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Countering CUI

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AGENDA

- *Traditional cladding materials.*
- *VentureClad range.*
- *Benefits & advantages.*
- *Approvals.*
- *Installation photographs.*
- *Installation Range.*
- *The latest innovation.*
- *Questions.*

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Existing Systems

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Mastic Vapour Barriers

- *Labour intensive.*
- *Not 100 % vapour barrier.*
- *Messy in application.*
- *Variable thicknesses can occur.*
- *Weather reliant.*
- *Hazardous – Fire issues.*
- *Health & safety issues.*

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Sheet Metal Jacketing

- *Difficulty in making and maintaining a waterproof seal.*
- *Rivets, screws and sealants required.*
- *Offsite fabrication required.*
- *Heavy to handle & transport.*
- *Easily damaged- costly repairs.*
- *Health and safety concerns.*
- *Price sensitive.*

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Metal Cladding on Mineral Wool

- *Damage causes weak points that allow water ingress.*
- *Water ingress reduces thermal properties of mineral wool insulation.*
- *Helps promote CUI.*
- *Expensive to replace.*
- *Labour intensive.*
- *Not 100% vapour barrier.*

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Metal Cladding On Mineral Wool

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What is VentureClad ?

- *A durable multi-layer laminate product.*
- *A dry installation that requires no curing time.*
- *A self adhesive system that has been successfully used for many years on both ductwork and pipe work, introduced in 2000.*
- *A taped system. No rivets, screws or sealants.*
- *Can be supplied as a self adhesive, non adhesive individual product or pre-applied to insulation.*

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Benefits & Advantages

- *Totally weather resistant.*
- *Watertight construction.*
- *Absolute vapour barrier – 100%*
- *Temperature application range (-23°C to 149°C).*
- *Fast, clean, installation – Reduced installation time.*
- *Reduced costs.*
- *Easy inspection & repair.*
- *Ideal for Asbestos Encapsulation.*
- *Health & Safety Benefits.*
- *Proven Track Record.*

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Approvals

- *BS 476 Part 6 & 7. Class O*
- *IMO – International Marine Organisation.*
- *Lloyds Register.*
- *UL Listed.*
- *US Coastguard Approved*
- *CINI Approved.*
- *SANS 10177-3:2005 Fire Rated – Meets the requirements of SABS.*
- *Meets requirements of FSIS Directive 5000.1, 9CFR, Part 416 for USDA and FDA facilities and Department of Health and Human Services Construction Guide for Food Facilities.*

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The VentureClad Range

- *1555cw Mylar foil. 3 ply laminate*
- *1577 cw VentureClad. 5 ply laminate*
- *1579 cw VentureClad Plus. 13 ply reinforced laminate.*
- *1574 cw VentureGuard-H an Elastomeric material.*

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Range of Installations

- *Internal and external ducts and pipe work.*
- *Cold insulation – LNG, LPG etc.*
- *Cold stores- replacing mastics as vapour barrier.*
- *Anti – Splash tape for low pressure fuel lines on ships.*
- *Pharmaceutical – Wash down applications.*
- *Clean room applications.*
- *Food industry.*
- *Hospitals and schools.*
- *Oil refineries.*
- *Power stations.*

