Polyether	Silyl-Terminated Polyether
Color	22 Colors	Brick Red	Blue	Green
Thickness	40 mils	12-15 mils	25 mils (Smooth) 40 mils (CMU)	12-15 mils
E 84: Flame Spread Smoke Development	5 5	0 15	20 5	Not listed
UV Exposure	No Restriction	6 months	6 months	12 months
Mist with water to speed up cure in low humidity conditions	Yes	Apply as packaged; do not alter	Yes	No listed
Coat over time Tack free time	2 hrs 2 hrs	2 hrs 30 mins	24 hrs 1-2 hrs	24 hrs 30 mins
Moisture Absorption	In process	Not listed	0.1%	Not listed
Elongation	>850%	400%	264%	215%
Installation Temperature	32°F (0°C) to 100°F (38°C)	35°F (2°C) to 110°F (43°C)	20°F (-7°C) to 110°F (43°C)	Not listed
In Service Temperature	-40°F(-40°C) to 180°F(82°C)	-75°F(-60°C) to 400°F(204°C)	-40°F(-40°C) to 200°F(93°C)	-20°F(-29°C) to 200°F(93°C)
Packaging	10.1 oz cartridge 20 oz sausage	29 oz cartridge 20 oz sausage	20 oz sausage	28 oz cartridge 20 oz sausage

Dymonic 100 as Fluid Applied Flashing Installation Guide

Tremco has several options for detailing the rough opening. These options can be compared using the document, *Detailing the Rough Opening, Comparing Your Options*. Detailing of the rough opening is part of the successful air barrier assembly and system as it will provide your connection point to the fenestration. Ensuring that the product that is chosen is compatible and will adhere to the other materials in the air barrier assembly is required in addition to making sure that the product will meet the needs specified for your project.

The following are the installation instructions when installing Dymonic 100 into the rough opening:

- Brush off any dirt or debris that may have collected in the rough opening.
- Fill any voids or gaps in the rough opening with Dymonic 100
- Apply ExoAir Primer on all cut non-factory edges of exposed exterior sheathing to provide a bonding surface or verify that there is at least one inch of bonding surface on either side of the cut exposed gypsum edge. When primer is necessary allow to dry to a tack prior to installing sealant.
- Apply a cant bead (minimum of ½" x ½") of Dymonic 100 onto all vertical to horizontal transitions with in the rough opening, where the sill meets the jambs and where the head meets the jambs.
- Apply Dymonic 100 (40 wet mils) into the rough opening in a zig zag pattern so that the sill, jambs and head are properly detailed. Once the sealant is installed, smooth with a trowel to ensure uniform and complete coverage. The job details will indicate the width required for this detailing depending on the depth of the rough opening and the connection to the fenestration.



- Dymonic 100 can be applied prior to the installation of the ExoAir membranes or after the ExoAir membrane. Always provide a minimum of 2" of product overlap when making these transitions/connections.
- The following table provides a guideline for the number of lineal feet/meter per cartridge and sausage. These are calculated using the addition of the width into the rough opening and onto the face of the wall without factoring in any waste.

Total lineal inches (add width into rough opening and onto face of wall) (inches/cm)	Mil Thickness	Use per cartridge (feet/meter)	Use per sausage (Feet/meter)
6/15.24	40	5/1.5	9.8/3
5/12.7	40	6/1.8	11.8/3.6
4/10.16	40	7.4/2.2	14.7/4.5
3/7.62	40	10/3	19.7/6

Technical Bulletin

In 2012, the Occupational Safety and Health Administration (OSHA) Hazard Communication Standard was updated to fully align with the United Nations' Globally Harmonized System (GHS). GHS is intended to improve the quality and consistency of hazard information in the workplace by incorporating more globally recognized classification criteria.

The conversion to GHS impacts the type of information provided on the label and Safety Data Sheet (SDS) and also the manner in which it is conveyed.

The most recognizable changes are **1**: the system in which the hazards are determined and ranked, **2**: the use of pictograms to convey the hazard information and **3**: the inclusion of carcinogenicity, reproductive and/or organ toxicity hazards that were not required prior to GHS.








1: Under the previous OSHA standard, HMIS III (Hazardous Materials Identification System) and NFPA (National Fire Protection Association) rating systems were often used to communicate the degree and type of hazard. These systems are not applicable under the new GHS standard and no longer appear on the SDS. GHS hazard categories are used in a different manner than these more familiar hazard rating systems.

