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Newsletter Issue 4 Under Raps Pty Ltd 2/211 Balcatta Road Balcatta WA 6021

The power of Shrink-Wrap

Lucas Heights Reactor

In a project reminiscent of the works of avant-garde artist Christo, the building housing the nuclear research reactor at Lucas Heights was recently shrink-wrapped in white plastic.

However, the project has less to do with art than with preparations to give the building a fresh coat of paint. The reactor will continue to operate, producing radioisotopes for medicine and industry.

However, Ian Kemp of ANSTO's Nuclear Technology Division said that because of the need to protect the environment from dust and paint, the building was being surrounded with plastic in a process known as Under-Raps™ encapsulation.



Turbines encapsulated

As part of an ongoing maintenance program, a number of power station turbines were recently serviced.

As they are very large and delicate pieces of equipment the blasting and X-raying of the turbines had to be performed on the operations level of the station.

This meant that they had to be encapsulated to a high standard to contain the dust and stop any foreign matter entering the exposed generators.



Nuclear Power Equipment protection with Intercept Shrinkfilm by FPM

Nuclear equipment protected at Dresden

Dresden in Illinois, USA is the location of the first nuclear power plant built in the United States. Activated in 1960, Dresden I was the first nuclear power plant built with private funds.

The Dresden units are General Electric

boiling water reactors. They are located near Morris, Illinois.

The power plant serves Chicago and the northern quarter of the State of Illinois. Dresden I was retired in 1978. FPM has been involved at Dresden, protecting equipment with Intercept Shrink-film.

Areva USA ships to Australia in Intercept film

Areva T & D in Charleroi, PA, USA is now shipping offshore items in Intercept products.

In the photos below, transmission equipment is being packaged in Static

Intercept tubing material for shipment to Australia. The Intercept material protects vulnerable electrical connections.

This will ensure 100% performance when the units are reassembled in the field.



US Army truck cabs protected during shipment STORAGE WITH INTERCEPT SHRINKFILM LINED CRATES

Just before full shipping-crate production started for the up-armoured cabs going to Iraq, the US Army Tank, Automotive, and Armaments (TACOM) Program Office was hit with a new requirement - "Make the crates reusable and anticorrosive - able to store truck cabs for over three years."

Knowing that all woods and plywoods used in crating release corrosive acetic and formic acids, TACOM officials were questioning what direction to go.

But that quandary lasted only a moment as Jim Russell, TACOM Packaging Engineer, remembered an anticorrosive technology presentation by Randy Dutton, VP of FPM Inc., to a National Institute of Packaging, Handling and Logistics Engineers (NIPHLE) conference.

At that conference Dutton spoke of how Intercept Technology packaging was poised to revolutionise wood crating by sacrificially removing all the corrosive gases released by wood and by cleansing trapped air within the crate.

As a barrier material, the Intercept packaging shields the equipment from the wood. Intercept further provides anti-mould/mildew protection because the constituent reactive material is a highly reactive form of copper that is covalently bonded to the polymer.

More importantly, the safety of equipment and personnel is assured because no chemicals are involved.

All that has to be done is either package the item in Intercept or just line the inside surfaces of the crate.

Tacom working in conjunction with

FPM, the truck cab manufacturer, Stewart & Stephenson (S&S), and the crating company, Advanced International Services (AIS), specified the implementation of an Intercept solution.

The end result, involving about 2,500 large crates, showed virtually no additional delay or cost and a project that ran so smoothly that the trio of TACOM, AIS, and S&S won 1st Place in Long-Life Storage Packaging Design at NIPHLE 2006 with this Intercept lined crate project.



Above: Crate lined with Intercept Shrinkfilm
Below: Cabs waiting packaging



Further, the project was acknowledged by the US Army Materiel Command with this comment, "After a review of the process, it was determined that the repackaging process was perfect for the application.

"By originally designing the container to be reusable, the contractor was able to very easily ship the old cabs home with minimal labour and material costs. This is an outstanding example of reusable packaging at work."

Protecting parts for the automotive industry.



These automotive dies are currently not being used in vehicle production. However, they need to be accessible should they be required.

The actual intent in wrapping the dies in Intercept Shrink-film was to prevent rust from running into the ground in order to meet the requirements of the Environmental Protection Agency.



Over 1000 Automotive Dies Protected From Corrosion



Under-Raps™ Intercept Canvas Covers

New HMMVVE reusable canvas cover tames corrosion



meet particular requirements, Intercept Fabric basically is comprised of three layers.

The first (outer) layer is a durable outdoor fabric using denier yarn in the warp and fill. It is pliable, yet strong, and is easily laminated.

The yarn is solution dyed and is UV, fade and mildew resistant. It has excellent cleanability and abrasion properties. Many colours are possible.