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Installation Owner	Project	Year	Type of Installation
Norsk Hydro	Sture Oil Terminal	Autumn 2002	LPG Plant. Installed over Foamglass
Norsk Hydro	Sture Oil Terminal	Autumn 2002	Maintenance over rubber cell foam
Norsk Hydro	Snurrevarden	Autumn 2002	LPG Plant. Installed over Foamglass
Statoil	Monstad	Winter 2003	Propane Plant. 1579cw installed over Foamglass as weather barrier
Norsk Hydro	Heimdal	Winter 2003	Offshore Platform. Installed over Foamglass as vapour barrier
Odfjell ASA	17 ships	Winter 2003	Solas Requirement – Splash protection on fuel pipe-lines
Statoil	Troll A / Kollsnes	Autumn 2003	NGL Plant. Installed over Foamglass as vapour barrier
Statoil	Snohvit, Cadiz, Spain	Spring 2004	Gas Treatment Plant. Installed over Foamglass as vapour barrier
Norsk Hydro	Ormen Lange	From 2007	Gas Treatment Plant. Ventureclad -1577cw Site specified
ExxonMobil	Oil Refinery - Fawley, UK	November-2003	Ventureclad-1579cw installed over insulation. Now Site Standard Specification
BP Coryton	London, UK	Winter 2005	Oil Refinery. Ventureclad – 1579 installed over Rockwool.
BP Nynas	Nynas Refinery,Dundee	June-2005	Ventureclad Plus over Rockwool
ConocoPhillips	Kvaerner Egersund, Norway	Spring 2005	2/4M oil and gas platform. Ventureclad as substrate and Ventureguard H – 1574cw as jacketing
ConocoPhillips	Linden, New Jersey	May-2006	1574H over foam glass
ConocoPhillips	Ferndale refinery	June-2006	1574H over foam glass
Qatar Petroleum	Messaid, Qatar	January-2007	1579cw over calcium silicate
BP Oil Terminal	Shetland, Scotland	June-2008	1579 over mineral wool
Teeside Power Station	Middlesborough, UK	March-2008	1579 over mineral wool
Heysham Nuclear	Heysham, UK	September-2008	1579 over mineral wool and calcium silicate
BP Chemical	Hull, UK	September-2008	1574H over Foamglass
Glaxo Pharmaceutical	Kent, UK	August-2008	1579 over Polyurethane insulation
Oil pipeline	Kazakhstan	October-2008	1577cw Tedlar over rigid foam insulation
ExxonMobil**	EM-S3 Lubes & Utilities, SG	December-2008	VentureClad-1579NA installed over insulation. Site Standard Specification

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The Key Ingredient

Pressure Sensitive Acrylic Adhesive

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Features

- *Pressure sensitive adhesive.*
- *Excellent, tack and adhesion.*
- *Excellent resistance to thermal and UV degradation.*
- *Excellent aging characteristics.*
- *Broad application temperature range, (-23°C to 149°C)..*
- *Water resistant.*
- *Non-corrosive (no chlorides).*
- *A non hazardous product.*

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Application Photographs

Vapour Barrier Applications

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Installations 1577cw

- *Sture Oil Terminal – LPG Plant in 2002*
- *Ormen Lange- Gas treatment Plant.*
- *Shnovit – NGL Plant.*
- *Hiemdal – Offshore Platform.*
- *Snurrevaden – LPG.*
- *Troll A / Kollsness.*

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1577cw over Foamglas as vapour barrier

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External Jacketing

Pipe and Tank

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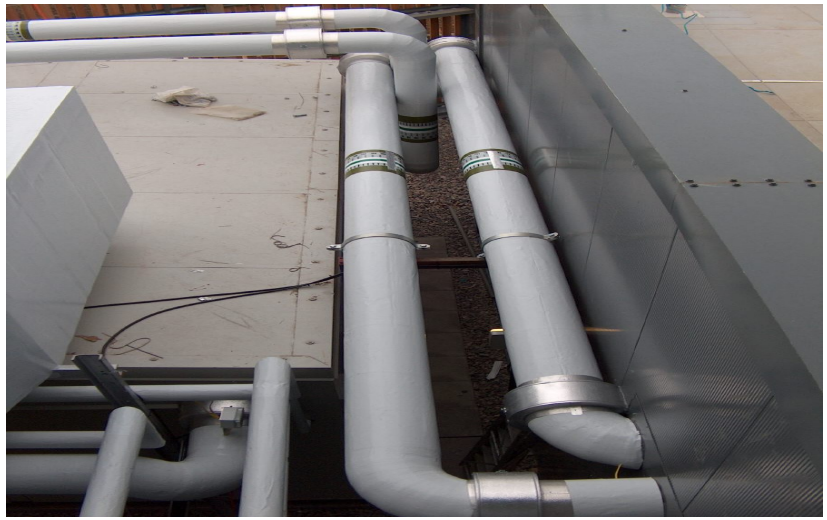
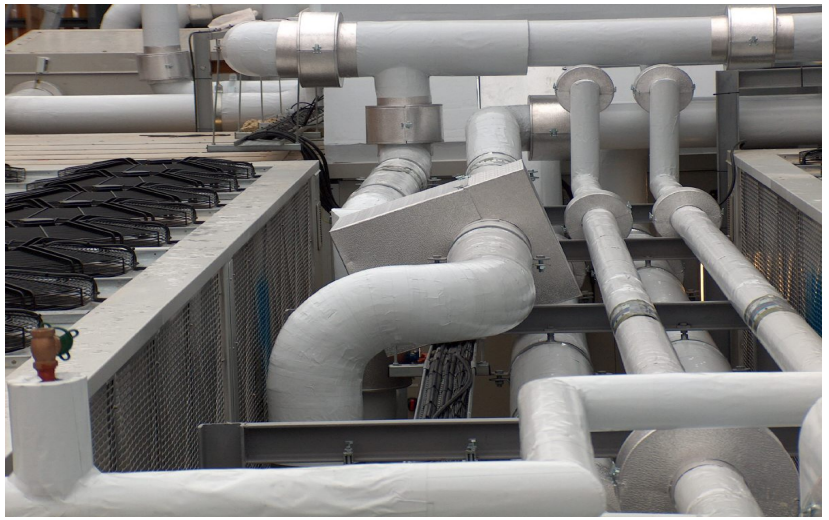
VentureClad 1577cw & 1579cw On Pipe work





