

Recommended FRP Preventive Maintenance Inspection Frequency


Environment	Interval
A and B: Not exposed to corrosive elements	12 months
C and D: Exposed to corrosive elements	6 months

Note: May be varied as dictated by site condition and age of asset

Defect description:

Defect	Description	Corrective Action
Surface discoloration	Result of chemical reaction, heat or erosion.	Monitor a control area and record rate of degradation. Typically no immediate repair is required. Obtain specialist advice if degradation continues.
Powdery surface	Film or barrier that is product of reaction between resin and process fluid. Barrier may inhibit ongoing rate of attack.	
Softening, voids	Small crater or pits on the surface.	
Surface crazing	A pattern of fine interconnected cracks. Shallow and slow growing.	
Shrinkage crack	A pattern of shallow parallel cracks caused by thermal shrinkage.	
Blistering	Permeation of water or chemicals into the laminate matrix thus causing the formation of pressure-filled pockets. Blisters tend to stop to grow in time. Not considered a problem unless result in breakup of structural laminate.	
Resin loss	Surface stripped of resin. If stripped surface is polished, it is probably caused by erosion. If surface is fuzzy, resin may have been attacked by process fluid.	Replacement may be required. Obtain FRP specialist advice.
Exposed fibre	Loose fibre remaining due to resin loss, insufficient resin cover or mechanical damage.	
Delamination	Separation of layers in the laminate caused by disbanding between resin and reinforcement.	
Surface wearing	Loss of surface slip resistance layer, UV surface veil, or mechanical wear on bearing surface.	
Structural crack	Crack is usually deep and bundles of fibres are severed.	Seek structural engineer's advice.
Deformation	Deflection, buckling or rolling of members.	
Mechanical damage	Chips, scratches, breaks or cuts caused by improper handling or external impact.	
Unsafe fasteners	Missing, loose, dislodged, deformed, unsecured clips, bolts, nuts and pins.	Rectify immediately.

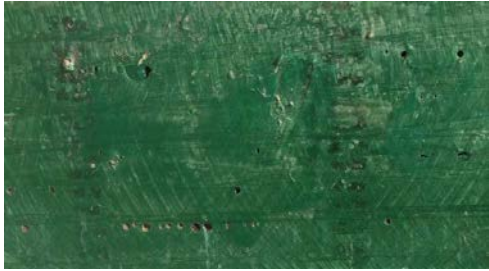
Photo Guides

<p><i>Delamination of a flange</i></p> 	<p><i>Delamination of a pultruded channel web</i></p> 
<p><i>Delamination of a pultruded I-beam flange</i></p> 	<p><i>Discoloration</i></p> 
<p><i>Blister and delamination of pipe flange</i></p> 	<p><i>Fractured laminate</i></p> 
<p><i>Radial fracture of pultruded tube</i></p> 	<p><i>Flaking after drilling</i></p> 

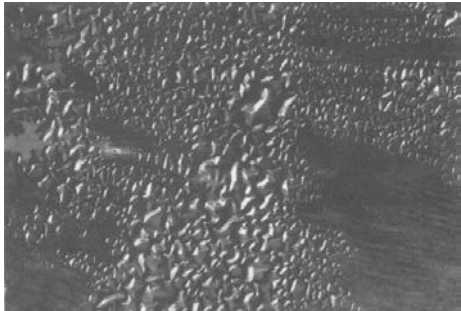
Incorrect pipe penetration to tank wall without stiffener



Surface voids



Gelcoat wrinkling



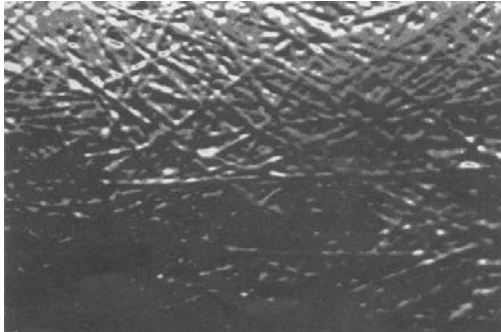
Surface crazing



Incomplete edge sealing



Exposed fibre pattern



Gelcoat blister with oozing fluid



Plate detachment

