



1. Product Description

Scar-Guard is typically shipped in rolls and is protected from damage and contamination by a foil pouch. Scar-Guard is an optional protective outer wrap only, it is not to be applied as a standalone anticorrosion coating. It can be used as the alternative Outer Wrap for Wrapid Bond. It can be used as an alternative to the Epoxy Top Coat in the TBK line of products. It can be used as an alternative protective outer layer on any of the Canusa Products. It can be used to protect long sections of mainline coating for HDD applications. Scar-Guard is supplied in two widths, a 150mm (6") wide and a 250mm (10"). The 150mm wide material is suggested for pipe OD up to 12" NPS. The 250mm wide material is suggested for pipe OD greater than 12" NPS. The compression film is supplied in two widths, a 125mm (5") and a 300mm (12"). The 125mm material is suggested for pipe OD up to 12" NPS. The 300mm wide material is suggested for pipe OD greater than 12" NPS. Different widths of the Scar-Guard and the compression film can be used than is recommended but consultation with your Canusa Technical Representative is required.

2. Storage & Safety Guidelines

To ensure maximum performance, store Canusa products in a dry, ventilated area. Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements. If the product must be removed from its original packaging then the new packaging must provide the same level of protection as the original. Avoid prolonged storage at temperatures above 40°C (104°F) or below 5°C (41°F). Prior to installation the Scar-Guard should be at or near room temperature 20°C ±3 (68°F ±5). Inspect the pouch for signs of off gassing which may indicate that the pouch had been punctured and the Scar-Guard may not be fit for application. If the Scar-Guard material feels hard inside the pouch it should be discarded and not be used for application. Product installation should be done in accordance with local health and safety regulations.

3. Equipment List

Appropriately sized torch, propane tank, hose and regulator, appropriate tools for surface abrasion, wire brush, knife, 60-80 grit sand paper, rags and approved solvent, digital contact thermometer with suitable probe, clean water, water delivery system and standard safety equipment (leather and rubber gloves, goggles, hard hat, etc.), optional: propylene glycol as anti-freeze for water to allow applications onto <0°C (32°F) substrate, Perforation tool.

Approved Solvents:

- Acetone
- MEK
- Denatured Alcohol ≥95%
- Isopropanol ≥95%
- Any solvent that flashes off 100% without leaving a residue

4. Surface Preparation

The mainline coating should have been inspected for holidays and all holidays shall have been repaired prior to continuing. The field joint coating shall have had all required inspection tests completed and have been declared a pass prior to continuing.

1. Remove all foreign contaminants such as ice, frost snow, mud, dirt, cement dust.
2. Scrape off all paint marker, magic marker, and paint stick.
3. Trim off any damaged mainline coating due to previous construction steps.
4. Clean exposed mainline pipe coating and girth weld coatings with an approved solvent to remove the presence of oil, grease, and other contaminants if present. Ensure that the pipe is dry prior to mechanical cleaning.
 - If the mainline coating is CSA Z245.21 System B1 (YJ) or B2 (YJIK) it shall be abraded with 60-80 grit sand paper 150mm (6") beyond the field joint coating on the leading edge and 150mm (6") beyond the field joint coating on the trailing edge.
 - If the mainline coating is CSA Z245.20 System 1A (FBE) or 1B (NapGard) or 2A or 2B(ARO) then it shall be brush blasted with a 1 to 3 mil profile (25 to 75 microns) 150mm (6") beyond the field joint coating on the leading edge and 150mm (6") beyond the field joint coating on the trailing edge. If brush blasting is not an option then the mainline coating shall be abraded with 60-80 grit sand paper to create a profile of 1 to 3 mil profile (25 to 75 microns) 200mm (8") beyond the field joint coating on the leading edge and 100mm (4") beyond the field joint coating on the trailing edge.
 - If the field joint coating is CSA Z245.30 System FC4 or FC5 or FC6 it shall not be abraded.
 - If the field joint coating is CSA Z245.30 System FC1 or FC2 or FC3 it shall be brush blasted with a 1 to 3 mil profile (25 to 75 microns). If brush blasting is not an option then the field joint coating shall be abraded with 60-80 grit sand paper to create a profile of 1 to 3 mil profile (25 to 75 microns).

