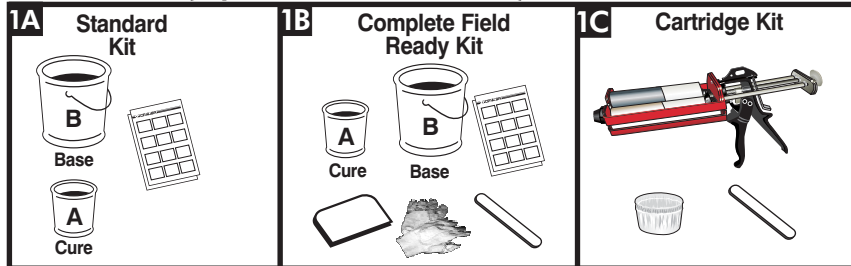


HBE Brush Grade

High Build Epoxy Coating (HBE-95 or HBE-HT)

Kit Contents (Options 1A, 1B and 1C)



HBE products are a two part epoxy coatings used for pipeline rehabilitation and protection of pipeline valves, fittings and field joints. HBE is supplied in kits containing pre-measured components of Part A-HBE Cure (small container) and Part B-HBE Base (large container). The "Standard Kit" contains the HBE components while the "Complete Field Ready Kit" also includes a stir stick, scraper and gloves. HBE is also available in a 2-component 3:1 ratio cartridge. All kit styles are supplied with Installation Guides and MSDS's.

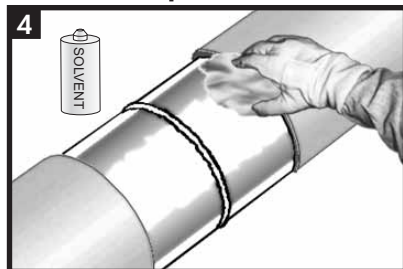
Storage Guidelines

2 To ensure maximum performance, store Canusa products in a dry, ventilated area. Keep products sealed in original packaging until just prior to use. Avoid exposure to direct sunlight, rain, snow, dust or other adverse environmental elements. Avoid prolonged storage at temperatures above 40°C (104°F) or below 5°C (40°F).

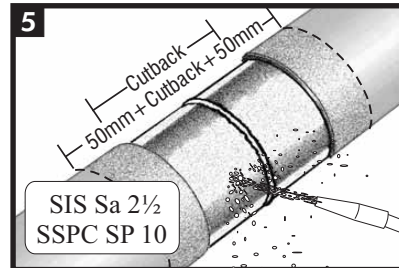
Safety Guidelines

3 Product installation should be done in well-ventilated area and in accordance with local health and safety regulations. Read the MSDS prior to using the products. These installation instructions are intended as a guide for standard products. Consult your Canusa representative for specific projects or unique applications.

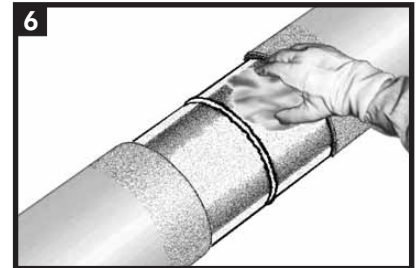
Surface Preparation



4 Clean exposed steel and adjacent pipe coating with a solvent cleanser that will not leave an oil residue (ie. ethanol, MEK, etc.) to remove the presence of oil, grease, and other contaminants.



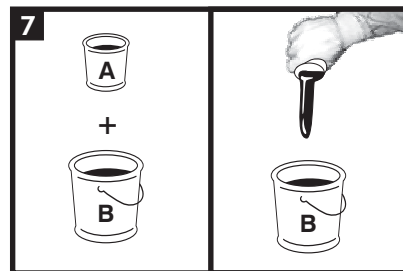
5 Ensure that the pipe is at least 3°C (5°F) above the dew point before cleaning. Thoroughly clean the cutback area to "near white metal" SIS Sa 2½ (SSPC-SP10) or equivalent. Lightly abrade at least 50mm (2") of the line coating on each side of cutback area.



6 Wipe clean with a lint-free cloth or air blast the steel and pipe coating to remove foreign contaminants. Surface must be clean and dry prior to application of HBE products.

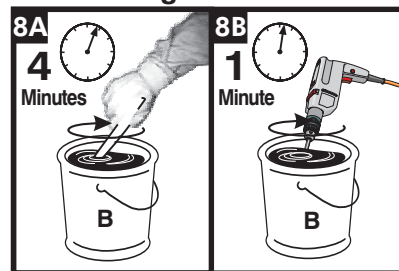
Options 1A and 1B

HBE Mixture Kits



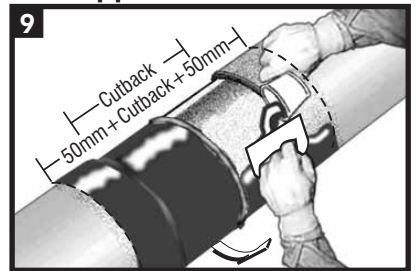
7 Components must be warmed to at least 20°C (68°F) prior to mixing. Pour Part A-HBE Cure (small container) into Part B-HBE Base (large container). Scrape walls and lids of both containers to ensure all product is used. When mixing, slow the mixer down at the surface of the liquid to prevent the introduction of air into the coating. Do not add solvent or other materials to the mixture.

