3M

Scotch-Weld™

Acrylic High Performance Water-based Insulation Adhesive 49

Product Data Sheet

Updated : February 2010
Supersedes : April 2001

Product Description

3M Scotch-Weld Acrylic High Performance Water-based Insulation Adhesive 49 is a water-based, high solids, fast tacking, pressure sensitive adhesive for bonding lightweight materials like glass fibre insulation, felt, paper and other materials.

Construction

Base	Acrylate
Viscosity	450 – 650 mPa's
Brookfield Viscometer	RVF#3 spindle at 20 rpm and 25°C
Solids Content (by weight)	53 – 57 %
Colour	Wet - Milky White Dry - Clear
Density (approx.)	0.99 g/cm^{33}
Flash Point (closed cup)	None
Coverage (at 50g/m² of wet product applied)	20 m²/l
pH	4.1 – 4.5
Flammability	Wet - Non-flammable Dry - Combustible

Performance Characteristics

180° Peel and Overlap :
Adhesive was tested in 180° (angle) peel and overlap shear by first applying a 0.15mm (wet thickness) coating of adhesive to a primed polyester film. After drying, bonds were made to various substrates. Test results after 48 hours at 23° were as follows

Substrate	Peel Strength N/10mm	Overlap Shear (Mpa)
Glass	2.8	0.37
Cold Rolled Steel	5.2	0.40
2024 T3 Aluminium	4.0	0.36
Clad Aluminium	4.9	0.36
Stainless Steel	5.6	0.36
High Density Polyethylene	0.9	0.24
Polypropylene	3.8	0.27
High Impact Polystyrene	9.8	0.37
PVC	7.9	0.39
ABS	8.2	0.35
Polycarbonate	9.1	0.40
Acrylic	6.8	0.36
Neoprene Rubber	2.3	0.08
EPDM	1.8	0.10

Wet Strength: Adhesive was spray applied on 150 x 300 x 25 mm pieces of 24 kg/m³ density glass fibre insulation at the recommended coverage level. After 1 minute of drying at room temperature, the glass fibre was bonded (using hand pressure) to 150 x 300 mm galvanised steel panels pre-bent to form a 90° angle.

The wet strength of the adhesive was sufficient to hold the glass fibre in place.

Heat Resistance: The bonded panels above were allowed to air dry for 24 hours and then they were placed in an oven at 53°C for 15 minutes. The temperature was then raised 8°C every 10 minutes until 162°C was achieved. No failure of the glass fibre to the substrate was observed within this temperature range.

Accelerated Ageing: Adhesive was spray applied to pieces of 24 kg/m^3 density glass fibre insulation at the recommended coverage rate. The glass fibre was then bonded to galvanized steel panels and allowed to air dry for 24 hours. After drying, the bonded panels were aged in an oven at 160°C for 60 days. Bond strength sufficient to tear glass fibre was observed after ageing.

Humidity Resistance: As above, 24 kg/m^3 density glass fibre was bonded to galvanized steel and aged for 60 days at 60°C and 95-100% relative humidity. Bond strength sufficient to tear glass fibre was observed after ageing.

Directions for Use

Surface Preparation:
Surfaces must be clean, dry and dust free. Remove all dirt, dust, oil, grease, wax, loose paint, etc, to ensure proper adhesion.

Dispensing:
Adhesive may be applied by spray, brush or paint roller. Apply a uniform, generous coat of adhesive to one of the surfaces to be bonded (porous surface preferred). Very porous materials may require more than one coat (allow adhesive to dry completely between coats).

Note: Because this adhesive contains water, all pumping and spray equipment wetted parts should be stainless steel or plastic for maximum durability. All fluid hoses should be nylon or polyethylene lined.

Coverage:
Coverage is dependent upon porosity of the substrate and the method by which the adhesive is applied. To bond glass fibre insulation, apply the adhesive to the insulation in a uniform pattern at a coverage rate of approx. 50 g/m^2, which allows to cover 20 m^2/l. Additional adhesive may be required for heavier materials.

Drying:
Allow adhesive to dry until the surface becomes tacky. The insulation may then be bonded using hand pressure. Bonded parts may be handled immediately.

Cleanup:
Wet adhesive may be removed using soapy water. For dry adhesive removal, use 3M Scotch-Weld Solvent No. 2 or 3M Citrus Cleaner. When using solvents, extinguish all sources of ignition in the area and observe proper precautionary measures for handling
such materials.

Storage Conditions	**Protect from freezing!** Best storage temperature is between 15-25°C. Higher temperatures reduce normal storage life. Lower temperatures can cause increased viscosity of a temporary nature. This water-dispersed adhesive will become unusable with prolonged storage below 4°C. Rotate stock on a "first in, first out" basis.
Health and Safety Information	Refer to product label and Material Safety Data Sheet for health and safety information before using the product. For information please contact your local 3M Office www.3M.com
Shelf Life	3M SW 49 has a shelf life of 12 months from date of dispatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity
Precautionary Information	Refer to product label and Material Safety Data Sheet for health and safety information before using the product. For information please contact your local 3M Office. www.3M.com
For Additional Information	To request additional product information or to arrange for sales assistance, call…… Address correspondence to: 3M
Important Notice	All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application. All questions of liability relating to this product are governed by the terms of the sale subject, where applicable, to the prevailing law

Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications.
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