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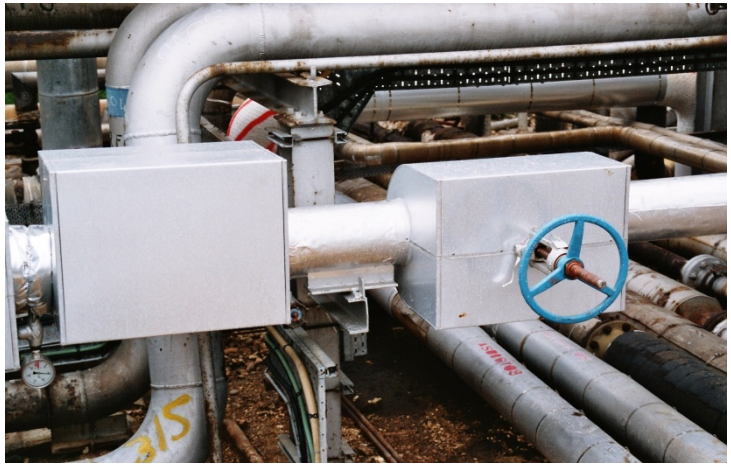
ExxonMobil – Fawley, UK in 2002



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ExxonMobil – Dartmouth, Canada

- *No scaffolding costs incurred saving $ 40-50k.*
- *2 mobile scissor lifts reduced labour by $ 5k.*
- *Reduced installation time by 10 days.*
- *First tank ever to be insulated vertically rather horizontally.*

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ExxonMobil – Dartmouth, Canada

- *Installed 2006*
- *Pyrogel and 1579cw with 1577cw Tape.*
- *Experienced 145 mph winds and metal roof had sections ripped off.*
- *Damaged caused to nearby buildings and cars.*
- *VentureClad stood firm.*
- *Tank on the coastline, fully exposed to the elements.*

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Asphaltic Tank - Japan

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ExxonMobil-S3 Lubes & Utilities
Chiller Lines @ Ayer Chawan, Singapore

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ExxonMobil Steam Line - Pyrogel
Trecate – Italy 2009