HBE Stirring Kits



8A **4** Minutes: Begin mixing slowly. After initial mix has been achieved, a spatula or mixing stick should be used to remove any resin from the side of container.
8B **1** Minute: Mix at such a speed that ensures a uniform mix, but does not create a vortex in the liquid. At temperatures between 20°C (68°F) and 40°C (105°F), mix for one (1) minute with a drill stirrer or four (4) minutes with a spatula, blending both parts to create one uniform colour with no streaks.

HBE Application

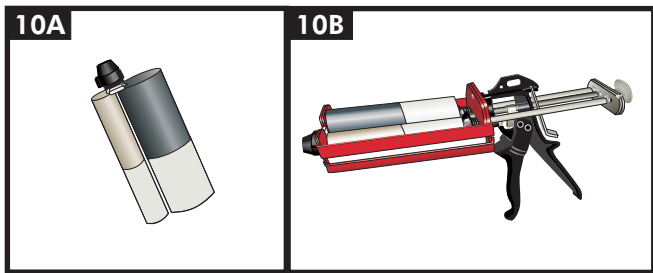


9 Use a brush, roller or trowel to apply HBE to the joint or application area to a specified minimum thickness. Cover at least 50mm (2") of any adjacent pipeline coating. Coating should only be applied at temperatures above 10°C (50°F) and when the ambient temperature is 3°C (5°F) above the dew point. Refer to "Useful Application Information" for other application temperature criteria.
Note: Pipe substrate may be pre-heated to 85-95°C (180-200°F) in order to accelerate curing or to cure in cold conditions.

HBE- Brush Grade

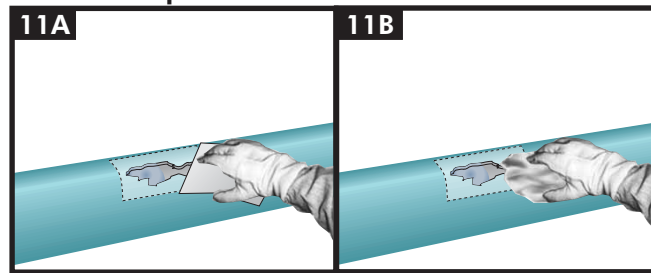
High Build Epoxy Coating

Option 1C HBE 3:1 Ratio Cartridge



Canusa's high build epoxy (HBE) is available in a 400ml 2-component cartridge. Typical use is as a holiday repair coating on fusion bonded epoxy (FBE) coated pipe or for recently coated rehabilitation projects using HBE-95 or HBE-HT products. The cartridge (10A) fits into a universal 2-component cartridge dispenser that is available from Canusa.

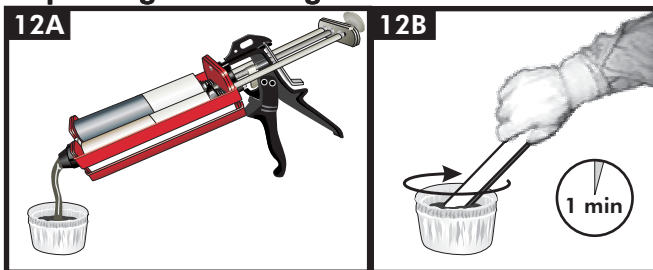
Surface Preparation



Lightly abrade with clean abrasive grit/sand paper, approximately 15 mm (0.5") around the repair area.

Wipe clean with a lint-free cloth or air blast the steel and pipe coating to remove foreign contaminants. Surface must be clean and dry prior to application of HBE products.

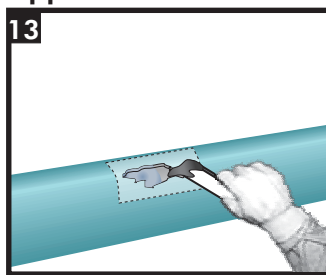
Dispensing and Mixing



The unique formulation allows for small quantities to be dispensed and has a fast cure time. To dispense, unscrew the cap, remove the two small plugs in the each side of the cartridge and replace cap. Squeeze the trigger of the cartridge dispenser (10B) and dispense a desired amount of material into a mixing cup. The cartridge dispenser will automatically dispense the correct ratio of base and cure.

With a clean stir stick mix thoroughly for at least 1 minute. Alternately for larger projects, a static mixer nozzle (available from Canusa) allows for direct application onto pipe.

Application



Use clean trowel, stir stick or other application tool to apply HBE to repair area plus abraded perimeter to specified minimum thickness.

Useful Application Information

1. The ideal mixing and application temperature is between 20°C (68°F) and 40°C (105°F).
2. The workable pot life after mixing is approximately 15 minutes at 20°C (70°C). Pot life will be extended at lower temperatures and shortened at higher temperatures. Refer to Canusa-CPS' Marketing Technical Bulletin "HBE Cure MTB" for cure type options.
3. A variation on high build application technique: Build a first coat of 15 - 20 mils (300-500 microns) around entire circumference followed **immediately** by a second coat to achieve specified film thickness.



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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