The second (middle) layer is a 1.5-mil thermoplastic copolymer extruded between the first and third layers in a hot, continuous layer.

This co-polymer does not come in contact with the surface of the item being protected and will not leave a residue on the surface.

Intercept Fabric™ is a new outdoor fabric with anti-corrosive and ESD protective properties, offering a durable cover and a corrosive gas scavenging barrier.

The inner layer scavenges the corrosive gases that cause corrosion, provides galvanic corrosion protection upon contact with the covered item, provides electro-static discharge (ESD) protection and inhibits mould/mildew from forming on the inside cover surface.

Its primary function is to bind the outer fabric and the Intercept technology plastic together.

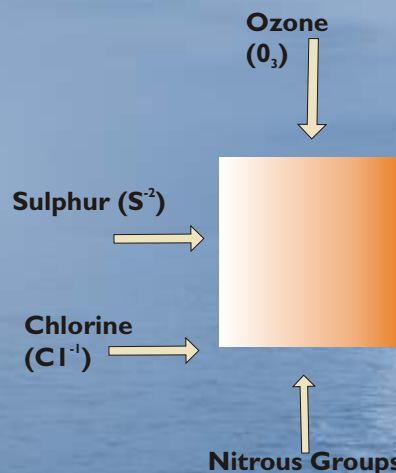
Intercept Shrinkfilm™ consists of three co-extruded layers.

The inside layer is static Intercept technology resin which blocks corrosive gases.

Intercept Fabric is a material with which we make reusable form fitting covers. While the exact fabric may vary to



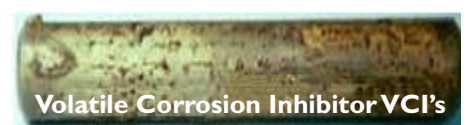
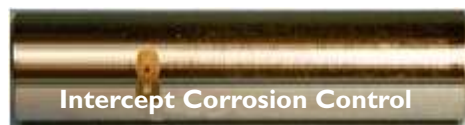
Corrosive Gases Try To Penetrate Intercept - But Fail



Intercept provides a reactive barrier to the corrosive gases - reacting and permanently neutralising them. As the Intercept is used up it changes colours:

Corrosion Intercept®:
Dark Brown to Black

Chlorine 15yr./mil
Sulphur 10yr./mil



Under-Raps Intercept™ to the “Max”.

A breakthrough technology - Intercept Max & Solo™

It's a world first anti-corrosion coating for packaging - a ground breaking process that will protect and extend shelf life.

We are talking about the world's first liquid-based anti-corrosion coating for corrugated packaging - a coating set to completely revolutionise the way many products are packaged in the future.

The Intercept coating is a copper particle based liquid which, when applied to the inside lining of any form of corrugated packaging, acts like a solid sheet of highly reactive metal.

This provides the ultimate corrosion and electrostatic discharge protection for the contents for at least five years, depending on atmospheric conditions.

It was originally developed in a plastic and powder form by Engineered Materials Incorporated (a licensee of the patent holder, Bell Labs), to provide corrosion protection for sensitive electronics and telecommunications equipment.

The Intercept coating acts as a barrier, creating a micro-chamber and preventing atmospheric gases that cause corrosion from entering the packaging.

The coating also acts as a preferential corrosion site, attracting gases trapped within a container to the Intercept coating, causing a reaction that leaves the gases permanently neutralised.

In addition to the copper coating on the inside, Intercept MAX carries a black conductive coating on the outside for ultimate ESD protection."



"It is a very strong alternative to conventional volatile corrosion inhibitors in that it is non-hazardous, non-toxic, non-polluting and bio-degradable.

The coating is also an effective bactericide, mildewcide and fungicide.

In addition, any packaging coated with Intercept or Intercept Max is totally recyclable.

"Another advantage is that Intercept looks and acts like copper in that it loses its luster and starts to go grey when it is coming to the end of its life span.

This self-indicating capability is extremely useful when judging how long components can remain in storage before deterioration eventually begins."



Meet Greg Owens - Director



Role: Sales and Marketing

Greg joined Under-Raps four years ago bringing with him a wealth of experience in plant design, construction and operation in the mining industry, after nearly 20 years working in a wide range of roles from field assistant to owner director of exploration and drilling companies.

Greg has also been involved in mathematical development to assist in the calculation of quantities of product labour costs and time required to implement systems.

Disclaimer

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In the next Edition

★ **New product:**

Under-Raps Fire Protection High Pressure Water Mist System

★ **New product**

Intercept Filtration Media

Intercept Foam will react with and neutralise the atmospheric pollution within cabinets or other storage areas.

The Intercept Technology has the ability to absorb and neutralise gases (including ozone, nitrous groups, formaldehyde, sulphur compounds, chlorine compounds, gaseous acetic acid and more).