



ArmorFlex® 114

THE PREMIER FILM FOR
POWDER HANDLING
AND CONTAINMENT

ONE FILM DESIGNED FOR SINGLE-USE POWDER HANDLING

Using single-use technologies to achieve continuous manufacturing has long been a goal of biomanufacturers. At ILC Dover, we have focused on developing premier films for a wide array of powder handling and containment needs. As a result, our engineers have created cutting-edge films designed to provide unmatched performance characteristics, while increasing handling speed and safety.

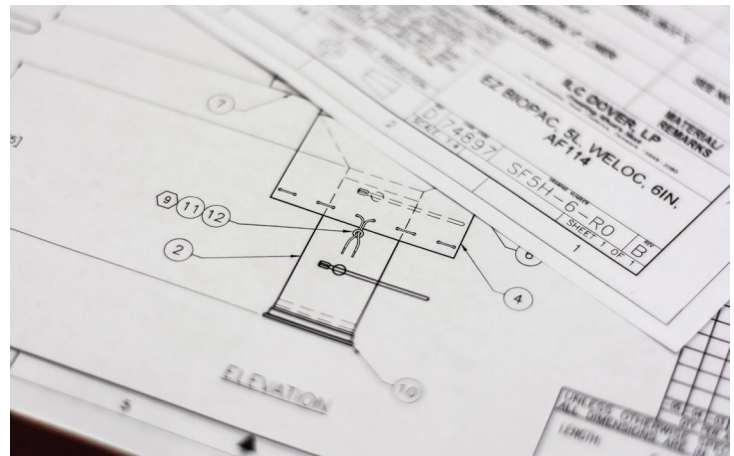
ARMORFLEX® 114 FILM'S UNIQUE PROPERTIES

Unlike other films on the market, our film was designed solely for use with powders. That means we don't have any additives that can discolor your product, or slip agents that can cause cell-growth inhibition.

Furthermore, our low-residual, antistatic film ensures all of your product gets where it is going and doesn't get thrown away inside the bag.

THE INNOVATIVE ENGINEERING BEHIND THE FILM

Many competitors' bags originally designed for storing liquids have been converted to store powders. This adaptation can cause many problems, including making it difficult to accurately measure and properly dispense the powder. ILC Dover bags, on the other hand, have been designed from the ground up to suit modern powder applications. We understand this field and have listened closely to our customers, to make sure our films fit the process and contribute to its efficient operation.



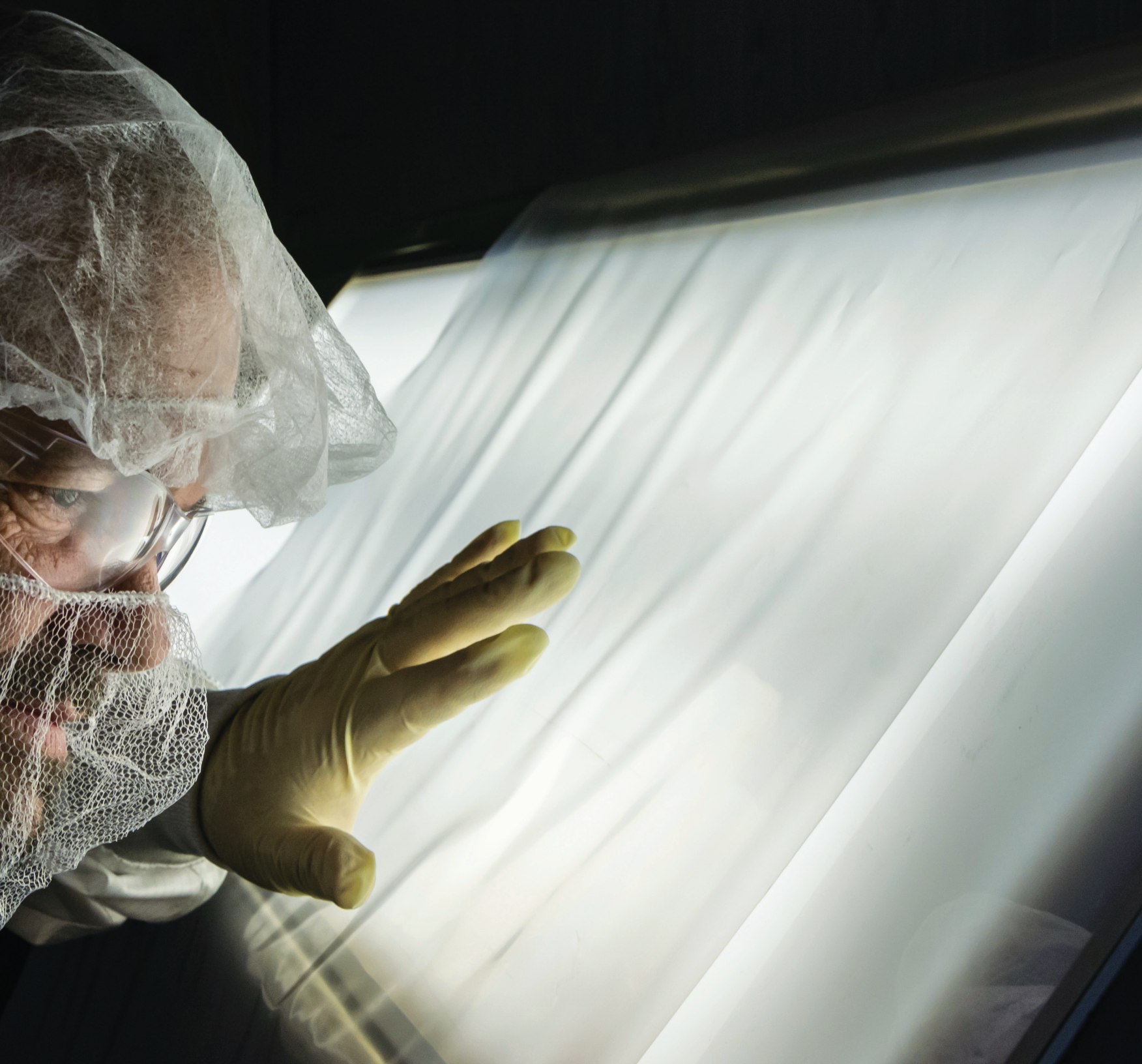
ArmorFlex® is a trademark of ILC Dover.



