

Veneer Technologies
Post Office Box 1145
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WOOD AND WOOD PRODUCTS
(NON UREA-FORMALDEHYDE BONDED)
MATERIAL SAFETY DATA SHEET
PAGE 1 OF 2

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME.....Wood and Wood Products
 (Non Urea-Formaldehyde Bonded)

MANUFACTURER/DISTRIBUTOR:

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SECTION II - HAZARDOUS INGREDIENTS

None, however, sawing, sanding or machining wood products can produce wood dust as a byproduct.

SECTION III - PHYSICAL PROPERTIES

APPEARANCE AND ODOR. Light to dark colored granular solid.
 Color and odor is dependent on the wood species.

MOLECULAR WEIGHT..... Not Applicable
 BOILING POINT (DEGREES FAHRENHEIT)..... Not Applicable
 MELTING POINT (DEGREES FAHRENHEIT)..... Not Applicable
 VAPOR PRESSURE (MM OF MERCURY)..... Not Applicable
 SPECIFIC GRAVITY (WATER = 1)..... <1
 VAPOR DENSITY (AIR = 1)..... Not Applicable
 PERCENT VOLATILE (BY WEIGHT)..... Not Applicable
 pH..... Not Applicable
 SOLUBILITY IN WATER..... Insoluble
 EVAPORATION RATE (BUTYL ACETATE = 1)..... Not Applicable

SECTION IV - FIRE AND EXPLOSION DATA

UNUSUAL FIRE AND EXPLOSION HAZARDS: Sawing, sanding or machining wood products can produce wood dust as a byproduct. Wood dust is a strong to severe explosion hazard if a dust "cloud" contacts an ignition source. Partially burned dust is especially hazardous if dispersed in air. 212 degrees Fahrenheit has been suggested as the upper temperature limit for continuous exposure for wood without risk of ignition. (Wood dust may require a still lower temperature). An airborne concentration of 40 grams of dust per cubic meter of air is often used as the lowest explosion limit (LEL) for wood dust.

FLASH POINT..... Not Applicable

FIRE EXTINGUISHING MEDIA: Use a water spray to wet down wood dust to reduce the likelihood of ignition or dispersion of dust into the air. Remove burned or wet dust to open area after fire is out.

SECTION V - REACTIVITY DATA

STABILITY..... Stable
 INCOMPATIBILITY (MATERIALS TO AVOID): Oxidizing agents and drying oils.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal-oxidative degradation of wood produces irritating and toxic fumes and gases including carbon monoxide, aldehydes and organic acids.

HAZARDOUS PLOYMERIZATION..... Will not occur
 CONDITIONS TO AVOID: Wood dust is extremely combustible. Keep in cool, dry place away from ignition sources.

SECTION VI - HEALTH HAZARD INFORMATION

COMPONENT	ACGIH TLV	OSHA
Wood Dust (1)	5 mg/m3(2) 10 mg/m3(3)	5 mg/m3(2) 10 mg/m3(3)
Wood Dust (4)	NA	2.5 mg/m3(2)
Wood Dust (5)	1 mg/m3(2)	NA

- (1) All soft and most hardwoods except Western Red Cedar, Beech and Oak.
 - (2) 8 Hour TWA.
 - (3) STEL.
 - (4) Western Red Cedar.
 - (5) Certain hardwood such as Beech and Oak.
- NA = Not Applicable.

EFFECTS OF OVEREXPOSURE: Avoid prolonged or repeated breathing of wood dust in air. Repeated exposures (even below 5mg/m3) to certain wood dusts, such as western red cedar, can produce allergenic responses in some sensitive individuals. Avoid repeated or prolonged contact with the skin, which can also cause allergenic responses. If allergy, such as dermatitis, asthma, or bronchitis develops, it may be necessary to remove the sensitized worker from further exposure to wood dust (and also, perhaps to wood-based products like turpentine and rosin)

PROBABLE ROUTES OF EXPOSURE.....Inhalation, skin

EMERGENCY AND FIRST AID PROCEDURES:

INGESTION: Not applicable under normal use.

INHALATION: Remove to fresh air. If persistent irritation, severe coughing, breathing difficulties, or rash occur, get medical advice before returning to work with wood dust.

EYE CONTACT: Flush with water to remove dust particles from the eye. If irritation persists, get medical attention.

SKIN CONTACT: If a rash, or persistent irritation or dermatitis occur, get medical advice before returning to work where wood dust is present.

