Jet-melt™

3748 Adhesive

Product Data Sheet

Updated : March 1996
Supersedes : December 1993

Product Description

Jet-melt Adhesive 3748 is a tough, flexible hot melt adhesive which exhibits excellent low temperature thermal shock properties with good heat resistance. It shows high peel adhesion to many substrates especially normally hard to bond materials such as polypropylene and polyethylene. 3748 also exhibits excellent electrical and non-corrosive properties.

Physical Properties
Not for specification purposes

Base	Polyolefin	
Colour	Off-White	
Viscosity cP [1]	at 160°C - 12500 at 180°C - 6500 at 200°C - 4000	
Temperature Control Setting	4	
FDA Accepted [2]	Yes	
Sizes Available	26 x 73 mm for the Jet-melt Air Powered Applicator. 15 x 203 mm for the Jet-melt Touch Control Quadrack Applicator. 15 x 48 mm for the Jet-melt Touch Control Applicator.	
Shelf Life	12 months from date of despatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity	

1 Brookfield Thermosel Viscometer.
2 FDA Reg. 175.105 (adhesives) CFR Title 21.

Performance Characteristics
Not for specification purposes

Ball and Ring Softening Point [3]	145 °C	
Heat Resistance	80°C	
Tensile Strength at 22°C	2.6 MPa	
Elongation	1100 %	
Bonding Range 3mm bead [4]	45 seconds	

3 ASTM E-28-6-7.
4 3mm semi circular bead, Douglas Fir to Douglas Fir.

Performance Characteristics (Cont...)
Not for specification purposes

Overlap Shear Strength

3M/AC & S Test Method C-3096

Substrate	OLS (psi)
Douglas Fir	235-240
Epoxy Glass FR-4	200-210
Polyethylene (High Density)	233
Polypropylene (High Density)	221-260
ABS	220-270

180° Peel Strength

3M/AC & S Test Method C-3168

Substrate	Peel Strength (PIW)
Douglas Fir	45
Epoxy Glass FR-4	43
Polyethylene (High Density)	35
Polypropylene (High Density)	35
ABS	45

Thermal Shock Resistance

3M/AC & S Test Method C-3167

Liquid to Liquid	Air to Air
Passes 20 cycles +90°C/-40°C	Passes 100 cycles +90°C/-40°C

Thermal Co-efficient of Expansion	180 x 10^{-6} cm/cm/°C	
Dielectric Constant at 1 KHz (ASTM D 150)	2.3 at 23°C*	
Dissipation Factor at 1 KHz (ASTM D 150)	0.0010 at 23°C*	
Dielectric Strength at 1 KHz (ASTM D 149)	1300 Volts/Thou*	
Volume Resistivity (ASTM D 257) at 500 Volts	7.0 x 10^{17} ohm-cm	
Electrolytic Corrosion Resistance	Measurement of electrolytic corrosion to bare copper wire after exposure to 96% RH/35°C/45 volt bias/15 days. Positive Wire - no visual corrosion. Negative Wire - no visual corrosion	
NB *	Data at different frequencies available on request.	

Applications	3748 is particularly suitable for the bonding and rigidisation of components on printed circuit boards where thermal and mechanical shock resistance is required.	3748 is also suitable for bonding low energy plastics such as polypropylene and polyethylene. Typical uses for 3748 include rigidising components, potting, wire fastening, sealing connectors, vibration	protection, stabilising loose components, coil termination, coil attachment, holding components prior to soldering, insulation of bare conductors, polyolefin box bonding and sealing polyolefin coated carbon boxes.
Specifications	FDA listed per regulation 175.105 (Adhesives) CFR Title 21 (Each chemical ingredient is listed in Title 21 code - requires a functional barrier between food and the adhesive, except at the margins)	U.L. Recognition (File No. E.16941) **UL94** Flammability V-2.	**UL 1410** **RTI** (Relative Thermal **HWI** (Hot Wire Ignition) **HAI** (High Ampere Ignition) 200+ Secs. **CTI** (Comparative **HBI** (Hot Bar Ignition) 30+
Health and Safety Information	Hot adhesive vapours may irritate eyes and respiratory system. Do not touch hot extruded adhesive or applicator tip. Avoid prolonged breathing of vapours.	Avoid eye exposure to heated product vapours. In case of skin contact with hot adhesive, immediately flush with cold water and cover with a clean dressing. Do not attempt to remove adhesive, have burn treated by a doctor.	For further health and safety information, please contact the 3M Toxicology Department in Bracknell on (0344) 858000.

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