



Screen-Printable Adhesive SP7533

Application Guide

February, 2003

Handling Instructions

Form and Appearance

3M™ Screen-Printable Adhesive SP7533 is a waterborne emulsion adhesive. Once dried, the adhesive can not be re-emulsified.

Dilution

Use this adhesive directly from the container without dilution.

Agitation

There may be some separation in the upper layer of adhesive after long term storage. Stir well before using.

Additives

Avoid adding additives such as defoamers as they may reduce adhesion.

Container

Close lid tightly for storage. Adhesive surface will skin over if left unopened for several hours. Avoid returning adhesive to container. Do not put dried adhesive back into container.

Printing Screens

Select screen mesh based on desired adhesive coating thickness and printing precision.

Screen Mesh

Stainless steel, polyester or nylon can be used for screen mesh materials. Stainless steel is generally used for thicker coatings because larger wire diameter is available. Polyester and nylon mesh are used for making precise patterns because of their finer wire diameter. Generally, polyester mesh is used for its better durability in heavy duty printing work.

Screen Mesh Number

Screen mesh numbers from 70 to 150 are recommended for printing Adhesive SP7533. The higher the number, the thinner the adhesive coating thickness, the smaller the mesh number the thicker the coating thickness. Table 1 below shows the relation between mesh number vs. dried adhesive coating thickness.

Table 1. Mesh number vs. dried coating thickness

Mesh Number	Thickness (Mils)	Peel Strength (lbs/in)
#70	1.8 - 2.2	2.8
#100	1.2 - 1.6	2.8
#150	0.8 - 1.2	2.4

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Printing Screens (continued)

Mesh Mask Material

Water resistant materials should be selected for masking material of screen mesh when using waterborne adhesives. Di-azo and acrylic types are suggested with acrylic types recommended for higher durability and ease of cleaning.

Masking Thickness

Masking thickness is suggested to be 1 to 3 mils greater than the mesh wire diameter. Thinner masking will result in more precise printed patterns while thicker masking will result in a thicker adhesive layer.

Printing Pattern

Several types of printing patterns can be used. Generally, adhesive thickness is controlled by screen mesh number, but the use of a stripe or dot pattern can make thicker adhesive coatings when the screen masking is made thicker.

Suggested Screen Materials

Screen Material	Polyester, Stainless Steel
Mesh Number	70-150
Mask Material	Acrylic, Di-azo
Mask Thickness	Screen plus 1 to 3 mils

Screen Print Equipment

Clam Shell Type

This type is commonly used in adhesive printing work. It is compact and easy to use.

Sliding Table Type

The screen is mounted in a fixed position and the table slides the print material into position.

Manual Hand Coater

Manual coaters are inexpensive and easy to use. The use of a vacuum plate is recommended.

Printing Conditions

The following are the typical conditions for 3M™ Screen-Printable Adhesive SP7533.

Squeegee*:	Synthetic rubber, urethane
Blade Shape:	Square, round, square blade makes sharper pattern edges
Hardness:	60-70 durometer, higher durometer = thinner coatings
Angle:	60-80 degrees, angle influences print thickness
Squeegee Height**:	0-.12 inch, higher pressure = thinner coatings
Squeegee Speed:	2-20 inch/sec, slower speed = more precise patterns
Clearance****:	.12-.40 inch, more clearance increases snap-off of screen
Flood Bar:	Aluminum, stainless steel
Flood Bar Angle:	90 degree
Flood Bar Height***:	0-1 mm, height controls adhesive flood thickness
Flood Bar Speed:	2.5-15 inch/sec

*Squeegee durometer can be identified by color such as red = 50 - 60, green = 62 - 68, blue = 70 - 75, yellow = 80 - 85 durometer

**Distance from screen to squeegee

***Distance from screen to scraper

****Distance from screen to work

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Printing Procedure

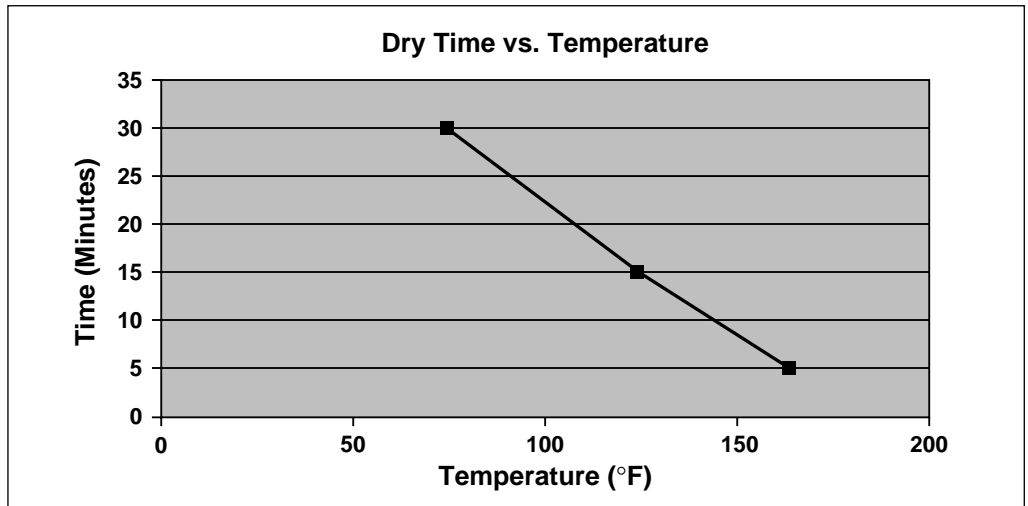
Set Up

- Room temperature should be controlled between 68 and 77°F, 60% RH.
- Attach printing screen, squeegee and scraper.
- Set printing condition as desired. Wet screen before starting.
- Place adhesive along edge of squeegee area. Avoid putting adhesive on the print area.
- Flood the screen with adhesive after the print cycle to prevent adhesive from drying in the screen.
- Run print work constantly.
- Keep sheet change time to a minimum.
- Add adhesive as necessary for proper flooding.
- Remove adhesive and wash screen when finished printing.
- Remove adhesive immediately from the screen plate, squeegee and scraper as much as possible before drying.
- Used adhesive should be disposed of properly. Do not return used or dried adhesive to original container.
- Wash screen, squeegee and scraper before adhesive dries.

Drying

3M™ Screen-Printable Adhesive SP7533 may be air or oven dried. Table 2; illustrates time vs. temperature for drying.

Temperature °F	Time Minutes
160	5
125	15
77	30



Release Liner

Release liner may be applied after drying.

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Clean-up

- Clean-up is much easier if performed before adhesive dries.
- Remove excess adhesive from squeegee, scraper and screen with soap and water, ethanol or isopropyl alcohol before drying.
- Dried adhesive can be removed by swelling with 3M™ Scotch-Grip™ Solvent No. 3 or methyl ethyl ketone (MEK)*:
 - ***Note:** When using solvents, extinguish all ignition sources and follow manufacturer's precautions and directions for use.

Storage

Store adhesive in original container at 40-95°F. Do not allow adhesive to freeze. Do not store adhesive above 105°F. Use only plastic containers as metal containers can corrode. Keep container closed to prevent water evaporation and skinning over of adhesive.

Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

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 55106. Our fax number is 651-733-9175. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

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ISO 9002

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9002 standards.



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