Comparative examples:

HMIS III / NFPA 704 RATINGS	GHS HAZARD CATEGORIES
0 = Minimal Hazard	1 = Severe Hazard
1 = Slight Hazard	2 = Serious Hazard
2 = Moderate Hazard	3 = Moderate Hazard
3 = Serious Hazard	4 = Slight Hazard
4 = Severe Hazard	5 = Minimal Hazard

Flammability Criteria	GHS Category	HMIS III Rating	NFPA 704 Rating
Flash point < 73°F (23°C) and initial boiling point < 100°F (37.8°C)	1 or 2	4	4
Flash point < 73°F (23°C) and initial boiling point > 100°F (37.8°C) Flash point > 73°F(23°C) and < 100°F (37.8°C)	2 or 3	3	3
Flash point ≥ 100°F (37.8°C) and < 200°F (93.4°C)	3 or 4	2	2
Flash point > 200°F (93.4°C) and will burn in air when exposed to a temperature of 1500°F (815.5°C) for a period of 5 min.	None	1	1

2: Hazard statements are now accompanied by pictograms that are indicative of the type and degree of hazard. The statements correlate to specific warnings associated with the classifications below.

						
Irritant (skin, eye, respiratory)	Flammable Liquid	Carcinogen	Skin Corrosion/Burns	Acute Toxicity	Gases Under Pressure	Aquatic Toxicity
Skin Sensitizer	Flammable Solid	Reproductive Toxicity	Eye Damage			
		Aspiration Toxicity				
		Target Organ Toxicity				
		Mutagenicity				
		Respiratory Sensitizer				

3: Carcinogen and reproductive toxicity hazards were not required communication elements under the previous OSHA standard, but are now required under GHS. Although these types of statements can be disconcerting, it is important to understand the criteria with which they are determined and the nature of the potential risks involved.

Some examples include:

- The statements are required for all applicable substances, even if present at only trace (0.1%) levels.
- The hazard may only be applicable if the offending substance is in particulate form and present in respirable (micron) size.
- The hazard posed by some substances is only applicable during extreme, isolated exposure scenarios.

Even though our products may not contain substances in the applicable form or present the exposure circumstance that trigger the hazard, the classification system will still communicate the risk potential in accordance with GHS guidelines.

Tremco is committed to providing comprehensive and thorough hazard communication and product safety guidelines in order to provide a higher degree of responsible care for our employees and customers.

If you have any questions or concerns regarding the new GHS system or its impact relative to our products, please contact our Environmental Health and Safety Department at 1-800-852-6013 x5173.



Tremco Incorporated

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Commercial Sealants & Waterproofing Division
Integrated Technical Solutions

Technical Service Bulletin No. S-13-14

Jet Fuel Resistant Sealants

The following sealants are acceptable to be used where jet fuel resistant sealants are specified.

- **Dymonic 100**, polyurethane sealant
- **Vulkem 116**, polyurethane sealant
- **Vulkem 45SSL**, semi self-leveling polyurethane sealant
- **Vulkem 445SSL**, two component semi self-leveling polyurethane sealant
- **Spectrem 900S/L**, self-leveling silicone sealant

Sealants specified for this use require first, that the sealant is able to waterproof the joints through any applicable temperature changes. This means that the sealant must remain elastomeric and maintain its movement capability as categorized by ASTM C 920. The sealant must also resist adhesion loss due to contact with jet fuel and other airfield fluid contact if a spill of such fluids were to occur. Typical fluids that an airfield sealant may be exposed to are:

1. **Jet Fuel.** Typically Jet A-1, Jet A, Jet B, or JP-4
2. **Hydraulic Fluid.** Typically Skydrol B
3. **De-icing Fluid.** Typically a 50/50 mix of ethylene glycol and water.

In absence of any relevant standard federal or ASTM specification for single-component, high performance sealants for use in these applications, Tremco developed its own test based on decades of commercial sealant application experience in an effort to relate lab testing to actual airfield sealant applications where today's high performance one-part sealants can be used.

The Tremco Jet Fuel Resistance Test utilizes the standard ASTM C 719 Test Method for Adhesion and Cohesion of Elastomeric Sealants Under Cyclic Movement (Hockman Cycle) to evaluate the sealant after subjected to typical airfield fluids.

The cured Tremco sealant samples were subjected to the types of fluids representative of a spill on a runway or taxiway at an airfield. After the fluids were allowed to dissipate the sealants were tested according to the standard ASTM C 719 for each of the sealant's movement classes. After exposure to the fluids no visible physical changes were observed. In addition, after conducting C 719 to the exposed samples, it was shown that the tested sealants remained elastomeric and continued to expand and contract with no adhesion loss.

It is important to note that this is approval for jet fuel resistance only. These sealants are not approved for use where a jet blast sealant is specified or required.

DPM 05/31/13

Replaces Tech Bulletin S-13-03 Jet Fuel Resistant Sealants

Paintability of Tremco Polyurethane & Tremflex 834 Sealants

The purpose of this bulletin is to provide information regarding important facts necessary for an acceptable method of painting.

