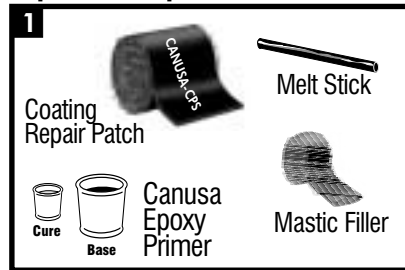


Pipeline Repair Products

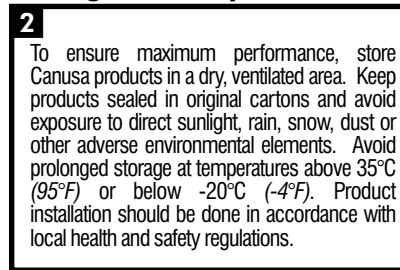
Repair Patch, Melt Stick, Epoxy Primer and Mastic Filler

Pipeline Repair Products



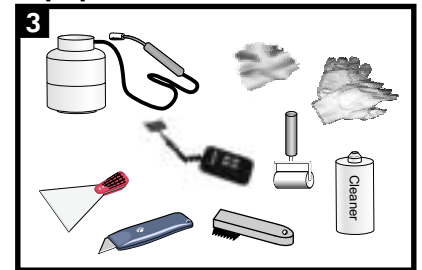
The Coating Repair Patch (CRP) is typically shipped in bulk rolls and can be cut-to-size in the field. Melt Sticks and Mastic Fillers are used to repair holidays and/or fill voids. Canusa Epoxy Primer is supplied in pre-measured quantities.

Storage & Safety Guidelines



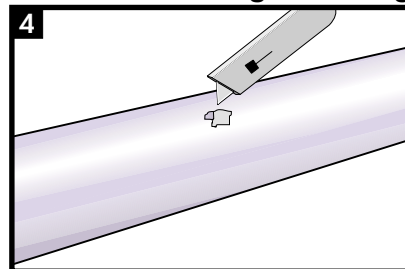
To ensure maximum performance, store Canusa products in a dry, ventilated area. Keep products sealed in original cartons and avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements. Avoid prolonged storage at temperatures above 35°C (95°F) or below -20°C (-4°F). Product installation should be done in accordance with local health and safety regulations.

Equipment List



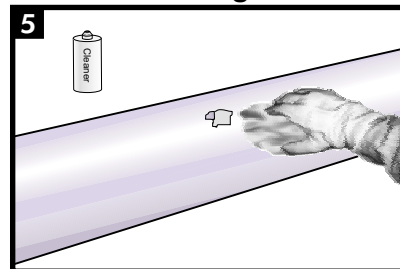
Propane tank, hose, torch & regulator. Appropriate tools for surface abrasion and cleaning, including wire brush, abrasive paper, rags & approved cleaner. Temperature measuring device. Misc. tools such as; knife, putty knife, roller, paint brush or paint roller, tape measure, and marker. Standard safety equipment; gloves, goggles, hard hat, etc.

Removal of Damaged Coating



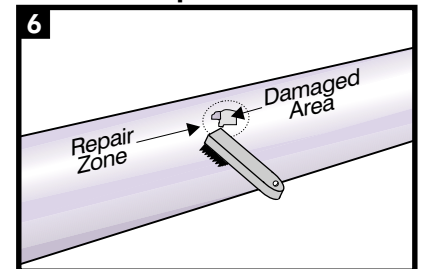
Remove damaged coating with a knife or hand grinder to prevent crack propagation in the coating.

Solvent Cleaning



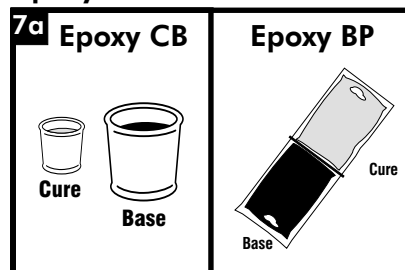
Clean exposed steel and adjacent pipe coating with an approved cleaner (as per SSPC-SP-1) to remove the presence of oil, grease and other contaminants.

Surface Preparation

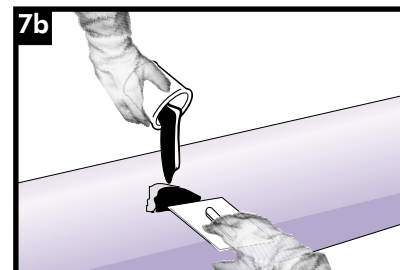


Remove adhering rust, coating chalk, dirt, and roughen the mill applied coating in the repair zone using an abrasive paper/cloth or wire brush.