CRITICAL QUALITY ATTRIBUTES

- No slip agents
- High film strength
- High seal strength
- Minimal film elongation
- High flex-fatigue resistance
- Abrasion and puncture resistance
- Superior clarity
- Gamma irradiation compatibility
- 5-year shelf life

In addition to the above properties, ArmorFlex film is manufactured with overall safety and quality in mind. As with most films, other components are used to help produce the film and to provide desired physical properties and performance characteristics. However, at ILC Dover, only components that meet the materials-of-contact test protocol requirements are used. Testing to European Food Contact (Overall Migration) protocols shows this film complies with all allowable limits that have been set by the regulatory bodies.



FULL REGULATORY COMPLIANCE

ArmorFlex 114 is a robust film with very few leachables, no slip agents and permanent static dissipative properties. The film meets FDA and (EU) No 10/2011 requirements for food contact and complies with EP 3.1.3 test conditions. In fact, ArmorFlex 114 has been shown to meet a wide variety of regulatory requirements and industry standards.

- Complies with FDA 21 CFR
- Complies with (EU) No 10/2011 and amendments
- Meets test parameters of EP 3.1.3
- Passes USP <661> Physicochemical Tests for Plastics
- Passes USP <88> Class VI (7-day implant)
- Passes <87> biological reactivity, in vitro
- Offers 5-year shelf life
- Has permanent antistatic that replaces migrating additives
- Passes Chilworth incendivity tests
- Offers test-proven solvent resistance
- DMF filed with FDA

ArmorFlex® 114 Solvent Resistance Solvent Contact Recommendations

Chemical	Resistance
Acetone	Excellent
Acetonitrile	Excellent
Anisole	Good
Butyl Acetate	Good
Cyclohexane	Excellent
Ethyl Acetate (50/50)	Excellent
Dichloromethane	Excellent
Diethyl Ether	Excellent
Dimethylacetamide	Excellent
Dimethylformamide	Excellent
Ethanol	Excellent
Ethyl Acetate	Excellent
HCL (37.4%)	Very Good
n-Heptane	Very Good
HMDS	Excellent
Isopropanol	Excellent
KOH (50%)	Very Good
Methanol	Excellent
2-Methoxyethanol	Excellent
Methyl Ethyl Ketone	Excellent
n-Methylpiperazine	Excellent
n-Methylpyrrolidone	Excellent
Methyl-tert-butyl Ether	Excellent
Mineral Oil	Excellent
Reagent (3A) Alcohol	Excellent
NaOH (50%)	Excellent
Tetrahydrofuran	Very Good
Toluene	Fair
Water, Distilled	Excellent
Criteria	
% Change in Physical Properties	Resistance
0–10	Excellent
10–20	Very Good
20–30	Good
>30	Fair

SCALABILITY

ArmorFlex 114 is ready for every powder application, large and small. It is one thing to be able to handle powder in smaller sizes, but quite another to be able to do it at all scales. For applications ranging from small-scale media and buffer preparation to large-scale powder dispensing, you can find an ArmorFlex film that provides the solution. In addition, we can make flexible enclosures with high containment to suit your specific requirements. Our film is strong as well as abrasion- and puncture-resistant.





ARMORFLEX 114 OFFERS CLEAR COMPETITIVE DIFFERENCES

While some suppliers suggest that you can use a base film without integral static dissipative additives with nothing more than an exterior surface treatment, we do not accept that proposition. Coated films will not meet the intent of pharmacopoeia testing, since test monographs require the composite cross-section of the film to be tested. This is done to ensure that, in the event a piece of film should contact the drug product, the film will not introduce a potential hazard to the patient.

Because of that, we achieve static dissipative properties in ILC Dover ArmorFlex films by thoroughly blending the antistatic compound into the base polymer during manufacture. This creates a homogeneous conductive network, yielding consistent antistatic properties throughout the film.

You will see the difference in every application.



TALK WITH OUR EXPERTS

At ILC Dover, we look forward to collaborating with you to develop systems tailored to your exact needs. To speak with one of our experts, simply call **+1.302.335.3911** or visit **www.ilcdover.com**.



BEYOND BOUNDARIES™

Innovators at our core, we develop engineered solutions for our customers' complex problems. Recognized globally for our flexible containment solutions, ILC Dover serves customers in a diverse range of industries, including pharmaceutical and biopharmaceutical manufacturing, personal care, food and beverage, chemical, aerospace, healthcare and government agencies. At ILC Dover, quality is a culture, not a measurement. Our customers will tell you that we cater to their every need and that we're highly innovative, responsive, dedicated and competitive. We have been innovating since 1947. ILC Dover's visionary solutions improve efficiency, safeguard workers and product, and prevent disasters — proof that we are on the front line of business excellence.

Engineering evolution beyond boundaries.



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