After surface preparation, wipe clean using a lint-free cloth or air blast the steel surface and pipe coating to remove foreign contaminants. In very dry ambient conditions a dry lint free rag may not remove the fine dust being held onto the pipe with static. In this case a little solvent on the rag will help clean the surface.

This step shall be done anywhere the product will make contact with the pipe.

5a. Preheat to Application Temperature

The substrate temperature range for application is 5°C to 60°C (41°F to 140°F) with water. The substrate temperature range for a 35% Propylene Glycol/Water solution is -17C to 60C (1°F to 140°F). Scar-Guard can be installed onto sweating pipe and can be applied when precipitation is present. If the Scar-Guard is being installed without heating the pipe or in a situation where you cannot heat the pipe such as a live line or within a live plant you can install Scar-Guard as long as the pipe is within the above temperature requirements. If the temperature for application is outside of the recommended temperature please contact your Canusa representative for alternate materials. During cold weather ensure that the substrate remains warm enough throughout the cure cycle so that it can reach the required Shore D hardness. During cold weather there is a risk that the water can freeze in the spraying container, a solution of up to 5% of propylene glycol can be used.

5b. Preheat to Application Temperature

Scar-Guard can be installed during cold weather. Immediately after installing the girth weld coating. Allow the girth weld coating to cool down enough to perform holiday inspection then once the temperature of the pipe is within the required temperature range the application of the Scar-Guard material can begin. Alternately the procedures contained within Step 6 can be followed. The warmer the application temperature the quicker it will cure to meet the required hardness.

6a. Preheat to Application Temperature (Propane Torch) - Optional

Pre-heat the cutback area and abraded coating to the required temperature range of 5°C to 60°C (41°F to 140°F) with the appropriately sized propane torch. Ensure the correct temperature has been reached using a digital surface contact thermometer. The existing coating must not be damaged during preheat. If the girth weld or mainline coating is damaged it shall be repaired prior to the application of the Scar-Guard material.



6b. Preheat to Application Temperature (Infrared Heater) - Optional

Pre-heat the cutback area and abraded coating to the required temperature range of 5°C to 60°C (41°F to 140°F) with the appropriately sized infrared heater. Adjust the propane pressure so that the steel and the mainline coating reach the required temperature at the same time without damaging the existing coating. Ensure the correct temperature has been reached using a digital surface contact thermometer. If the girth weld or mainline coating is damaged it shall be repaired prior to the application of the Scar-Guard material.

6c. Pre Heat to Application Temperature (Induction Coil) - Optional

Pre-heat the cutback area and abraded coating to the required temperature range of 5°C to 60°C (41°F to 140°F) with the appropriately sized induction coil. Ensure the correct temperature has been reached using a digital surface contact thermometer. If the girth weld or mainline coating is damaged it shall be repaired prior to the application of the Scar-Guard material.

7. Scar-Guard Installation

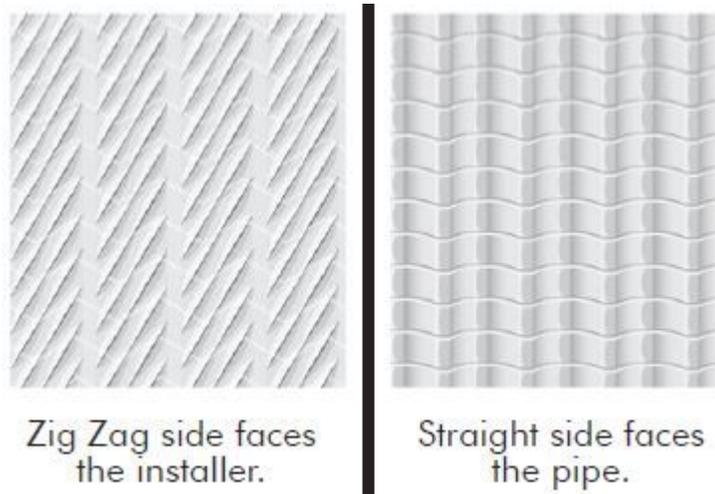
Water is needed to activate Scar-Guard. Open the foil pouch, remove the roll. A water spray system during application is required. The more water that is used will ensure a complete reaction of the resin. If not enough water is used the resin may not react fully.

