PROCESSING INSTRUCTIONS
FRAME ADHESIVE 0819 SLS

Frencken
LUMEN SINDS 1901

1. GENERAL APPLICATION

Frencken Frame adhesive SLS 0819 has been developed to meet the basic conditions in Frame corner joint Performance demands set out in BRL0819. The Dutch SHR 12.0385 serves as basis for this document. When this product is applied, as set out in this Processing instruction, it will meet the conditions. Frame adhesive 0819 SLS is tested and certified for Joint types B and C.

To be sure that the joining technique meets the conditions as set out in the BRL0819 ' Wooden Facade elements' the manufacturer has to implement this processing instruction regarding the joining technique in his (production) process. The manufacturer also needs to be able to demonstrate the joining technique on site to proof that the production process is conform the suppliers (production) process of the jointing technique as mentioned in the SKH-publication 10-02 "Assessment basis for frame, window and door joints inspection in the Timber factory".

TABEL 1. KOMO CERTIFICATES PER WOOD TYPE AND FRENCKEN FRAME ADHESIVE 0819 SLS APPLICATION.

Wood type	Type of joint	Type of frame
Iroko	Double dowels Double pin and socket (Bridle)	B + C B
Meranti	Double dowels Double pin and socket (Bridle)	B + C B
Mahogany	Double dowels Double pin and socket (Bridle)	B + C B
Accoya	Double dowels Double pin and socket (Bridle)	B B
Merbau	Double dowels Double pin and socket (Bridle)	B + C B
Sucupira	Double dowels Double pin and socket (Bridle)	B + C B
Oregon Pine	Double dowels Double pin and socket (Bridle)	B + C B
Pine	Double dowels Double pin and socket (Bridle)	B + C B

2. PREPARATION

A. ENVIRONMENTAL CONDITIONS

- Temperature: minimum +15°C en maximum +30°C
- Relative air humidity: minimum 50% en maximum 90%

B. MATERIAL CONDITIONS

- Temperature minimum +15°C
- Wood moisture content: minimum 10% en maximum 18%(depending on wood type, see overview SKH publication99-05)
- Wood moisture content Accoya 4 – 6 %
- Parts that need to be glued have to be clean and dry.

3. DIMENSION AND TOLERANCES

The adhesive can be applied in a 0-0.3 mm. fit.
The frame joint can be done in different ways:

a. Double pin and socket joint
b. Dowel joint with two dowels

Examples and measurements are described in Appendices 0.1 and 0.2.

Frame joints have to meet the conditions as set out in the BRL0819 'Wooden Facade elements'. The performance will ultimately be realized by the joining technique and the process. These two are inextricably linked. In a certified joining technique, a specially tuned process of the timber manufacturer is required.

SUPPLEMENTARY REQUIREMENTS FOR DOUBLE PIN AND SOCKET JOINT (APPENDIX 0.1,THE FIT FOR ALL SURFACES IS 0-0,3 MM).

1. Socket width
The width of the socket has to be equal or not more than 0.1 mm larger than the pin thickness.

2. Pin location
One pin has to be in the outside groove, the other pin has to be placed right behind the outside groove.
At a slight width of the outside groove, (< 35 mm) it is possible to place the two pins behind the outside groove.

3. Dimension pins (Measured from the heart of the pin):

- Pin lenght > 25 mm;
- Pin width > 25 mm;
- Pin thickness > 12 mm and < 20 mm.

By intersecting points of the the mullions and interim threshold : Pin length 12,5 mm with a free space between the pins of 1 -2 mm.

4. Secure
Secure a joint from the inside out with a galvanized or aluminum nail which penetrates al pins.

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CONSTRUCTION ADHESIVE

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SUPPLEMENTARY REQUIREMENTS FOR DOWEL JOINTS (APPENDIX 0.2; THE FIT FOR ALL SURFACES IS 0-0.3 MM)

1. The Frame adhesive 0819 SLS should be used to bond the dowels. If adhesive is (mechanically) applied to the dowels in advance, it is permitted to use a PVAc adhesive provided that the adhesive is completely dry before the window frame adhesive is applied and the bonding surface of the jamb is not contaminated by the PVAc adhesive. The dowels should meet the basic conditions set out in BRL 2908 with the exception of Chapter 4.8. The dowels should be provided with extra deep grooves across the entire length on two sides (see Figure 1).

Figure 1: Dowel with extra deep grooves along the top and bottom.

The following must be used as a minimum for the dowel joint:
- Two dowels > Ø 14 mm;
- A single dowel > Ø 16 mm together with a single dowel > Ø 12 mm.

2. COVER

- Minimum cover: 8 mm.
  Exception: for an interim threshold, the size may be 5.5 mm if the rabbet is milled after applying the dowels;
- Maximum cover: 30 mm.
  Exception: in the direction of thickness of the frame wood, a cover of up to 38 mm is permitted provided that the diameter of the dowel being used is > 14 mm.