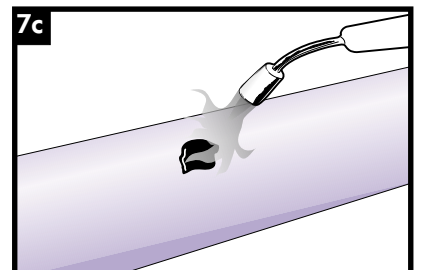
Epoxy Primer



Follow the Preparation, Mixing and Application instructions provided with the supplied Canusa Epoxy Pack. For bulk quantities: mix the primer cure with the primer base (4 parts base to 1 part cure **by volume**). Stir for a minimum of 30 seconds to assure uniform mixture.



Apply mixed epoxy to a minimum uniform thickness of 100microns (4 mils) on all exposed bare metal.

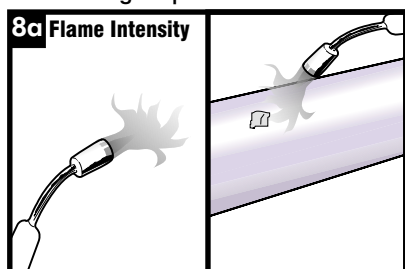


Preheat the area with a low to moderate intensity flame to substantially cure the epoxy and warm the surface.

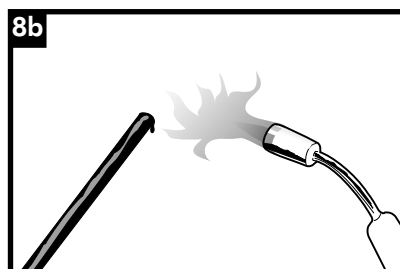
Skip to box 10

Melt Stick Application

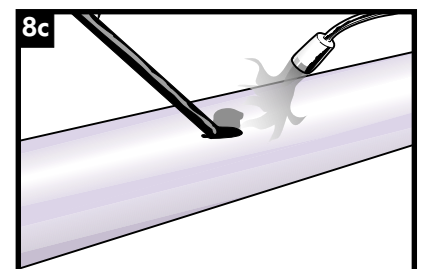
For Damage Up To 10mm x 10mm



Use a low intensity yellow flame for pre-heating the coating and applying the repair products. With quick back and forth strokes, pre-heat the repair zone sufficiently to remove moisture and assist in adhesion.



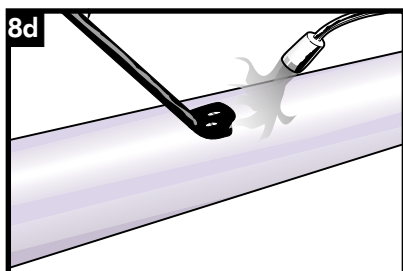
Heat the melt stick with the torch until it becomes fluid.



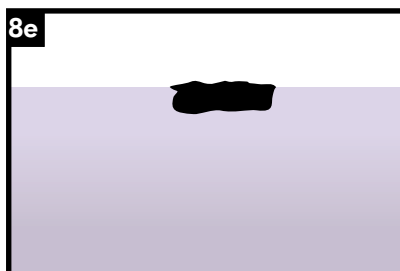
Heat the melt stick and the repair zone simultaneously with the torch and spread the melt stick over the damaged area. Keep the flame moving to prevent damage to the coating. Some ignition of the melt stick is acceptable.

Pipeline Repair Products

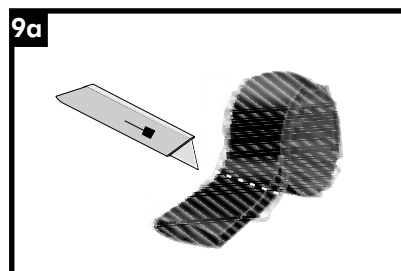
Mastic Filler Installation



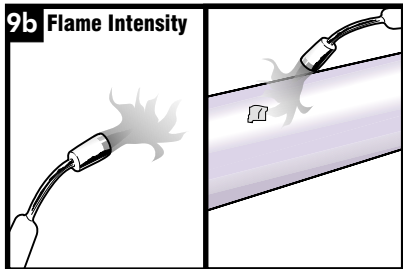
Continue spreading the melt stick over the repair zone until the entire area is covered. After sufficient melt stick material is on the surface, apply additional heat in quick back-and-forth strokes to create a smooth surface.



Ensure that the melt stick material completely covers the repair zone. The melt stick material should be spread liberally so that the material is raised above the coating surface.

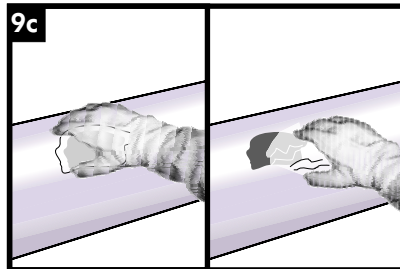


Fill deeper crevices with Canusa Mastic Filler (MF). Unroll the filler material and cut off the required amount, leaving the release paper in place.