Paintability of Tremco's polyurethane sealants & Tremflex 834

Tremco polyurethane sealants and Tremflex 834 latex sealant accept paints and stains, however the sealant must be fully cured before such applications. Coating over the sealant before it cures restricts and/or inhibits the sealant from curing and may also adversely affect the coating. Sealant cure time is dependent upon the size and shape of the joint, humidity, and the exterior temperatures, the colder the temperature, the slower the cure. A generally acceptable cure time at 72°F and 50% RH is 7 to 10 days for polyurethane and latex sealants.

It must be understood that Tremco sealants are elastomeric in nature, enabling them to extend and compress within a construction joint. Most paints are designed to be applied to hard, non-moving surfaces and do not match the elastomeric properties of sealants. Because sealants are soft and will extend and compress, if the paint film does not move in an identical manner to the sealant, the paint may crack and peel.

Tremco makes no representations or warranties regarding the compatibility and/or adhesion of paint films to Tremco sealants. It shall be the responsibility of the applicator of a particular coating applied over a Tremco sealant to take whatever measures necessary, including testing, to ensure compatibility and adhesion of the paint with the Tremco sealant.

Please contact Tremco Technical Service at 866-209-2404 with any questions regarding this bulletin.

Technical Service Bulletin No. S-11-05

Tremco Sealant Maintenance Instructions

When installed properly, the chemical composition of a silicone and polyurethane sealants will provide performance for many years with out the need for replacement. However, it may be required to clean or repair the surface due to environmental conditions or mechanical or other damage. The following can be use as a guideline for cleaning and/or repairing the surface of the Tremco sealant.

Cleaning

If it is necessary to clean the surface of the sealant, the following should be considered:

- The sealant and adjacent substrate surfaces can be power washed.
- Proper protection of other building components should be considered prior to power washing.
- Pressures up to 2000 psi are acceptable.
- Allow a minimum of 12" between nozzle and sealant/substrate surface.
- Continually move nozzle as to not concentrate on any one area too long. This could cause surface damage of the sealant or substrate.

Repairing

If it is found necessary to repair the sealant the following should be considered:

- Sealant is performing properly, but aesthetically not tooled properly or completely, or slightly damaged on the surface
 - Clean surface of silicone sealant with isopropyl alcohol and the surface of a urethane sealant with xylene in order to remove any surface contaminants utilizing the two rag wipe method, and allow solvent to dry
 - Protect adjacent substrate by taping
 - Apply a thin bead of fresh sealant over the cleaned cured bead
 - Dry tool the sealant
 - Remove masking
- Sealant is damaged and needs to be removed and replaced
 - Remove damaged area by cutting out sealant.
 - If sealant is still well adhered to substrate, it is acceptable to allow existing sealant to remain in joint and simply remove the damaged portion utilizing a v-cut. Follow instructions above to install additional sealant in joint
 - If adhesion to substrate is unacceptable, mechanically remove existing sealant cleanly from joint.
 - Clean and prime as deemed appropriate.
 - Protect adjacent substrate by taping
 - Apply a thin bead of fresh sealant over the cleaned cured bead
 - Dry tool the sealant
 - Remove masking
 - Check adhesion after sealant has cured (Cure depends on temperature & humidity, a minimum of 14 days is acceptable)

Please contact Tremco Technical Service at 866-209-2404 with any questions regarding this bulletin.



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Technical Service Bulletin No. S-13-15

Vulkem 45ssl and Dymonic 100 on Green Concrete

Vulkem 45SSL and Dymonic 100 can be used on concrete after the concrete has cured for 24 hours. If curing or sealing compounds were applied to the green concrete, they must be removed before applying the sealant Vulkem 45SSL and Dymonic 100 are the only sealants we are recommending for green concrete at this time.

By request, we tested Vulkem 45SSL and Dymonic 100 for adhesion to concrete that was 24 hours old. Sealant was applied 24 hours after the concrete had cured. We also applied sealant to the same 24-hour old concrete that had been treated with Euclid Chemical's Rez-Seal Cure and Seal Compound. This compound is a film forming, penetrating sealer that is applied to concrete to aid in the curing and hardening process and is commonly used on green concrete.

After the standard 21-day cure time for this one part sealant, Vulkem 45SSL and Dymonic 100 were tested for adhesion using the tab adhesion test and the results were 100% cohesive failure. This means that the Vulkem 45SSL and Dymonic 100 tore within themselves and did not loose adhesion to the concrete. This was considered satisfactory adhesion to green concrete after 21 days of cure at 72F and about 25% relative humidity.

Any curing or sealing compounds must be removed before applying the sealant. Removal typically requires mechanical grinding but with some sealers, such as Rez-Seal it can be removed using a strong solvent like xylene, MEK, or toluene.

If you have any questions, please contact the Technical Service Group at (800) 321-7906.

DPM 08/7/13

Replaces Tech Bulletin S-07-2 Jet Fuel Resistant Sealants