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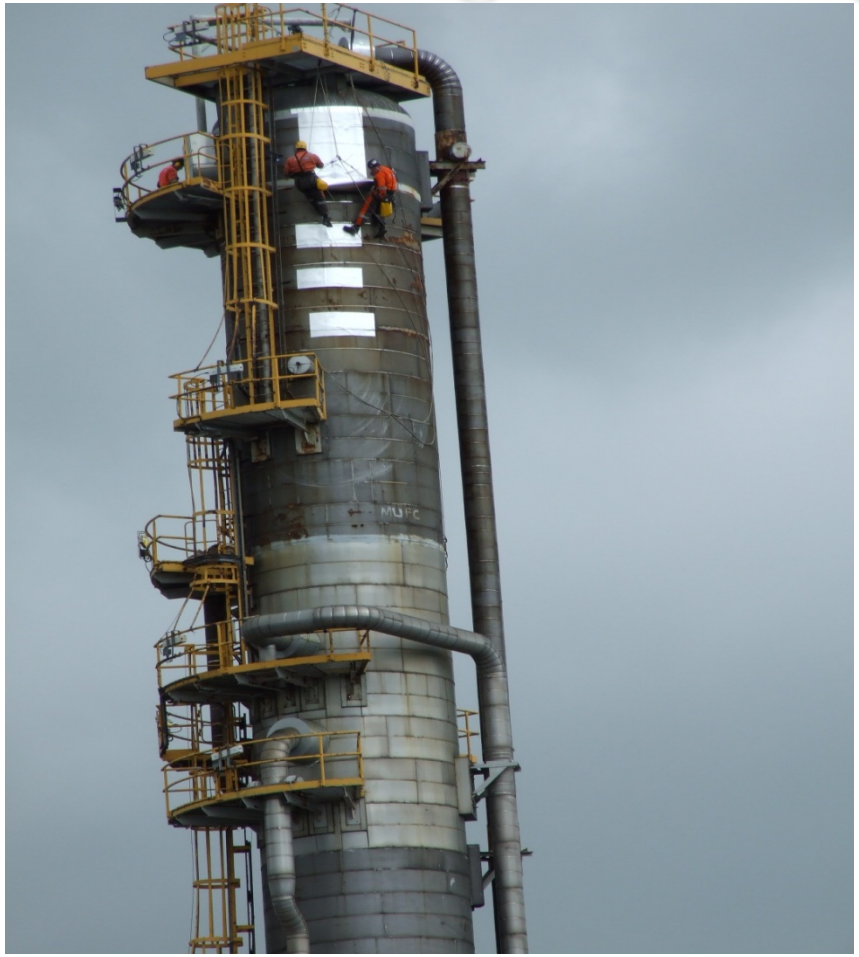
Cladding Existing Metal - Scotland



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Exxon Ethylene Plant – Fife, Scotland 2009

- *Installation done by rope access to C-T-51 Tower*
- *2 men for 8 days to complete installation vs 30 days for metal cladding.*
- *Directly placed over existing metal to seal leaky, rotten metal.*
- *Metal over clad estimated costing was $180k.*
- *VentureClad installed cost was $18k*
- *Inherently safer to install vs metal.*

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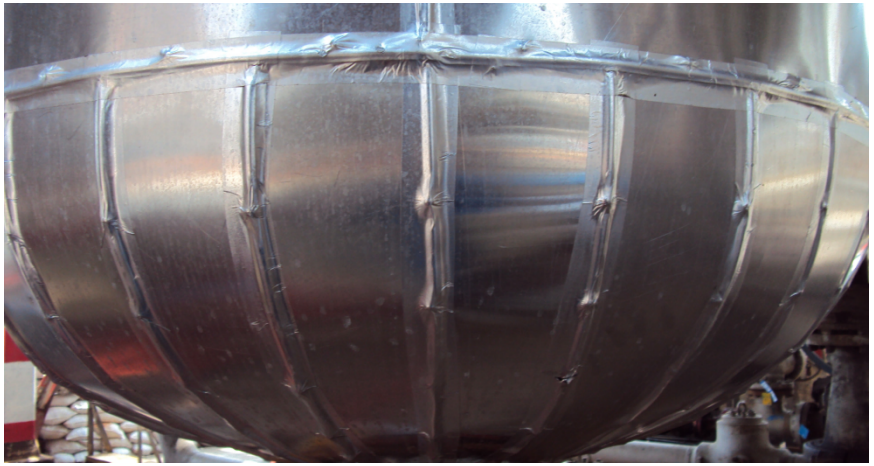
Joint Sealing To Metal



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Heat Exchanger - Singapore

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Exxon Mobil – Dartmouth, Canada 2009

