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## Veneer Splicing Adhesives

### General Characteristics:

CP industries splicer adhesives are pre-catalyzed dry urea-formaldehyde powders with or without a melamine fortification incorporated. All CP Industries splicer adhesives are designed for use with conventional splicer machines, both straight-through and cross-feed types, as well as automated splicing equipment. CP Industries splicer adhesives are usable for up to one year, when stored in a closed container in a cool, dry location. Drums should be placed on boards or pallets, and not directly on concrete floors.

### SELECTION GUIDE FOR CP INDUSTRIES SPLICER ADHESIVES

All CP industries splicers adhesives are powders that only require the addition of water. Both the DS and TS series are urea formaldehyde resin based, while the MS and SG series contain both melamine and urea formaldehyde resins. The different splicer adhesives in each series differ mainly by the color and reactivity. In general, a splicer adhesive with a short gel time will cure faster during splicing, and give less carry or assembly time than a splicer adhesive with a longer gel time.

| <i>Adhesive</i> | <i>Description</i>   |
|-----------------|--|
| DS-200          | White colored splicer with fast gel time. Not recommended to carry veneer overnight unless temperatures below 75F.                       |
| DS-201          | Tan to light brown splicer with fast gel time. Not recommended to carry veneer overnight unless temperatures below 75F.                  |
| DS-202          | White colored splicer with long, gel time. Veneer can be carried overnight and the weekend if temperature in the plant is below 75F.     |
| DS-203          | Tan to light brown splicer with long gel time. Veneer can be carried overnight and the weekend if temperature in the plant is below 75F. |
| MS-406          | Tan to light brown color UF/MF splicer with very long carry time. Good results on maple and birch.                                       |
| TS-44           | Brown color splicer adhesive with fast cure speed and long carry time.   |
| SG-809          | Specifically formulated for use in automated splicing equipment where the adhesive is applied and cured in a continuous feed operation.  |

### Directions and use guidelines

#### Mixing Procedures:

| <i>Adhesive</i> | <i>Splicer proportion</i> | <i>Water proportion</i> |
|-----------------|---------------------------|-------------------------|
| DS-200          | 100 parts                 | 60 parts                |
| DS-201          | 100 parts                 | 60 parts                |
| DS-202          | 100 parts                 | 60 parts                |



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|        |           |          |
|--------|-----------|----------|
| DS-203 | 100 parts | 60 parts |
| MS-406 | 100 parts | 60 parts |
| TS-44  | 100 parts | 60 parts |
| SG-809 | 100 parts | 50 parts |

All DS, MS, and TS splicer adhesives should be mixed on the basis of 100 parts powder to 60 parts of water by weight. The amount of water may be varied to obtain viscosity for various application methods. Roller application generally requires a higher viscosity than a spray application. The water temperature for mixing should be between 70° F and 75° F unless plant and stock temperatures are above 90° F, then 60° F to 65° F water should be used.

The suggested mix procedure is as follows:

1. Place 1/2 to 2/3 of the required water into the mixer.
2. Start agitation and slowly add the powder.
3. Mix until lump-free viscous mixture is obtained.
4. Add remaining water and mix thoroughly.

### **Working Life, Adhesive Spreads, and Assembly Times:**

Table I gives the approximate working life for each splicer at 77° F and 90° F conditions. Using cool water when mixing the glue can extend the working life.

In general, as light a spread as possible should be used with the assurance that a continuous adhesive film is applied. After application, the adhesive should not be visible to the naked eye. If the veneer is held at the proper angle near a light source, a lustrous glue line should be visible. Heavy glue spreads can result in longer dry-down times, veneer sticking, **and** adhesive buildup on the heater bars.

Minimum assemblies (dry-down) times for all splicer adhesives are about 30 to 60 minutes. This time can be reduced through the use of fans, heat lamps, or heat boxes. Factors that govern dry down times are veneer moisture content, specific gravity, and plant relative humidity or temperature. Maximum assembly times (carry time) are governed by plant temperature and relative humidity as well as veneer moisture content, density, and acidity.

