

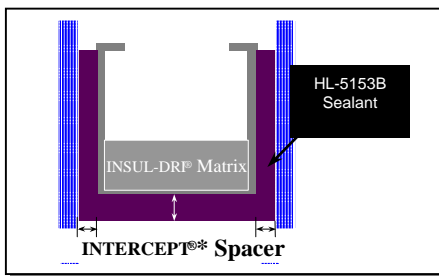
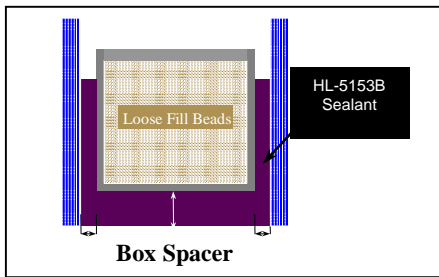


HL-5153B Product Information

Product Description

HL-5153B sealant is new technology for the IG industry. It is a warm-applied modified polyurethane sealant that combines the ease of handling and speed of a hot melt with the shear and heat resistance of a polyurethane.

HL-5153B differs from the two-part thermosetting sealants primarily because it is a single-component system that can be applied using linear extrusion application equipment. HL-5153B applies using low levels of heat at the extruder and through the oven/press. HL-5153B has a lower moisture vapor transmission rate than the two-component thermosetting sealants.

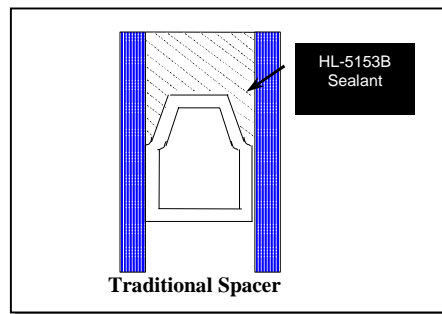


HL-5153B Curing Profile

This material cures in the presence of moisture. Any moisture present starts the curing process. A significant amount of strength is gained in the first 24 hours. At 15% relative humidity (RH) and higher, units may be cured after 30 days. Most of the final strength is achieved after 14 days.

ADEQUATE TESTS: The information contained in this bulletin we believe is correct to the best of our knowledge and tests. The recommendations and suggestions herein are made without guarantee or representation as to results. We recommend that adequate tests be made in your laboratory or plant to determine if this product meets all of your requirements.

Typical Application Properties	
Color	Black or Gray
Approximate Pounds Per Gallon	9.3 (1.11 g/cc)
Shelf Life	6 months
Application Temperature Linear Extruder	180°F (82°C)
Hand Gun Application Temperature (at tip)	235°F (112°C)
Oven Press Temperature	130-145°F (54-63°C)
Typical Physical Properties	
Tensile Strength: <i>One-day cure</i> (200% elongation)	130 psi (0.9 MPa)
Tensile Strength: <i>Cured</i> (100% elongation)	320 psi (2.2 MPa)
RT 5-lb (2.3-kg) Shear Time: One-day cure	> 24 hours
Lap Shear Strength (Al/Glass)	290 psi (2.0 MPa)
Peel Strength (Al/Glass)	56piw (65 kg/cm.w)
Moisture Vapor Transmission Rate	2.5 g/m ² /day



Application Limitations

- HL-5153B is compatible with low E coatings. It should **not** be used in non-edge deleted applications unless approved by the glass supplier.
- HL-5153B is **not** intended for structural glazing applications.
- HL-5153B should only be used in sloped glazing applications after review by a design specialist. It should not be used if the IG is unframed or unsupported.

Applicable Standards

HL-5153B hot melt moisture-curing sealant meets or exceeds the requirements of the following standards:

- Level CBA requirements of ASTM E773/E774

Surface Preparation

The glass must be cleaned with detergent and hot water when using the HL-5153B sealant. We suggest following your glass washer or glass supplier's recommended practices for glass washing. Good practices include using hot water (120-140°F; 50-60°C) and detergent.

Do we need to edge delete our low-E glass? We have done some limited performance testing with specific types of non-edge deleted low E-glass. Your H.B. Fuller representative can supply you with a list of types tested and the results.

Contaminants on the spacer stock affect the adhesion of the HL-5153B sealant. Coil and spacer stock always should be covered when being stored. Contaminants like oil, dust, corrosion and dirt negatively affect the adhesion of any sealant. Check for cleanliness by taking a clean white cloth and wiping the spacer. Any noticeable particles or oils must be removed prior to manufacturing.

*INTERCEPT® is a registered trademark of PPG, Inc.

H.B. FULLER'S ACCEPTANCE OF ANY ORDERS FOR THIS PRODUCT IS EXPRESSLY CONDITIONAL UPON PURCHASER'S ASSENT TO THE TERMS SHOWN ON THE REVERSE SIDE.

Glazing

All glazing recommendations of the Insulating Glass Manufacturers Alliance (IGMA) should be followed. Contact between HL-5153B edge seal and any solvent or oil containing glazing compound should be avoided. For recommendations on specific glazing designs or use of glazing compounds, contact H.B. Fuller.

Clean Up

- Any uncured material can be cleaned up with a common polyurethane solvent such as acetone or MEK.
- Do not use water-containing cleaners, alcohols or amines (ammonia), as these will react with the product and may make cleaning difficult.
- Do not use hot air guns or open flames. These may generate toxic vapors.

