

SYLWRAP CR

CORROSION PROTECTION WRAP



Description

SylWrap CR is a composite fibreglass repair wrap with a water-activated resin incorporated with highly effective corrosion inhibitors. It has been formulated for the prevention of substrate corrosion and the protection of pipes, metalwork and other structures in harsh and aggressive environments, including underwater.

In testing, a metal pile wrapped in SylWrap CR was subjected to 1000 hours of saltwater exposure. When the wrap was removed, the metal returned corrosion free. It can be applied to steel, copper, malleable iron, GRP, ceramic, clay, most plastics, concrete, rubber and other materials.

Applying SylWrap CR is easy. The user dips the wrap in water to activate the resin before wrapping around the pipe or structure requiring protection. Once cured, SylWrap CR forms an impact resistant, chemically inert protective shell. It increases pipe wall thickness and hoop strength. SylWrap CR can also be used to protect against abrasive wear.

SylWrap CR has a work time of 2-5 minutes and a functional cure is achieved in 30-45 minutes. It can be used on high pressure pipework and has temperature resistance to 120°C It comes in a number of different sizes, enabling repairs to be made on pipes of all diameters.

Unlike other moisture cured wraps, SylWrap CR contains <0.1% diisocyanate, making it a safer product for end-users with no long term respiratory health effects. This low diisocyanate content means SylWrap CR is not covered by the REACH 2023 legislation governing the safe use of diisocyanates. No mandatory safety training is required before use.

Applications

- Corrosion protection:** Protect pipes, piles, pillars and other structures from environmental and saltwater corrosion
- Wear protection:** Protects pipes and metal parts against abrasive wear in gravel and sand plants, quarries, sugar mills, oil refineries, grain hoppers, coal chutes, etc.

Technical Data

| | |
|---|---|
| Working time | 2-5 minutes depending upon temperature |
| Cured material life | 10-20 years depending upon repair quality, repair thickness, condition of pipe, environmental conditions, pipe temperature, etc. Consult Sylmasta for further information and design life for specific applications |
| Initial cure time | 7-10 minutes |
| Functional cure | 30-45 minutes |
| Full cure (maximum properties) | 24 hours |
| Shore D hardness | 70 |
| Tensile strength | 250MPa |
| Coefficient of thermal expansion | $7.1 \times 10^{-5} / ^\circ\text{C}$ (SylWrap composite wrap) |
| Service conditions | |
| Max service temperature | 120°C / 250°F |
| Max leak pressure resistance | 30 bar / 435 psi with 10 layers, depending on size of pipe and leak. Hole requires sealing with epoxy filler first to reach max pressure. (Tested on 50mm pipe with 10mm hole). Higher pressures can be reached using calculated values - Sylmasta for more information |
| Pipe reinforcement | For pipe reinforcement, pressure resistance can be designed to the requirements of ASME PCC-2 - Repair of Pressure Equipment and Piping. Consult Sylmasta for further information |
| Chemical resistance | Acetone, ammonia, sulphuric acid (30%), ethyl alcohol, mineral spirits, gasoline, MEK, toluene, diesel, hydrochloric acid, Varsol, ethylene glycol, crude oil, hydraulic oil (test period of 40 days) |
| Colour | White (Black available on request, minimum batch size applies) |



Whilst all reasonable care is taken in compiling technical data on the Company's products, all recommendations or suggestions regarding the use of such products are made without guarantee, since the conditions of use are beyond the control of the Company. It is the customer's responsibility to satisfy themselves that each product is fit for the purpose for which they intend to use it, that the actual conditions of use are suitable and that in the light of our continual research and development programme the information relating to each product has not been superseded.

SylWrap CR Sizes

SylWrap CR is available in four different wrap sizes for application on the pipe diameters specified below. Length of repair denotes the area of pipe a single Wrap will cover when applying the recommended minimum five layers of SylWrap CR.

| Product Code | SylWrap Size | Pipe Diameter | Length of Repair |
|--------------|---------------|---------------|------------------|
| SYL309CR | 75mm x 2.7m | 50mm | 0.35m |
| SYL433CR | 100mm x 10.0m | 100mm | 0.6m |
| SYL633HD | 150mm x 10.0m | 150mm | 0.6m |
| SYL866HD | 200mm x 20.0m | 450mm | 0.6m |

Applying SylWrap CR

To achieve the recommended minimum five layers of SylWrap CR coverage, the first layer should be wrapped so that the overlap with each wrap is approximately 5mm. The subsequent wraps can be applied with a 50% overlap.

Storage

SylWrap CR should be stored unopened in its original foil packaging in cool, dry conditions. Piercing or damaging the pouch will cause SylWrap CR to cure prematurely. Under such conditions, it has a shelf life of 24 months from date of manufacture.

Health & Safety

Plastic gloves should be worn when handling SylWrap CR. For health and safety information, please refer to the relevant Safety Data Sheet.

Case Studies



Corroded 20-Metre Long Steel Pipe Bridge Reinforcement

The 300mm steel pipe crossed a river over a 20-metre long bridge operated by Welsh Water. The pipe was covered in corrosion, which had eaten through in places.

Replacement would require the wastewater network be re-routed, Environment Agency approval and a Network Rail permit because the pipe passed under an adjacent rail line. Fabrication of a new pipe, installation, equipment hire and disposal of the old pipe put the estimated total cost upwards of £200,000.

Welsh Water instead opted to refurbish the pipe. Fibreglass patches were layered over the cracks before the structure was painted with **Liquid Metal Epoxy Coating**, which created a new, hard-wearing, smooth, metallic exterior surface for the line.

SylWrap CR was then wrapped along the pipe, forming a rock-hard, impact resistant protective shell. The repair was completed in three days, costing under £12,000.



Industrial Site Rebuild and Reinforce Corroded Steel Pipe

A two-metre section of pipeline at an industrial site had been badly weakened by a 600mm patch of heavy corrosion. It was now only a matter of time until the corrosion ate through the brittle steel. When this happened, the line would have to be shut off for either a complex leak repair or a replacement section to be fitted.

Wanting to avoid the significant disruption this would cause to operations, the site instead decided to rebuild and reinforce the line before it became breached.

Sylmasta AB Original Epoxy Putty was applied to the weakened section. It filled in all the imperfections and pitting caused by corrosion and returned the exterior of the line back to its original thickness.

To reinforce the repair and further protect the pipe from future corrosion, SylWrap CR was then wrapped around the entire length. A follow up five years later revealed the reinforcement was still in excellent working order with no sign of deterioration.

Whilst all reasonable care is taken in compiling technical data on the Company's products, all recommendations or suggestions regarding the use of such products are made without guarantee, since the conditions of use are beyond the control of the Company. It is the customer's responsibility to satisfy themselves that each product is fit for the purpose for which they intend to use it, that the actual conditions of use are suitable and that in the light of our continual research and development programme the information relating to each product has not been superseded.