**TABLE I**

| <i>Adhesive</i> | <i>Mix Color</i> | <i>Pot Life (in hours)</i> |                | <i>Assembly Time</i> |
|-----------------|------------------|----------------------------|----------------|----------------------|
|                 |                  | <i>@ 77° F</i>             | <i>@ 90° F</i> |                      |
| DS-200          | Off-white        | 9-12                       | 5-6            | Up to one day*       |
| DS-201          | Tan              | 9-12                       | 5-6            | Up to one day*       |
| DS-202          | Off-white        | 30-36                      | 18-20          | Up to two days       |
| DS-203          | Tan              | 30-36                      | 18-20          | Up to two days       |
| MS-406          | Tan              | 9-12                       | 5-6            | Up to seven days     |
| TS-44           | Brown            | 20-26                      | 10-14          | Up to four days      |
| SG-809          | Light beige      | 5                          | 3              | Up to one day*       |

\*Final bundles may be carried over to the next morning, for splicing if plant and stock temperatures do not exceed 70° F.



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## Splicer Maintenance

A clean tape less splicing machine is important for best results. The heater bars should be cleaned frequently by running a piece of thick veneer through the splicer with the veneer grain direction at right angles to the heater bar. This will scrape off any resin that has built up on the heater bars. If veneer sticking and glue buildup persist, a release agent like Clenzoil should be applied to the heater bars each day before splicing starts.

## Adhesive Tinting

Various veneers may require the glue line to be tinted to match the color of a particular veneer. CP Industries splicer adhesives can be tinted to match the color of the veneer by the addition of burnt umber, food coloring, or water soluble dyes which will darken while titanium dioxide (Ti-Pure) will lighten. It is suggested that the finishing department be contacted prior to tinting any splicer glue line.

## TROUBLE SHOOTING GUIDE

Listed below are the most common causes for problems in veneer splicing

| <i>Problem</i>                                   | <i>Probable Cause</i>                                   | <i>Remedy</i>   |
|--|---|---|
| Applied adhesive fails to dry-down.              | Too much adhesive on veneer                             | Reduce amount being applied.  |
| Veneer fails to carry through the day or night.  | Cool temperatures. High relative humidity in plant      | Use heater with fan or hotbox.                                      |
|  | Very long gel time splicer being used                   | Select shorter gel time glue.                                       |
| Excessive adhesive buildup on the heater bars.   | High plant temperatures. Low relative humidity in plant | Select splicer with longer carry time.                              |
|  | Too much adhesive on veneer.                            | Reduce amount being applied.  |
| Spliced veneer falls apart after splicing.       | Not enough carry time.                                  | Allow more time before splicing.                                    |
|  | Dirty or gummy heater bars.                             | Clean heater bars and apply release agent.                          |
|  | Insufficient adhesive.                                  | Increase amount applied and make sure application is uniform.       |
| Excessive adhesive on each side of splice joint. | Veneer too dry.   | Increase moisture content in the veneer. Range 4-10%, optimum 6-8%. |
|  | Not enough pressure when spliced.                       | Increase pressure.  |
|  | Poor glue joints.                                       | Check joints to make sure they are true and straight.               |
| Splice joint highly visible.                     | Incomplete adhesive cure.                               | Check heat.   |
|  | Too much adhesive on veneer.                            | Reduce amount of adhesive applied.                                  |
| Lumpy mix.                                       | Adhesive too wet.                                       | Allow longer stand time.  |
|  | Thick splice joint.                                     | Too much adhesive, or veneer not properly jointed.                  |
| Thin adhesive mix                                | Color of adhesive and veneer do not match.              | Modify color by tinting.  |
|  | Incomplete mixing                                       | Weigh comp  |
|  | Overage material  |   |
|  | Excess water  | Adjust water, weigh components                                      |



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## **GUIDE LINES FOR IMPROVED SPLICER JOINTS ON MAPLE VENEER USING CROSS-FEED SPLICERS**

Listed below are a number of procedures that are currently being used to successfully splice thicker -maple veneer on cross-feeds. Incorporating any of the procedures listed below should aid in improving splice joint quality.

### **VENEER**

- Cut maple veneer looser
- Increase moisture content to 8-12%
- Use of veneer press to flatten veneer
- Rotary jointed surface not guillotined for improved joint surface

### **SPLICER ADHESIVE MIX**

- Use MS-406.
- Addition of 15% WB-960 to current splicer adhesive mix.
- Lower viscosity splicer mix may help with more uniform application
- Faster curing splicer adhesive that is better for thicker veneer

### **SPLICER ADHESIVE APPLICATION**

- Fine line of adhesive applied to obtain minimum spread for thinner stronger splice joint
- Application by adhesive roller instead of spray allows for more uniform spread.

### **CROSS-FEED SPLICER OPERATION**

- Higher pressure to close up joint
- Heater temperatures of 280-340° F