

	ROCKWOOL® COMMUNIQUE	No. 513
	CORROSION UNDER INSULATION ULTRA VIOLET CURED GRP CLADDING MATERIALS	Oct 2007

The scourge of most industrial plants has always been corrosion under insulation (CUI) and the toll that it takes on the plant and equipment. Painting of plant before insulating provides some degree of protection but it does not deal with the effects of water on the insulation system. When severe CUI in the plant is evident it seems to be reluctantly accepted as a fact of life without really questioning the original specification for the insulation system. Usually the common factors in all of these events are; penetrated or damaged metal cladding, failed water seals at joints in metal, cycling equipment or a limited range of operating temperatures and poor maintenance procedures such as failing to repair cladding after inspection or maintenance.

The development of UVGRP cladding materials in the 1990s under the brand name FibaRoll® has provided engineers with a long term solution to keeping water and contaminants out of insulation systems to the point where it has become the cladding of choice on major international LNG and resource projects. One such project currently under construction is the Sakhalin LNG project located in far-east Russia. Following is a summary of the project details.

CLIENT:	Sakhalin LNG
EPC CONTACTORS:	Chiyoda – Toyo Joint Venture
SCOPE:	2 LNG production trains, jetty and associated plant
CLADDING:	FibaRoll® FR 1.8mm thickness specified
QUANTITY:	200,000 m ²
APPLICATIONS:	Cryogenic pipe lines, hot and acoustic insulation lines, load out lines to jetty, fuel tanks, storage spheres, anti-corrosion coatings on bare metal.



- ❶ FibaRoll offers the ultimate solution to providing a complete water and vapour barrier in a hard and impenetrable cladding that resists all likely mechanical stress.
- ❷ Used as a cladding/vapour-barrier system for cold applications in an LNG plant, and as cladding for hot insulation pipe, FibaRoll eliminates corrosion under insulation while providing significant productivity gains at the site compared to metal cladding systems.

FibaRoll – Protection of Bare Metal Surfaces

The Sakhalin LNG project is an example of where FibaRoll was used as the ultimate solution to a range of corrosion control applications. During the project, insulation work came to a halt when the client discovered that the paint damage to pipe spools could not be touched up due to the extremely low daily temperatures which prevented the paint from curing. FibaGel UV cure material in a brush-able form was used to achieve the touch up work and provide a fully cured coating with the use of lamps and available day light. Without this solution insulation work would have been delayed by several months or work would have proceeded without repairs to the exposed damage.

FibaRoll is now being used as an alternative to the traditional blasting and 3 coats of paint. FibaRoll is spirally wound onto pipe spools and cured in the workshop, offering significant benefits at about the same cost of the traditional approach;

- Speed – a 12 metre pipe can be fully treated and cured in 30 minutes
- No damage – the impact resistance of FibaRoll means no need for touch up or repairs after transport.
- Minimum precaution against damage required during transport.
- Applied by a mobile facility which fits into a 40' sea container.



Life Cycle Cost Considerations

While all engineers would acknowledge the merits of a life cycle costing approach to insulation systems, it is often forgotten in the activity of trying to build a project. A preoccupation with installed insulation cost will effectively eliminate innovative solutions to long term CUI maintenance cost.

From a life cycle cost standpoint, FibaRoll meets a number of critical requirements as a cladding system;

- Installed cost can be lower than metal clad systems, especially in cryogenic applications.
- FibaRoll virtually eliminates corrosion under insulation and the associated maintenance costs.
- By excluding water, the cladding system ensures that the insulation performance does not deteriorate and allows minimum heat loss for a given thickness of insulation for the life of the system. This ensures that energy waste is kept to a minimum for the insulated areas of the plant. The presence of water within insulation can have the effect of a ten fold increase in heat loss for these areas!
- When penetrated for inspection or mechanical repairs FibaRoll is easily resealed.

For further information and technical advice on insulation contact:

AI**S**

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