Note: Once opened, the product cannot be repackaged.

8a. Scar-Guard Installation

Water shall be misted onto the product as you wrap it around the pipe. Ensure that during application that the water is misted onto the top and bottom of the material as this will allow the material to fully cure. Warm water with a temperature up to 60C (140°F) can be used to speed up the curing process during colder applications. The substrate temperature range for application is 5°C to 60°C (41°F to 140°F) with water. The substrate temperature range for a 35% Propylene Glycol/Water solution is -17C to 60C (1°F to 140°F).

Scar-Guard must be wrapped onto the field joint in the correct orientation. The "Zigzag" patterned side must be facing outward. The straight side of the Scar-Guard is the side that makes contact with the pipe. See the illustration below.



Begin the application at a minimum distance of 150mm (6") beyond the girth weld coating on the trailing edge. Apply the first wrap circumferentially around the pipe at a 90° angle then begin spiral wrapping towards the leading edge ensuring that a minimum 50% overlap is maintained. Apply pressure during application by pulling firmly on the roll as it is applied. Continue wrapping until the material is at a minimum distance of 150 mm (6") beyond the leading edge of the girth weld coating. Finish with a 90 degree wrap around the pipe and trim off any extra material.

8b. Scar-Guard Installation –for long sections

Water shall be misted onto the product as you wrap it around the pipe. Ensure that during application that the water is misted onto the top and bottom of the material as this will allow the material to fully cure. Warm water with a temperature up to 60C (140°F) can be used to speed up the curing process during colder applications. The substrate temperature range for application is 5°C to 60°C (41°F to 140°F) with water. The substrate temperature range for a 35% Propylene Glycol/Water solution is -17C to 60C (1°F to 140°F).

Begin the application at the trailing edge of the pipe section to be coated. Apply the first wrap circumferentially around the pipe at a 90° angle then begin spiral wrapping towards the leading edge ensuring that a minimum 50% overlap is maintained. Apply pressure during application by pulling firmly on the roll as it is applied. When one roll ends and you are starting the next roll ensure to overlap the new roll tab with the first roll tab end a minimum of 150mm (6"), the spiral wrap can continue.

Finish with a 90 degree wrap around the pipe and trim off any extra material. When there is enough distance to allow the application of the compression film the application should begin immediately. When there is enough distance to allow the use of the perforating tool the perforating of the compression film should begin.

9. Scar-Guard Installation

For high shear or impact requirements, additional layers may be applied. Please contact your Canusa representative for technical advice.



10a. Scar-Guard Installation

Apply compression film immediately after the Scar-Guard material has been applied. Starting a minimum of 50mm (2") beyond the outer edge of the Scar-Guard. Pull firmly during application and ensure that you maintain a minimum 50% overlap. Continue wrapping the compression film until it extends a minimum of 50mm (2") beyond the applied Scar-Guard wrap. Apply a minimum of 2 passes of the compression film over the entire area, it is allowable to wrap the compression film in one direction as prescribed then change directions and wrap it in the reverse direction as prescribed.

Perforate the compression film using the perforating tool by rolling it firmly on the compression film. Do not press so hard that the perforating tool passes through the Scar-Guard material and damages the girth weld coating. Perforation allows the CO² gas generated by the curing process to escape. During curing the material will foam slightly and some of the foam will rise through the perforations. When the foam material is hard enough to flick off the surface of the compression film the compression film can be removed. Leaving the compression film on longer will not affect or damage the Scar-Guard wrap.

10b For long sections being wrapping the compression film once there is enough space for the applicators to work without interfering with the Scar-Guard application. Starting a minimum of 50mm (2") beyond the outer edge of the Scar-Guard. Pull firmly during application and ensure that you maintain a minimum 50% overlap. Continue wrapping the compression film until it extends a minimum of 50mm (2") beyond the applied Scar-Guard wrap. Apply a minimum of 2 passes of the compression film over the entire area. It is preferable to have the first and second pass performed immediately behind the other instead of two separate passes.

