
Adhesive tape used in LEDiL optics and assemblies

LEDiL optics supplied with double-sided foam bonding tape (unless otherwise mentioned in the datasheet). This tape is specifically selected for this application. The foam is a polyurethane (PU) material. There is an acrylic pressure-sensitive adhesive coating on both sides. These tapes have been manufactured for over twenty years during which time no justified complaints of premature ageing have been received.

Generally these tapes work well with the LEDs on the market, but each customer must take necessary measures to ensure complete compatibility with his particular product and its components. Testing and verifying of the adhesives and their combinations is always on the customer's responsibility. For extreme conditions (heavy or prolonged exposure to high ultraviolet radiation, moisture, temperature changes, constant or sudden vibrations etc.) LEDiL recommends to use glue or screws to ensure reliable operation. Please take note of the Instructions of Use below

Technical properties

- Installation pressure: 11N/cm²
- Maximum recommended weight load: 15g/cm²
- Assembly temperature range: +10°C ... +40°C
- Usage temperature range, when cured: -40°C ... +120°C
- Minimum 20% compression required to effect water seal
- Excellent conformability
- Good resistance to dilute acids and alkalis
- UV light resistance tested according to ASTM G53-84 (details below) by tape manufacturer
- Resistance to abrasion, corrosion and moisture
- Suitable for indoor and outdoor environments
- Strong pushing may break the tape structure (closed full cell) and may also break LEDs which in some cases are very close to the lens surface
- 1 year expected shelf-life from purchase from LEDiL Identification information

Test results

TEST	UNIT	NOMINAL VALUE
10 min 180° peel adhesion	N/25 mm	11
500 h static shear (stainless steel)	kg/cm2	0.16
Tensile strength	N/cm2	220
Elongation at break	%	350
150 h static shear at 70°C	kg/cm2	0.2

Test properties, standards & approvals

LEDiL Oy follows guidance from REACH regulation 1907/2006/EC, which in article 31 defines for which kind of products Safety Data Sheets (SDS) are required : SDS are compulsory for “substances”, generally required for “preparations”, but are not requested for “articles”. Adhesive tapes are considered as “articles” as they follow the definition “an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition “

Conforms to European Directive 2000/53 EC (lead, chromium VI, mercury, cadmium free).

Approved to ESK-M3G162, WSK-3G184-A4, RES22LA06.

The foam products used with LEDIL lenses and assemblies have been subject to testing by various artificial weathering techniques and evaluations have been performed in accordance with ASTM G53-84, using a QUV weatherometer. Samples were subjected to repeated 4h cycles of UV-light at 50°C followed by 4h cycles of 100% humidity at 40°C during a standard test period of 3000 hours, after which no significant signs of deterioration or reduction in product performance shall be noted.

General instructions of use

Assembly to the surface must be made straight, so the tape bonds constant and balanced with fastening surface. Slanted assembly might cause an unbalanced bond to the surface. All surfaces where tape is applied must be clean, dry and free from grease and dirt. If cleaning of PCB surfaces is needed, please follow strictly the cleaning instructions of your LED manufacturer - this is important as cleaning in some circumstances can damage LEDs or other electronic components.

Please also note that optical components shall not be cleaned with any chemicals - only micro fibre cloth may be used to remove fingerprints or other traces from handling. Remember to ascertain the compatibility of the different substrates. Note that humidity and temperature fluctuation weaken the adhesiveness of the tape.

During assembly the optic when placed on the PCB should be firmly held for 3-5 seconds to ensure the best possible bond. The tape will reach its final strength in 72 hours, again, depending on the material and the ambient conditions.

We request the customer ensures and fully tests the suitability and sufficiency of the bond in his product. For example, mechanical stress, vibration and holes on the surface of the circuit board can weaken the strength of the tape.

Disclaimer

LEDiL cannot take responsibility for the results obtained by others whose methods we cannot control. It is always the customer's responsibility to determine the adhesive's suitability for their product and to take precautions for protection of property and persons against any hazards that may be involved in the handling and use of adhesives. LEDiL disclaims all warranties, including warranties of merchantability or suitability for a particular purpose, arising from use of any adhesive product. LEDiL disclaims any liability for consequential or incidental damages of any kind, including lost profits.