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SECTION VII - TOXICITY DATA

ORAL.....Not Available

DERMAL: The chronic effects of skin contact with wood dust vary from one wood species to another, however, various species of wood dust can elicit allergic contact dermatitis in sensitized individuals.

INHALATION: Wood dust may cause nasal dryness, irritation, coughing and sinusitis. Prolonged exposure to certain species of wood dust has been associated with nasal cancer in British furniture workers.

CARCINOGENICITY: Listed as a nasal carcinogen by IARC.

OTHER PERTINENT DATA: Certain species of woods, e.g. boxwood cashew, mahogany, western red cedar, yew, rosewood, satinwood, and teak, are known to cause skin, eye and upper respiratory tract irritation along with allergenic responses and asthma (Patty, pg. 1218).

SECTION VIII - SPECIAL PROTECTION INFORMATION

PERSONAL PROTECTIVE EQUIPMENT

PROTECTIVE CLOTHING: Recommend gloves, as necessary, to reduce skin contact, except where moving machinery parts expose fingers to hazards. Recommend the use of outer garments to reduce exposure of skin to wood dust.

EYE PROTECTION: Recommend goggles or safety glasses as conditions indicate when machining this product.

RESPIRATORY PROTECTION (SPECIFIC TYPE): Recommend approved dust respirator as conditions indicate when machining this product.

* Protective equipment may be warranted at low exposure levels, depending on species of wood dust exposure.

VENTILATION

LOCAL EXHAUST: As necessary to meet OSHA requirements. Due to the explosive potential of wood dust when suspended in air, precautions should be taken to prevent sparks or other ignition sources in ventilation equipment. Use of totally enclosed motors is recommended.

SECTION IX - SPILL, LEAK AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Vacuum up dust for recovery or disposal. Avoid dusty conditions. Provide good ventilation. Place recovered wood dust in a container for proper disposal. Avoid sweeping to prevent creation of airborne dust.

WASTE DISPOSAL METHODS: Dispose in a landfill or incinerate. Follow applicable federal, state or local regulations.

SECTION X - REGULATORY INFORMATION

TSCA..... Not listed on TSCA inventory
DOT..... Not regulated

SECTION XI - SPECIAL PRECAUTIONS AND COMMENTS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Avoid hot, humid storage or contact with drying oils (spontaneous heating is possible). Partially burned or scorched wood dust can be hazardous to store.

Avoid generation of explosive levels of wood dust in the air.

Follow good housekeeping practices: vacuum up areas where wood dust settles to avoid excessive accumulation of this combustible material.

Follow good hygienic practices: wash hands frequently and wear clean work clothing.

EFFECTIVE DATE..... 10/18/94 SUPERSEDES..... All Previous

IMPORTANT: The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations.

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This Material Safety Data Sheet is being furnished for similar products produced by different manufacturers. Consult labels, stamps and markings on the product or packaging for the exact identity of the manufacturer.



Jowat CORPORATION

TECHNICAL INFORMATION

Randolph Industrial Park P.O. Box 1368
High Point, N.C. 27261
Phone: 1-800-322-GLUE (4910) 431-7128
FAX: 910-431-8526

JOWACOLL 102 70 WATER RESISTANT ASSEMBLY GLUE

BASIS:	Polyvinyl Acetate - (PVA) <i>edgebanding, Floor col.</i>
TECHNICAL DATA:	<p>Viscosity (mPas/cPs): approx. 15,000 (Brookfield)</p> <p>Solids (%): approx. 50</p> <p>Density (g/ml): approx. 1.1 (9.1 lbs/gal)</p> <p>pH value: approx. 3</p> <p>Color of glue film: White - opaque</p>
CHARACTERISTICS:	Self-crosslinking PVA glue; highly water resistant, fulfills D3 after DEN 68602. Excellent bond strength and durability.
CAUTION:	May cause discoloration of veneer in flat press applications.
APPLICATIONS:	HF/RF applications; KA edgebanding; assembly of windows and furniture for moist conditions (bathroom, kitchen, etc.) as well as for dowel driving units with a high pressure pump.
DIRECTIONS FOR USE:	<p>Minimum working temp: 15°C (58°F) (Substrates, Glue and Work Area)</p> <p>Glue application: one sided</p> <p>Glue thickness: 4-6 mil wet=10-16 g/sqft</p> <p>Open time: approx. 8 - 10 minutes</p> <p>Pressing time: approx. 20-30 minutes (depending on the substrates to be glued)</p> <p>Pressure: 30 psi minimum = 2 kp/sqcm = .2 N/sqmm</p>
	This glue can be used in combination with Jowat Hardener 195 40 to fulfill D4 requirements, 4% (by weight) hardener must be added for best results. Tested according to Jowat Test Methods. Customer trials are recommended.
CLEANING:	Fresh glue may be removed with cold (preferably warm) water. Dried glue must be removed mechanically.
STORAGE:	After longer storage periods, glue should be stirred before use. Up to 6 months at approx. 20°C (68°F) in closed original container. Protect glue from freezing!
PACKAGING:	In plastic containers of 20 and 50 lbs net or in 55 gallon metal drums with PE lining. Special packaging upon request
MARKING:	Consult Material Safety Data Sheet.
DATE REVISED:	April 1995 (N)