Purging

The HL-5153B purge material is non-reactive toward isocyanates. Our recommended purge material is NP-2038 or Fuller's hot melt butyl products. NP-2038 pelletized product is blue in color and available from H.B. Fuller.

- Purge when shutting down for more than five days.
- Purge when changing products that may not be compatible with the HL-5153B product.

- When shutting down for more than four hours, plunge the pump piston fully into the oil cup full of TSL throat seal oil. This practice will reduce the amount of material build up around the piston.
- Purge when an excessive number of particles are coming out of the hose or are clogging the heads.

Health & Safety Precautions

Please see product MSDS for complete safety data information.

The level of free methylene bisphenyl isocyanate (MDI) does not approach the OSHA limits for exposure during normal unit manufacturing. MDI monitoring information is available through your Fuller representative.

Reactive hot melt adhesives containing MDI are used in many other industries such as bookbinding, automotive, and recreational vehicle manufacturing. The products are safe if used as directed.

It is essential that all persons involved with the handling of chemical products be familiar with their safety and handling procedures. Good handling practices include . . .

- Prevent contact with skin by wearing gloves, long sleeves and, in certain cases, personal protective equipment. Do not take internally.

- Avoid exposure of HL-5153B to all sources of moisture. Do not open containers until ready to use.
- Outside ventilation is not required when extruding HL-5153B sealant. We would recommend, however, ventilation that exhausts to an outside area in case of an equipment malfunction.
- Persons previously sensitized to MDI should be aware of the potential health effects of future MDI exposure and take appropriate actions.

Packaging, Storage & Shelf Life

HL-5153B sealant is packaged and shipped in sealed, nitrogen-purged, straight-sided 55-gallon drums. HL-5153B has a shelf life of six months from the date of manufacture. Storage is recommended in dry, sheltered areas. Premature exposure to heat and moisture will reduce shelf life.

Disposal

- In most localities, drums may be crushed and sent to a local landfill. Since local landfills have the right to refuse any material, check first.
- Check with the local drum recycler to see if they will accept the empty drums for recycling.
- Empty drums also may be discarded as scrap metal at a local scrapping company.
- Check the Material Safety Data Sheet for disposal requirements.

LIMITED WARRANTY AND TERMS H.B. FULLER COMPANY

Revised: 4 May 2007

H.B. Fuller Company ("Fuller") warrants that, for a Warranty Period of one year (or the period specified on the applicable Technical Data Sheet, whichever is less) from the date of shipment from Fuller to the Initial Purchaser, that this Fuller product was manufactured in accordance with Fuller's specifications in effect on the date of manufacture. These specifications are available upon request. This Warranty does not cover test data, or any defects, damages or other harms caused to any extent or in any way by failure to follow applicable Fuller instructions, if any, or abuse or misuse of the product.

WARRANTIES DISCLAIMED — THE WARRANTY STATED IN THE PARAGRAPH ABOVE IS IN PLACE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. Fuller EXPRESSLY DISCLAIMS ANY OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ALTHOUGH Fuller MAY HAVE SUGGESTED THE PRODUCT OR DEVELOPED THE PRODUCT AT THE PURCHASER'S REQUEST, IT IS THE PURCHASER'S RESPONSIBILITY TO TEST AND DETERMINE THE SUITABILITY OF THE PRODUCT FOR THE PURCHASER'S INTENDED USE AND PURPOSE, AND PURCHASER ASSUMES ALL RISK AND LIABILITY WHATSOEVER REGARDING SUCH SUITABILITY.

LIMITATIONS OF REMEDIES AND DAMAGES — FOR ANY VALID CLAIM PRESENTED UNDER THE LIMITED WARRANTY, Fuller WILL REPLACE THE PRODUCT, OR AT ITS OPTION, REFUND THE PURCHASE PRICE. THIS REPLACEMENT/REFUND REMEDY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY AGAINST Fuller. THE PURCHASER AGREES THAT NO OTHER REMEDY (INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO PURCHASER FOR CLAIMS ARISING OUT OF ANY USE OF THE PRODUCT REGARDLESS OF THE LEGAL THEORY (CONTRACT, TORT OR OTHER). IN NO EVENT WILL Fuller BE OBLIGATED TO PAY DAMAGES TO PURCHASER IN ANY AMOUNT EXCEEDING THE PRICE THAT THE PURCHASER PAID FOR THE PRODUCT.

NO INDEMNITIES — Except as expressly stated herein, in no event will Fuller be liable to indemnify or to hold Purchaser harmless against any form of liability.

LIMITATION OF ACTIONS AND VENUE — Any claim made or action commenced by Purchaser under Fuller's limited warranty as set forth herein must be brought within one year from the date of shipment from Fuller to the Purchaser. Purchaser agrees that all disputes arising from Fuller's sale of product to Purchaser shall be brought, if at all, in and before a court located in the State of Minnesota, to the exclusion of the courts of any other state.

ARBITRATION — Purchaser agrees that any claim of less than \$100,000 shall be submitted for binding arbitration before a single arbitrator and shall be governed by the rules and procedures of the American Arbitration Association. The arbitrator and the American Arbitration Association shall be paid by the Purchaser.

CONDITIONAL ACCEPTANCE — Fuller's acceptance of Purchaser's order for this product is expressly conditional on Purchaser's assent to terms and conditions set forth herein.