

## Polymer Laminated Corrugated Steel Pipe Add On Material Service Life 100 Years

Matching material service life to a project's design service life and optimizing life cycle costs are major issues for designers. The one certainty, of any design, is that today's conditions will be very different from those at the end of a project's life.

Polymer Laminated Corrugated Steel Pipe provides protection against the uncertainties of tomorrow. This tough, mill applied coating protects both the steel and galvanized coating from attack by a multitude of agents. The coating has performed well in extremely aggressive environments and is expected to provide continuous protection for more than 100 years.

Corrugated Steel Pipe has proven to be a valuable solution for all storm drainage applications. Lightweight, long lengths provide an ease of installation and transportation. Superior strength, through flexibility, and coupler design has made CSP the construction product of choice in the most difficult of situations. The economics of the installed product demonstrate excellent, responsible use of available funding.



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### Estimated Polymer Laminated Service Life

Add Galvanized Steel Service Life to Coating Service Life to Calculate Estimated Material Service Life (EMSL) of POLYMER LAMINATED CSP

Service Life	pH Levels	Resistivity
100 Years +galvanized steel life	5.0 to 9.0	> 1,500 ohm.cm.

\* DOW Chemical Company

### pH Levels

Whether soil and / or water is acidic or alkali is measured on the pH scale. Low numbers indicate high acidity while high pH numbers indicate high alkalinity. A reading of 7.0 is neutral. Low and high pH levels can be corrosive to most building materials. These extremes can develop as the result of industrial pollution in rain and snow or high levels of evaporation. Polymer Laminate is effective in protecting CSP through a broad range of pH levels.

### Resistivity

The inverse of conductivity, resistivity measures the ability of soil and / or water to resist corrosion. Resistivity levels are reduced as salt ions (road salt) are introduced to the water in a pipe. At the other end of the scale, very high resistivity indicates soft water. Polymer Laminate protects CSP through a broad resistivity range.

### Environmental Range

Polymer Laminated CSP will perform well, exceeding the design service life of Canadian highways, at pH levels ranging from 3.0 to 12.0 and Resistivity levels as low as 100 ohm-cm.

### Abrasion Levels

While of little concern in storm sewers, as flow velocities and bed loads are managed, culverts can experience extreme abrasion conditions. Extensive testing has shown that Polymer Laminated CSP performs better than most pipe materials and can withstand moderate abrasion levels indicated by sand and small stone or gravel and velocities to 4.5 metres per second.



AS WINTER RUNOFF EVAPORATES, ROAD SALT IS CONCENTRATED AND DEPOSITED ON PIPE SURFACES. ALTHOUGH VISIBLE ON THE BLACK POLYMER LAMINATED SURFACE IT HAS NO EFFECT ON THE LAMINATE OR THE UNDERLYING GALVANIZED STEEL.

For product specifications and details see CSA G401 and Handbook of Steel Drainage & Construction Products

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