The details given in this leaflet are based on our practical experience and on results of tests in the field without guarantee or representation as to results. Due to variation in materials when used in performance of this product. In addition, our free technical information service does not guarantee performance. The only obligation the seller shall have is to replace or pay for any material's performance no liability for damages of any kind and the user accepts the product "as is" and without



Jowat

CORPORATION

TECHNICAL INFORMATION

Randolph Industrial Park P.O. Box 1368
High Point, N.C. 27261
Phone: 1-800-322-6142 (S.O.) 434-1126
FAX: 910-431-8526

JOWATHERM 295 30 PRECOATING HOTMELT

BASIS:	Ethylene - Vinyl Acetate (EVA)	<i>Edgebanding reglued</i>
TECHNICAL DATA:	Viscosity (mPas/cPs):	approx. 120,000 at 190°C (374°F) Brookfield-Thermosel approx. 90,000 at 200°C (392°F) approx. 70,000 at 210°C (410°F)
	Density (g/ml):	approx. 1.40 (11.5 lbs/gal)
	Softening Range:	approx. 80 - 85°C (176-185°F) Heatbench
	Softening Point:	approx. 100 - 110°C (212-230°F) Ring & Ball
	Heat resistance:	approx. 65 - 70°C (145-158°F) WPS 68
	Cold resistance:	approx. -10 to -15°C (14-5°F) KPS 73
	Color:	30-natural, 31-white
CHARACTERISTICS:	Medium viscosity precoating hotmelt with elastic glue line. Good heat resistance, color and heat stability in the melt.	
APPLICATIONS:	Especially designed for precoating veneer, resin impregnated paper edgebands and similar. Good wetting and adhesion properties.	
DIRECTIONS FOR USE:	Application temp:	190 - 210°C (374-410°F) in the melt
	Reactivation temp:	approx. 100°C (212°F)
	The structure of the edge material and working conditions may influence the bond.	
	Tested according to Jowat Test Methods. Customer trials are recommended.	
CLEANING:	Preliminary cleaning while hot by scraping with a spatula; when cold with Jowat Cleaner 401 20.	
STORAGE:	At least 12 months in dry and cool (15-25°C/58-76°F) conditions according to our experience.	
PACKAGING:	In paper bags of 55 pounds net.	
MARKING:	None. We recommend drawing off any vapors which may form. Consult Material Safety Data Sheet.	
DATE REVISED:	March 1995 (S)	

The details given in this leaflet are based on our practical experience and on results of tests in our laboratory. The recommendations and suggestions contained herein are made without guarantee or representation as to results. Due to variation in materials when used in conjunction with this product, no guarantee can be given for the performance of this product. In addition, our free technical information service does not guarantee any results. We do recommend that you carry out your own tests first. **IMPORTANT:** The only obligation the seller shall have is to replace or pay for any material proved defective. Beyond the purchase price of material supplied by us, we assume no liability for damages of any kind and the user accepts the product "as is" and without warranties expressed or implied. The determination of suitability of this product for an intended use shall be solely up to the user.



Adhesive Transfer Tapes with Adhesive 220

9502 • 9502HL • 9502R • 9505 • 9505HL • 9505R

Technical Data

October, 2003

Product Description

3M™ Adhesive Transfer Tapes with 3M™ Adhesive 220 is an economical choice for general industrial bonding of metals, painted metals and high surface energy plastics.