- ***1579NA preferred on equipment due to its improved durability over 1577cw.***

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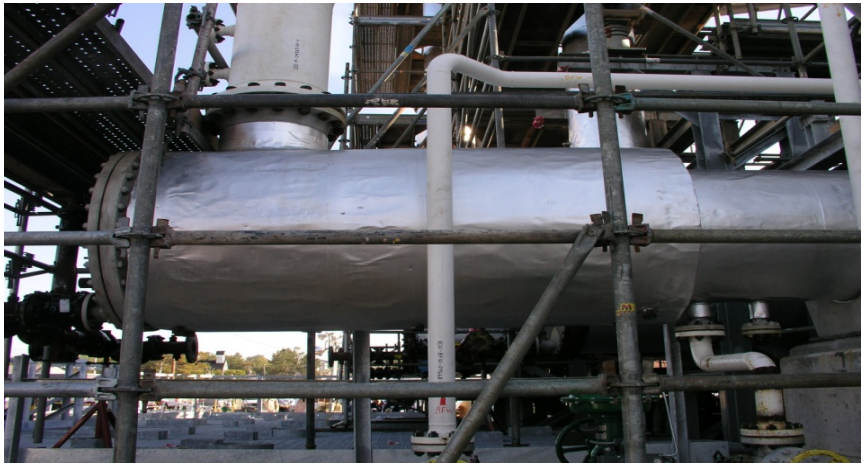
ExxonMobil – Dartmouth, Canada 2009



- *1579NA used over Aerogel on equipment.*
- *All maintenance on site to be done this way.*

- *1577cw used on pipe work above 2mtr although some has been used on small bore pipe with good results.*

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Water Tank - USA

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Pharmaceutical Installations - 2006

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VentureClad 1577cw & 1579 cw On Ductwork

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Canada

- *1579cw over insulation to pipeline running through hillside.*
- *Temperatures range from - 30ºC to 45ºC.*
- *Cold climate as well as high humidity experienced.*
- *Replacing metal cladding due to previous water ingress.*
- *1579cw offers a watertight construction reducing CUI issues.*

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VentureGuard – 1574 cw-H Hypalon

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Off Shore Application - Norway

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Offshore, UK - Tedlar

- *North Sea Oil Rig.*
- *Rigid Foam Insulation.*
- *Banded over Tedlar.*
- *Salt Water Resistant.*
- *Zero Perm System.*
- *Sealed System – Dry Insulation.*

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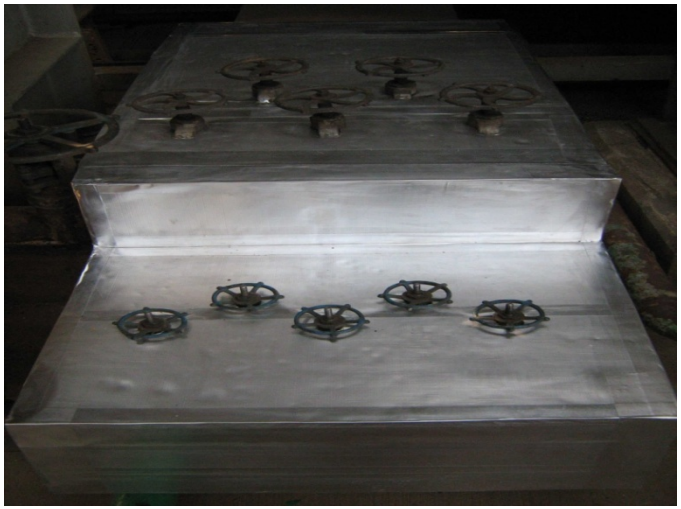
Pre-Covered On Mineral Wool



- ***Pre applied to pipe insulation, the estimated savings are 33%.***

- ***Pre covered to mineral wool flat slab insulation, installed costs compared to metal cladding were 56%.***

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Pre–Covered Calcium Silicate

Qatar Petroleum – Messaid site, Qatar.

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VentureClad Before & After

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Conclusion

A proven vapour barrier and weatherproof jacketing system that is becoming the preferred alternative to traditional methods due to performance and labour saving application benefits.

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Questions ?

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