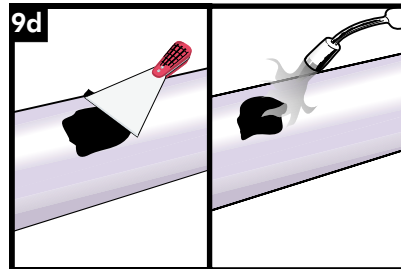
9b Flame Intensity

Use a low intensity yellow flame for pre-heating the coating and applying the repair products. With quick back and forth strokes, pre-heat the repair zone sufficiently to remove moisture and assist in adhesion.



9c

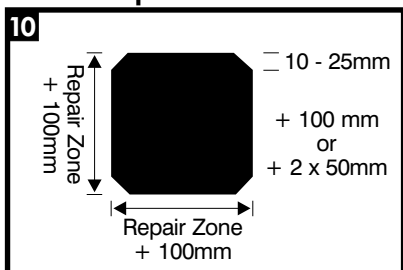
Place the filler material onto the damaged area with the release paper facing up. Firmly press the material into the damaged area by hand and remove the release paper.



9d

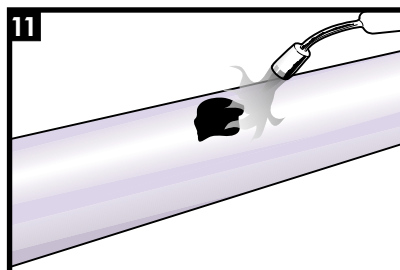
After filling the damaged area, remove the excess filler to create a smooth surface. As an option, use a low intensity yellow flame to warm the filler material and assist in smoothing it out.

Patch Preparation



Cut a patch of CRP large enough to extend a minimum of 50mm (2") beyond the edge of the repair zone. Trim each corner of the patch about 10-25mm (1/2" - 1") at a 45° angle. If the damage has a diameter greater than 10cm (4"), use an appropriate heat-shrinkable sleeve.

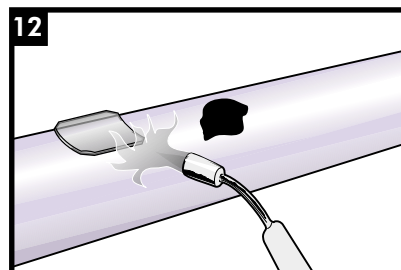
Pre-Heat



11

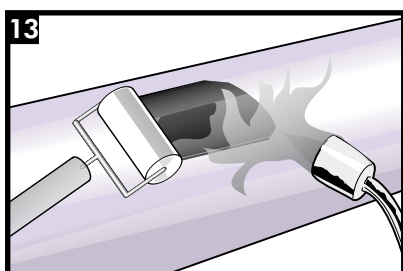
Warm the damaged area (repair zone + 50mm (2") overlap) to remove moisture and assist in adhesion.

Patch Installation



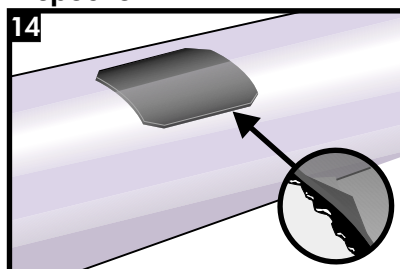
12

After removing the release liner from the cut patch, place the patch with the adhesive side up on a gloved hand, or on top of the pipe, and heat gently. Heat until the adhesive softens and the surface becomes glossy. Also, reheat the damaged area to keep it warm.



Apply the softened adhesive side of the patch to the damaged area and press down firmly. Heat the patch with a low intensity flame, and using a roller or a gloved hand, pat down and remove wrinkles. Roll to ensure a good bond.

Inspection

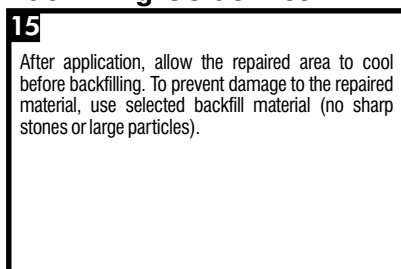


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Visually inspect the installed patch for the following:

1. Patch is in full contact with the pipe coating.
2. There are no loose edges.
3. A successful patch has adhesive flow on the edges.
4. The patch has fully conformed to the coating.
5. No cracks or holes in patch backing.

Backfilling Guidelines



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After application, allow the repaired area to cool before backfilling. To prevent damage to the repaired material, use selected backfill material (no sharp stones or large particles).



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