Construction

Product Number	Adhesive Type/Color	Adhesive Thickness ¹ (mils, mm)	Liner Color, Type, Print	Liner Caliper
3M™ Adhesive Transfer Tape 9502	220/ Clear	2.3 mils (0.06 mm)	Tan, 58#, Polycoated Kraft with green "3M" logo	4.2 mils
3M™ Adhesive Transfer Tape 9505	220/ Clear	4.9 mils (0.12 mm)	Tan, 58#, Polycoated Kraft with green "3M" logo	4.2 mils
3M™ Adhesive Transfer Tape 9502HL	220/ Clear	2.3 mils (0.06 mm)	Tan, 83#, Polycoated Kraft with green "3M" logo	6.2 mils
3M™ Adhesive Transfer Tape 9505HL	220/ Clear	4.9 mils (0.12 mm)	Tan, 83#, Polycoated Kraft with green "3M" logo	6.2 mils
3M™ Adhesive Transfer Tape 9502R	220/ Clear	2.3 mils (0.06 mm)	White, Polycoated Glassine with white "3M" logo	3.5 mils
3M™ Adhesive Transfer Tape 9505R	220/ Clear	4.9 mils (0.12 mm)	White, Polycoated Glassine with white "3M" logo	3.5 mils

Note 1: The caliper listed is based on a calculation from manufacturing controlled adhesive coat weights using a density of 1.012 g/cc. While past data pages have listed nominal calipers of 2 and 5 mils, the coat weight (and theoretical caliper) has not changed.

When bonding a thin, smooth, flexible material to a smooth surface, it is generally acceptable to use 2 mils of adhesive. If a texture is visible on one or both surfaces, the 5 mil adhesive would be suggested. If both materials are rigid, it may be necessary to use a thicker adhesive to successfully bond the components. 3M™ VHB™ Acrylic Foam Tapes may be required (please refer to the data page for VHB tapes).

Liner configuration guide:

General purpose steel rule die cutting	58# polycoated kraft (PCK)
Steel rule cutting many nameplates on common sheet	83# PCK
Kiss cutting, steel rule	83# PCK
Rotary die cutting	3.5 mil polycoated glassine (PCG)

The polycoated kraft and glassine liners are more resistant to humidity curl and wrinkling than standard plain paper liners.

3M™ Adhesive Transfer Tapes with Adhesive 220

9502 • 9502HL • 9502R • 9505 • 9505HL • 9505R

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

I. Adhesion to stainless steel

ASTM D3330 modified (90 degree peel, 2 mil aluminum foil backing)

Dwell on stainless steel:	2.3 mil (.0023 inches) Oz./in. N/100 mm		4.9 mil (.0049 inches) Oz./in. N/100 mm	
	15 minute room temperature (RT)	40	44	53
72 hour RT	74	80	98	107
72 hour 158°F (70°C)	131	143	173	189

II. Adhesion to Other Surfaces²

ASTM D3330 modified (90 degree peel, 2 mil aluminum foil backing)

Dwell/substrate:	2.3 mil (.0023 inches) Oz./in. N/100 mm		4.9 mil (.0049 inches) Oz./in. N/100 mm	
	72 hour RT ABS	55	60	65
72 hour RT glass	70	77	89	97
72 hour RT polycarbonate	55	60	63	69

III. Relative High Temperature Operating Ranges

Short term (minutes/hours)

350°F (177°C)

Long term (days/weeks)

250°F (121°C)

IV. Static Shear - ASTM D3654 - 1" x 1" sample area - aluminum foil to stainless steel

Temperature	Load	Minutes to Failure	
		2 mil	5 mil
70°F (21°C)	2000 grams	5,000	5,000
158°F (70°C)	1000 grams	4,000	4,000

V. Shelf Life of Tape in Roll Form

24 months from the manufacturing date when stored at 70°F (21°C) and 50% relative humidity.

VI. Environmental Performance

The 3M™ Adhesive 220 family is resistant to occasional splashes of organic materials including MEK, automotive oil, weak acid and base solutions and gasoline. These adhesives are also resistant to humidity and intermittent water exposure.

VII. Low Service Temperature

The glass transition temperature, T_g, for 3M adhesive 220 is -31°F (-35°C). Many applications survive below this temperature. Factors to consider are: the materials being bonded, the dwell at RT before cold exposure and the stresses below the T_g (ie. expansion/contraction stresses, impact). Optimum conditions are: bonding HSE materials, longer time at RT before cold exposure and little or no stress below the glass transition temperature.

