



CORROSION INTERCEPT



By Appointment
to Her Majesty Queen Elizabeth II
Suppliers of Conservation Storage,
Equipment and Display Products
Conservation By Design Limited Bedford

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Corrosion Intercept Technology Protection of Lead

Developed by Lucent Bell Labs to solve problems they were experiencing with Corrosion. The Intercept Technology is a revolutionary product reacting solid state reactive materials into a polymer matrix. These reactive materials react with and neutralize all corrosive gases that contact the film. Protection against corrosive gases is 10 years per mil of Intercept material. Intercept protects Ferrous and Non-Ferrous Metals as well as preventing Galvanic Corrosion.

Metals corrode (tarnish) by reaction with common gases in the atmosphere. These corrosive gases react with both Ferrous (Iron based) and Non-Ferrous metals, however these gases are the primary cause for Non-Ferrous metal (such as Silver, Tin, Copper, Brass, Lead, etc.) corrosion.

Lead Corrosion:

The Intercept technology uses a Copper backbone reacted into the polymer structure to achieve its highly effective corrosion protection. Copper is highly reactive to all of the corrosive gases. Lead though is not highly reactive to Oxygen, however it is highly reactive to Sulfur and Sulfur compounds. The most effective form of Intercept for lead protection would therefore be a lead based system – which is what the first patented form of Intercept was. The lead is a preferential scavenger, being highly preferential for Sulfur, more so than Copper is. Therefore, to completely protect lead, the use of a lead based Intercept would provide 100% protection. Since environmental restraints prevent the use of lead in the fthe bag. The Intercept forms a protective barrier to Sulfur and other reactive gases.

However, the Sulfur that is trapped within the closed or sealed bag will be able to react with both the Intercept and the lead. The protection afforded the lead seal in this scenario is approximately 85%. The majority of the Sulfur gases will be reacted and permanently neutralized by the Copper in the Intercept, due to the extremely high surface area of reactive Copper present on the inside of the bag. However, the strong preferential of the lead to Sulfur will allow some Lead Sulfide (white crystalline structure) to grow. This Lead Sulfide growth will be greatly minimized in an Intercept enclosure, compared to any other commercially available product, due to the highly reactive nature of Intercept reacting with and neutralizing approximately 85% of the gases present or generated within the bag.

Intercept protects against Corrosion Damage:

- Reacts with and permanently neutralizes corrosive gases
- Provides corrosion protection for 10 years per mil of Intercept material
- Effective against Galvanic coupling (corrosion between joined dissimilar metals)
- Leaves no detectable deposit on any product it protects (unlike VCI's)
- Cleanses trapped air of corrosive gases
- Provides cost savings by eliminating secondary packaging and cleaning operations (cleaning operations often required with VCI protection or no protection)
- Acts as a passive Bactericide and Mildewcide
- Eliminates the need for storage in inert atmospheres
- Environmentally friendly with substantially reduced landfill time (breaking down into Polymer dust) and fully recyclable (meeting tough German recycling laws)
- Effective corrosion protection for the following materials:
 - Silver
 - Copper
 - Bronze
 - Tin
 - Brass
 - Magnesium
 - Ferrous Metals (Iron and Steel)
 - Lead
 - Galvanic couples (if the Intercept is in intimate contact)

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