

Mor-Ad™ M-650 Laminating Adhesive

One-Part Industrial Urethane Adhesive for Stronger Penetration

FEATURES/BENEFITS

Description

Mor-Ad™ M-650 Laminating Adhesive* is a one-part, moisture-cure, industrial urethane adhesive designed for application with a roll coater. **Mor-Ad™ M-650** was specifically engineered for applications requiring good adhesive penetration into the foam core. It will bond fiber-reinforced plastic (FRP), primed metal and treated engineered plastics to foam and wood composite cores. **Mor-Ad™ M-650** is one product in the full line of Mor-Ad™ Laminating Adhesives, available in both one and two-part urethane adhesive designed for semi-continuous and continuous laminators.

Ease of Use

Mor-Ad™ M-650 is easy to handle, use and apply. Some features include:

- Solvent-free liquid with good flow and transfer properties
- Bonds strongly to a wide variety of materials
- Excellent resistance to heat, cold, and moisture

Common applications for Mor-Ad™ adhesives include:

- Structural insulated panel (SIP) adhesion
- Garage doors
- Walk-in coolers & freezers
- Architectural panels
- Sunroom panels
- RV lamination
- Miscellaneous panel lamination

Available Sizes

Mor-Ad™ M-650 is sold in 55 gallon steel drums and totes, available through select distributors or directly from DuPont.

PROPERTIES

Mor-Ad™ M-650 Laminating Adhesive exhibits physical properties as indicated in Tables 1 and 2 when tested as represented. Review all instructions and (Material) Safety Data Sheet ((M)SDS) before use. Please contact DuPont at 1-866-583-2583 when additional guidance is required for writing specifications that include this product.

TABLE 1: Typical Physical Properties for Mor-Ad™ M-650 Laminating Adhesive

Property	Typical Value
Appearance	Syrupy liquid
Color	Light straw
Solids, %	100
Viscosity (Brookfield RVT, #4 Spindle, 10 rpm), Cps@ 25°C	4500 nominal
Working and cure time	Refer to Table 2
Density	9.59 lbs/gal (1.15 kg/L)
Flash point (Setaflash), °F	>200 (93°C)

* Mor-Ad™ M-650 is a former product of The Dow Chemical Company

TABLE 2: Cure Schedule* for Mor-Ad™ M-650 Laminating Adhesive

Application rate of 12 g/sq.ft. adhesive (129 g/sq.m.) and 2 g/sq.ft. water (22 g/sq.m.) Primed Aluminum – EPS

Temperature	Maximum Working Time		Press Time	
	Metal or Plastic to Foam	OSB-Foam	Metal or Plastic to Foam	OSB-Foam
50°F (10°C)	94 Minutes	96 Minutes	138 Minutes	211 Minutes
55°F (13°C)	84 Minutes	85 Minutes	121 Minutes	174 Minutes
60°F (16°C)	74 Minutes	76 Minutes	107 Minutes	146 Minutes
65°F (18°C)	65 Minutes	68 Minutes	94 Minutes	124 Minutes
70°F (21°C)	58 Minutes	61 Minutes	83 Minutes	106 Minutes
75°F (24°C)	51 Minutes	54 Minutes	73 Minutes	92 Minutes
80°F (27°C)	45 Minutes	48 Minutes	64 Minutes	81 Minutes
85°F (29°C)	40 Minutes	43 Minutes	57 Minutes	72 Minutes
90°F (32°C)	36 Minutes	38 Minutes	50 Minutes	64 Minutes
95°F (35°C)	31 Minutes	34 Minutes	44 Minutes	57 Minutes
100°F (38°C)	28 Minutes	31 Minutes	39 Minutes	51 Minutes
105°F (41°C)	25 Minutes	27 Minutes	34 Minutes	47 Minutes

*Panels must be under pressure within the stated maximum working time. This information is based on a continuous thin film and is to be used as a guideline. Actual parameters must be verified at the facility where the product is to be used.

INSTALLATION

Use Conditions

A cure schedule detailing maximum working time and press time at varying temperatures for **Mor-Ad™ M-650 Laminating Adhesive** can be found in Table 2.

Application

Mor-Ad™ M-650 industrial adhesive is designed to be applied via roll coater. Water mist on the adhesive surface is recommended to ensure uniform cure rate.

Notice

ICC Evaluation Service, Inc. (ICC-ES) has confirmed that **Mor-Ad™ M-650** complies with the provisions of the 2009 International Building Code (2009 IBC), 2009 International Residential Code (2009 IRC), 2006 International Building Code (2006 IBC), and 2006 International Residential Code (2006 IRC). This confirmation, as evidenced in ICC-ES evaluation report ESR-1023, provides guidance to code officials faced with approving the use of **Mor-Ad™ M-650** these codes. The evaluation report is available online at www.icc-es.org.

Contact your DuPont sales representative or local authorities for state and local building code requirements and related acceptances.

HANDLING

WARNING: For Professional Use Only. Read and follow the entire Handling section and the Safety Data Sheets (SDSs, formerly MSDSs or Material Safety Data Sheets) carefully before use. The information below is designed to protect the user and allow for safe use and handling of DuPont™ products. Follow all applicable federal, state, local and employer regulations.

Precautionary Statements

- **Mor-Ad™ M-650 Laminating Adhesive** is moisture reactive and must be protected from undue exposure to moisture.
- Use only in well ventilated area away from open flames, sparks, or excessive heat.
- Avoid unnecessary contact with skin and eyes.

Clean Up and Purge

- To clean up **Mor-Ad™ M-650** before it has cured, use DBE (dibasic ester) or propylene carbonate.
- Use all solvents with care. Make sure there is adequate ventilation. Read and understand the MSDS provided with the solvent.

Shelf Life and Storage

- Ideal storage temperatures for **Mor-Ad™ M-650** are between 50-75°F (10-24°C).
- When stored as directed, and in the original unopened containers, at 70°F (21°C), **Mor-Ad™ M-650** has a shelf life of 1 year from the date of manufacture.
- Containers of **Mor-Ad™ M-650** should be stored under cover and protected from contact with rain or snow. Water should not be allowed to accumulate on the drums or pails where it can be drawn into the containers.
- Once opened, containers of the adhesive should be used immediately or protected by a blanket of dry nitrogen when standing unused.

Disposal

Dispose of any residual DuPont™ product, coated debris, or solvent in accordance with applicable federal, state, and local government regulations.



**For more information visit us at
building.dupont.com/morad
or call 1-866-583-2583**

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