

3M™ Ultra-clean Laminating Adhesives 501FL and 502FL

Product Description

3M™ Ultra-clean Laminating Adhesive 501FL

- .001 in. thick adhesive
- Plastic core
- 2 mil PET, DS silicone liner
- Thin bond line
- Pressure used for lamination and application to a substrate
- Acrylic polymer provides excellent adhesion to many substrates
- Low outgassing and ionics

3M™ Ultra-clean Laminating Adhesive 502FL

- .002 in. thick adhesive
- Plastic core
- 2 mil PET, DS silicone liner
- .002 in. thick adhesive for rough surfaces
- Pressure used for lamination and application to a substrate
- Acrylic polymer provides excellent adhesion to many substrates
- Low outgassing and ionics

Application Ideas

- 3M™ Ultra-clean Laminating Adhesives are ideal for applications that need lower outgassing and ionics levels compared to current generation laminating adhesives.
- 3M ultra-clean laminating adhesives have improved room temperature and high temperature shear performance for improved label and seal holding strength.
- 3M ultra-clean laminating adhesives have low odor and low outgassing of volatile components which can cause fogging or condensation on vehicle windows.
- 3M™ Ultra-clean Laminating Adhesives 501FL and 502FL laminate easily to many substrates, and the film liner offers moisture resistance and improved die-cutability and web control.
- 3M ultra-clean adhesives 501FL and 502FL have an acrylic chemistry that offers good thermal stability over moderate temperatures and short high temperature excursions when combined with a backing layer.
- Market application areas include: Automotive, Aerospace, Electrical Mechanical and General Industry.

3M™ Ultra-clean Laminating Adhesives 501FL and 502FL

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Typical Total Outgas Material by GC/MS (Modified ASTM 4626)

| | |
|--|--|
| 3M™ Ultra-clean Laminating Adhesive 501FL | 0.3-1.5 µg/cm ² (Hydrocarbons, Organic acids, Esters, Alcohols, Phenols, Acrylates, Acetates, etc.) |
| 3M™ Ultra-clean Laminating Adhesive 502FL | 0.5-2.5 µg/cm ² (Hydrocarbons, Organic acids, Esters, Alcohols, Phenols, Acrylates, Acetates, etc.) |

Typical Total Ionics by Ion Chromatograph

| | |
|---|--|
| 3M Ultra-clean Laminating Adhesive 501FL | < 0.15 µg/cm ² (Chloride, Nitrate, Sulfate) |
| 3M Ultra-clean Laminating Adhesive 502FL | < 0.15 µg/cm ² (Chloride, Nitrate, Sulfate) |

Typical 90° Peel Data* (2-mil Aluminum backing @ 12 in./min. peel rate: oz./¹/₂ in. width

| Substrate @ Dwell Condition | 3M Ultra-clean Laminating Adhesive 501FL | 3M Ultra-clean Laminating Adhesive 502FL |
|------------------------------------|---|---|
| SS @ 15 min. RT (initial) | 22 | 28 |
| SS @ 72 Hr RT | 36 | 41 |
| SS @ 72 Hr 158°F | 72 | 105 |

***Note:** Peel results will vary due to substrate type and condition, backing material properties and speed of the test set-up.

Typical Static Shear Test (SS and Aluminum substrates)

| 3M Ultra-clean Laminating Adhesive | Room Temperature | | 158°F |
|---|----------------------------|--|--------------------------|
| 501FL and 502FL | 1,000g held 10,000 minutes | | 500g held 10,000 minutes |

Typical Liner Release Values (180 degree liner removal, 90 in./min.)

| | |
|---|-----------------|
| 3M Ultra-clean Laminating Adhesive 501FL | 30 g/inch width |
| 3M Ultra-clean Laminating Adhesive 502FL | 32 g/inch width |

Typical Automotive Fog Test

| | |
|---|----------|
| 3M Ultra-clean Laminating Adhesive 501FL | 99 - 100 |
| 3M Ultra-clean Laminating Adhesive 502FL | 99 - 100 |

Shelf Life

24 months from manufacture of material when properly stored at 60-80°F (16-27°C).

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Certification/Recognition

MSDS: 3M has not prepared a MSDS for these products which are subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, these products should not present a health and safety hazard. However, use or processing of these products in a manner not in accordance with the directions for use may affect their performance and present potential health and safety hazards.

TSCA: These products are defined as an article under the Toxic Substances Control Act and therefore, are exempt from inventory listing requirements.

RoHs Complaint/REACH Compliant: These products comply with the European Union's "Restriction of Hazardous Substances" (RoHs) initiative and with European REACH regulations 2002/95/EC and 2005/618/EC.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-251-8634. Address correspondence to: 3M, Electronics Markets Materials Division, 3M Center, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 651-778-4244 or 1-877-369-2923. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

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