Perforate the compression film using the perforating tool by rolling it firmly on the compression film. Do not press so hard that the perforating tool passes through the Scar-Guard material and damages the girth weld coating. Perforation allows the CO² gas generated by the curing process to escape. During curing the material will foam slightly and some of the foam will rise through the perforations. When the foam material is hard enough to flick off the surface of the compression film the compression film can be removed. Leaving the compression film on longer will not affect or damage the Scar-Guard wrap.

11. Stopping and Starting Application of Scar-Guard

If the application procedure must stop for more than 15 minutes the Scar-Guard application should be completed with a circumferential wrap 90 degrees to the pipe and covered with two passes of compression film and perforated.

To continue with the application onto the cured Scar-Guard begin by removing a minimum 300mm (12") of the compression film where the application is to begin. Using 60-80 grit sand paper abrade the exposed 300mm (12") of Scar-Guard enough to expose some of the fibers. Wipe off any dust created from abrasion. Begin new application of Scar-Guard as per step 5a.

Repairs

Scar-Guard shall be used for repairs. The newly installed Scar-Guard must be circumferentially wrapped around the pipe and must extend a minimum of 75 mm (3") onto the existing Scar-Guard in good condition on both sides of the damage. The cured Scar-Guard must be solvent wiped and abraded with 60-80 grit sandpaper and the dust removed prior to installation of the repair. Install according to this MQAP.

Backfilling/Laying Guidelines

After application of Scar-Guard it must cure to a minimum Shored D 60 prior to backfilling or HDD applications. To speed up the curing process hot water with a temperature up to 90°C (190°F) can be sprayed onto the applied Scar-Guard until the minimum hardness has been reached.

Storage & Safety Guidelines

To ensure maximum performance, store Shawcor's Canusa products in a dry, ventilated area. Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements. Avoid prolonged storage at temperatures above 35°C (95°F) or below 5°C (41°F). Product installation should be done in accordance with local health and safety regulations.

These installation instructions are intended as a guide for standard products. Consult your Canusa representative for specific projects or unique applications.

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Canusa-CPS is registered to ISO 9001:2008

Canusa warrants that the product conforms to its chemical and physical description and is appropriate for the use stated on the installation guide when used in compliance with Canusa's written instructions. Since many installation factors are beyond our control, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection therewith. Canusa's liability is stated in the standard terms and conditions of sale. Canusa makes no other warranty either expressed or implied. All information contained in this installation guide is to be used as a guide and is subject to change without notice. This installation guide supersedes all previous installation guides on this product. E&OE



Cure Reference Information

Scar-Guard Cure Profile With Water			
Temperature (°F/°C)	Working Time (min)	Set Time (min)	Cure Time (min)* (Time to pull)
39 F / 4 C	5	15	100
75 F / 24 C	4.5	13	65
90 F / 32 C	4	10	75
150 F / 66 C	3.5	8	80
* Cure time based on Shore D hardness > 60 and >90% cure. Shore D values are only an indication of hardness.			

Scar-Guard cured with 35% Propylene Glycol Solution			
Temperature (°F/°C)	Working Time (min)	Set time (hrs)	Cure Time (hrs)* (Time to pull)
15 F / -9 C	20 min	1 hr	24 hrs
23 F / -5 C	25 min	1 hr	24 hrs
* Cure time is based on Shore D hardness > 60 and >90% cure. Shore D values are only an indication of hardness.			

Note:

Shore D values are only an indication of hardness, FTIR measures cure percentage by analyzing the crosslinking that occurs during the curing process. Comparing Shore D values to FTIR analysis it is proven that lower shore D values may occur when the material is at higher temperatures even though the material cures faster. Conversely higher Shore D values can occur when material is at lower temperatures even though the material cures slower.

Shore D readings taken at substrate temperatures outside the standard temperature of 23C +/-3C should not be recorded as a true value.

MANUFACTURER'S QUALIFIED APPLICATION PROCEDURE (MQAP) Revision 1.01