Note 2: 3M adhesive 220 is not recommended for low energy plastics (polypropylene, polyethylene, powder coated paints). For these surfaces please refer to the 3M™ Adhesive 300, 350, 300 LSE and 300MP product families.

3M™ Adhesive Transfer Tapes with Adhesive 220

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Available Sizes	Product Number	Master Size	Slit Width (minimum)	Roll Length ³	Core Size	Slit Tolerance
	3M™ Adhesive Transfer Tape 9502	48" and 60"	1/2"	60 - 360 yards	3"	± 1/32"
	3M™ Adhesive Transfer Tape 9505					
	3M™ Adhesive Transfer Tape 9502HL	48"	1/2"	60 - 360 yards	3"	± 1/32"
	3M™ Adhesive Transfer Tape 9505HL					
	3M™ Adhesive Transfer Tape 9502R	48"	1/2"	60 - 360 yards	3"	± 1/32"
	3M™ Adhesive Transfer Tape 9505R					

Note 3: Roll lengths vary by product slit width (the customer service department has more detailed information, 1-800-328-1691).

Application Techniques

For maximum bond strength (during installation of the final part) the surface should be thoroughly cleaned and dried. Typical cleaning solvents are heptane (for oily surfaces) or isopropyl alcohol for plastics.* Use reagent grade solvents since common household materials like rubbing alcohol frequently contain oils to minimize the drying affect on skin. These oils can interfere with the performance of a pressure-sensitive adhesive. Also, use disposable wipes, that do not contain oils, to remove the cleaning solvents.

*Note: Carefully read and follow cleaning solvent manufacturer's precautions and directions for use. These cleaning recommendations may not be compliant with the rules of certain Air Quality Management Districts in California; consult applicable rules before use.

It is necessary to provide pressure during lamination (10-20 pli recommended) and during final part installation (10-15 psi) to allow the adhesive to come into direct contact with the substrate. Using a hard edged plastic tool, which is the full width of the laminated part, helps to provide the necessary pressure at the point of lamination. Heat can increase bond strength when bonding to metal parts (generally this same increase is observed at room temperature over longer times, weeks). For plastic parts, the bond strength is not enhanced with the addition of heat.

The ideal adhesive application temperature range is 70°F (21°C) to 100°F (38°C). Application is not recommended if the surface temperature is below 50°F (10°C) because the adhesive becomes too firm to adhere readily. Once properly applied, at the recommended application temperature, low temperature holding is generally satisfactory (please refer to section VII of the Typical Physical Properties and Performance Characteristics).

Application Equipment

To apply adhesives in a wide web format, lamination equipment is required to ensure acceptable quality. To learn more about working with pressure-sensitive adhesives please refer to technical bulletin, Lamination Techniques for Converters of Laminating Adhesives (70-0704; 430-8).

For additional dispenser information, contact your local 3M sales representative, or the toll free 3M sales assistance number at 1-800-362-3550.

3M™ Adhesive Transfer Tapes with Adhesive 220

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Application Ideas

- Attachment of nameplates, appliques and decorative trim to metal and high surface energy plastics.
- Lamination to sub-surface printed polycarbonate or polyester graphic overlay materials.
- Used in the automotive, appliance and electronic industries for cost-effective, long-term bonding applications.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-223-7427 or visit www.3m.com/converter. Address correspondence to: 3M Industrial Adhesives and Tapes Division, Building 21-1W-10, 900 Bush Avenue, St. Paul, MN 55144-1000. Our fax number is 651-778-4244. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 62-70-04-00.

Certification/ Recognition

TSCA: These products are defined as articles under the Toxic Substances Control Act and therefore, are exempt from inventory listing requirements.

MSDS: These products are not subject to the MSDS requirements of the Occupational Safety and Health Administration's Hazard Communication Standard, 29 C.F.R. 1910.1200(b)(6)(v). When used under reasonable conditions or in accordance with the 3M directions for use, the products should not present a health and safety hazard. However, use or processing of the products in a manner not in accordance with the directions for use may affect their performance and present potential health and safety hazards.

UL: Many of these products have been recognized by Underwriters Laboratories Inc. under Standard UL 969, Marking and Labeling Systems Materials Component. For more information on the UL Certification, please visit the 3M website at <http://www.3m.com/converter>.

Product Use

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 of application.

Warranty and Limited Remedy

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Limitation of Liability

Except where prohibited by law, 3M and seller will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.



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