3. THE DISTANCE BETWEEN THE DOWELS SHOULD BE:

- At least equal to the diameter of the (largest) dowel;
- Smaller than 4x the diameter of the (largest) dowel.

4. LENGTH OF THE DOWELS

The minimum length of the dowels is 80 mm.
The centre line of the dowel should be applied across the following lengths of the wood:
- In the section parallel to the wood fibre: at least 35 mm;
- In the section perpendicular to the wood fibre: at least 24 mm;
  Exception: for a connection joint between a mullion and an interim threshold, the length should be perpendicular to the wood fibre for a length of at least 20 mm.

If the thickness of the uninterrupted interim thresholds is smaller than 85 mm, long dowels should be used for intersecting points that are not interrupted where the mullion or interim threshold occurs.

5. DEPTH OF DOWEL SOCKET

The depth of a dowel socket should be at least 5 mm more than the length of the "accepted" dowel. It is not permitted to drill a hole for the dowel socket.

Ratio between diameter of dowel and diameter of dowel socket
- Tolerance of dowel socket diameter of +/- 0.1 mm;
- If using softwood, the dowel diameter should be 0.2 mm larger than the dowel socket diameter;
- If using hardwood, the dowel diameter should be equal to the dowel socket diameter.

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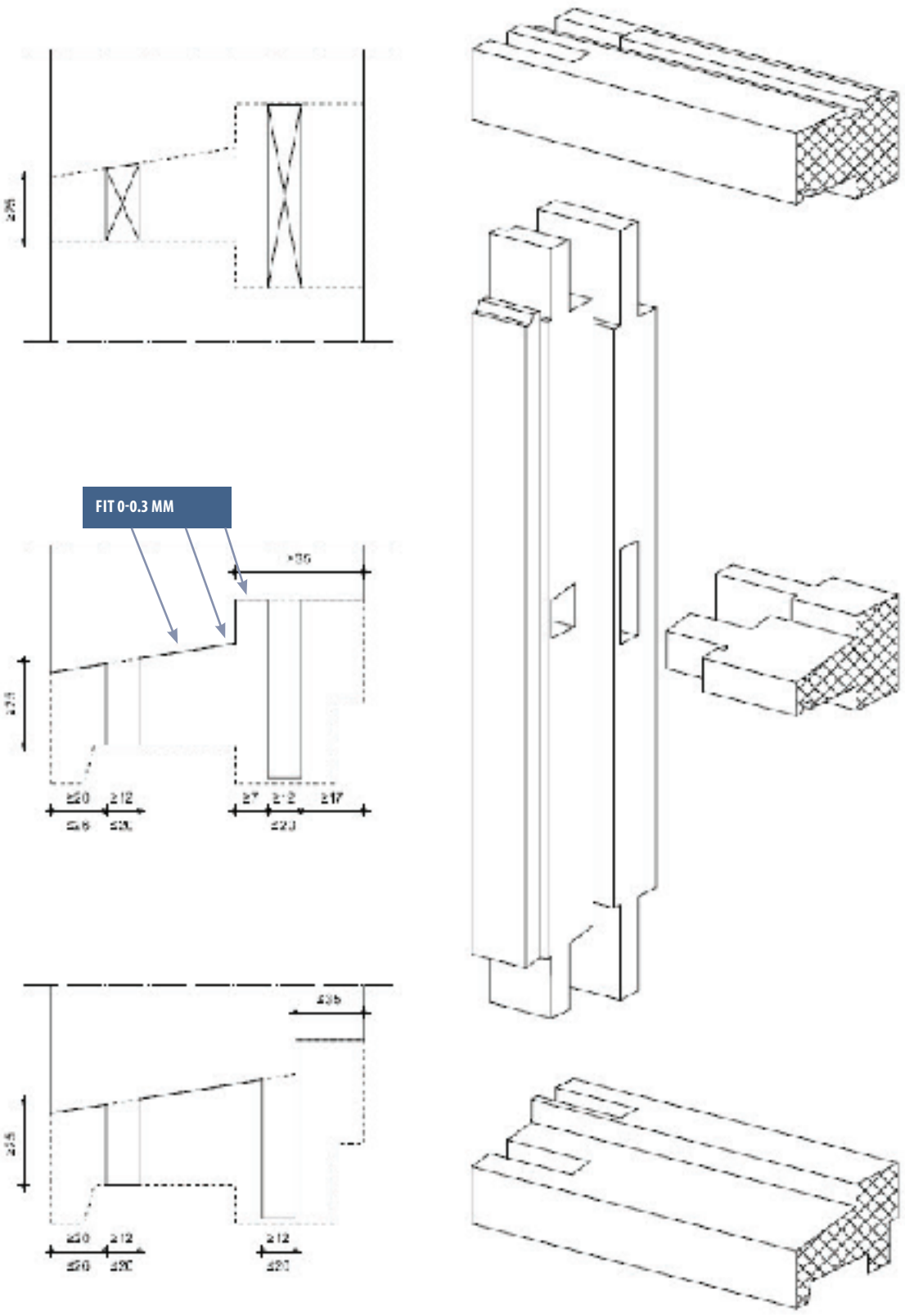

