

OBJECTIVE: To summarise end use examples where CSI Technology has been deployed in severe corrosion environments.

OVERVIEW: CSI Technology provides corrosion solutions above that of standard Industrial Coatings, in severe and unwashed environments. Goldseal Industrial Hotspray is applied molten by standard Airless Spray, direct to oxidised steel. Grit or soda blasting is not required. Photograph one shows how this penetrating formula encapsulates steel, taking rust killing penetrants and anti corrosives into the surface of the steel structure. (See bulletin 1.)

Close up of penetrants in action after 5 years

CSI stands for Continuous Substrate Interaction. The coating does not rely on adhesion to a clean surface to protect the steel. It becomes part of the steel, will not delaminate, crack or peel and is resistant to water, vapour, chemicals, expansion and vibration. Once Chloride Ions have reached steel rebar, it will expand with corrosion. Even modern concrete formulations are not immune to chloride ions. Goldseal hot spray is a very effect technical solution and by far the most cost effective solution in protecting degrading wharfs from strength loss.

Proven Performance in the field:

Goldseal CSI is a specialist solution that can be an excellent preventative from new or a rescue coating. There is 40 years of evolving documented field performance, with independent inspection.

CSI Technology has halted this concrete spalling for 20 years. Independent report available.

CSI is an interactive solution.

This concrete and steel bridge can be protected with either blast and paint or Goldseal CSI. However CSI technology stays interactive with both the concrete and the steel. It will seal the junction points with capillary action penetrating joints and flanges. Where two steel members meet or are bolted to the support pile, Goldseal CSI will protect against crevice corrosion and joint breakdown.



INFORMATION BULLETIN

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Goldseal is often the most cost effective solution in severe cases of oxidation. In some cases it can be the only solution to advanced corrosion on fixed assets or conservation structures.

The unlimited film build capability is due to the 97% solids non dangerous goods formula that sets immediately on contact. (No solvents or catalysts)

This means CSI Technology

- Will fill cracks often 30mm wide.
- Can be applied vertically without sag.
- Can be applied to holes as a cold filler
- Can bridge dissimilar substrates such as wood to concrete to steel
- Can be applied hot or cold through long reach nozzles in zero access situations



Smart Board System applied over CSI Technology to 20 year old sheet piling



Smart board is a recycled product bolted directly to Goldseal coated sheet piling. (See bulletin 17)

The **Smart Board System** is an innovative solution for protecting sheet piling that is thinning due to steel loss in the tidal and splash zone. Holes can be patched, all surfaces sealed with several thousand microns of Goldseal, the sheet piling cavities filled with foam and the smart board protection bolted in place.

Service Life:

CSI Technology has a different performance curve to dry film paints. It remains interactive with the substrate for 95% of its service maintaining an anti corrosive barrier. Re coating usually only requires hand preparation and a recoat without stripping the existing coating. **This is a very cost effective solution.** Where CSI Technology is exposed to sun , wind and rain (on the exterior faces of a bridge beam , for example) the coating will erode off after 12-15 years leaving a corrosion free surface ready for recoating with minimal preparation. (See bulletin 3: Life Cycle Costing)



Bridge recoat after 14 years often shows little corrosion and requires only a high pressure wash before recoating.

GOLDSEAL GROUP

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This matrix is an indication of the film build required to yield a given service life. This is based on our actual experience. This is not a performance Guarantee but a usage guide. Gold seal CSI is specified for use where other dry film coatings have already demonstrated short service lives or low value for the maintenance dollar. Therefore most Goldseal contracts are in extreme environments and a performance expectation or inspection program will be provided by the local Licensee, that is relevant to each situation.

Environment	Product	Film Build	Life	Field History	refer to bulletin No.
1. Ph 1-12	Hot spray	350	15+	30 yrs	Wool scours, tanneries, meat works 10
2. Chemical Dry	Hot spray	350	10	15 yrs	warehouses fertiliser stores 4 & 9
3. Chemical Wet	Hot spray	350	15+	30 yrs	Meat works etc. and or processing 10
4. Condensation vented	Hot spray	350	20	30 yrs	Mines, canneries and cement plants 6 & 13
5. Condensation Closed	Hot spray	350	30	30 yrs	Barge or dredge interiors 6 & 13
6. Crevice/flange	Hot/cold/brush	500+	15	30 yrs	Overlap or face to face joints 16
7. Bridge underside	Hot spray	350	15	35 yrs	Outside faces 700 microns 3 & 18
8. Bridge Topsides	Hot spray	350	12	35 yrs	Temperate, wind, sun, rain 3 & 18
9. Bridge conservation	Hot spray/glove	350+	12	20 yrs	Steel/timber and cable 3 & 18
10. Brackets in shafts	Hot spray/glove	350	20	35 yrs	e.g cable brackets in mine shafts 13
11. Galvanizing plants	Hot spray	350	12	30 yrs	Goldseal on new galv purlins 20 years 11
12. Loading Bay Canopy	Hot spray	350	15	30 yrs	Any over hang sheltered from the rain 9
13. Hollow sections	Hot spray/cold	700	15	30 yrs	Small or poor access situations 6
14. Marine Pile interior	Hot spray/cold	700	15	30 yrs	6
15. Mine head supports	Hot spray/cold	700	15	30 yrs	6
16. Visual but no access	Cold spray	700	10+	40 yrs	Apply through long reach nozzle 6
17. Spalling Concrete	Hot spray	500	20	30 yrs	See Quest independent inspection report
18. Marine assets	Hot spray	500	20	30 yrs	12 & 14
19. Tidal immersion	Hot spray	500+	10+	30 yrs	In marinas or shelter without wave action 12
20. Sheet Piling Goldseal	Hot spray / glove	2000+	10+		Air chisel prep, above wave height 17
21. Sheet Piling Smartboard	Hot spray/Glove	2000+	20+		Inspect every 5 years 17

Additional information is available on Sustainability (See bulletin 2) approved applicators (See bulletin 8)