Appendix 0.1: Inserting pins and intervals

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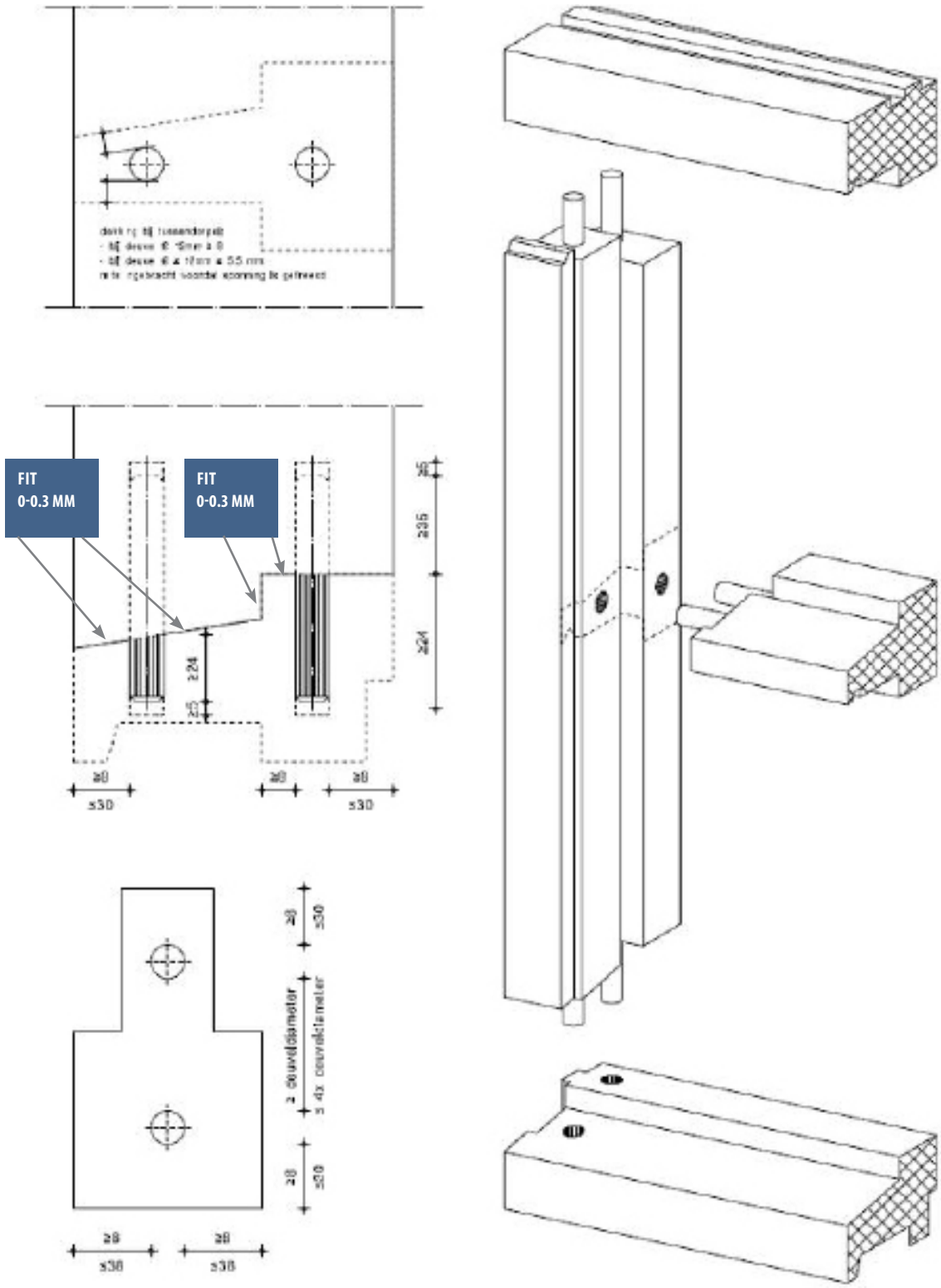

Appendix 0.2: Inserting dowels

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6. PROCESSING

The Frame adhesive 0819 SLS (self-levelling system) can be applied in lines. During the adhesive trapping stage, the adhesive is distributed evenly over the entire bonding surface.
This manner of application significantly reduces the overall processing time. This also benefits the 'open time' of the adhesive. During testing with SHR, the adhesive is finished with a square-end spatula. This enables it to be given a tight, sleek finish for a visually pleasing result. Smoothing the surface using an R3 spatula, for example, will not negatively affect the connection.

A. DOWEL JOINTS

The Frame adhesive 0819 SLS, one-sided, applied to the jamb from the funnel, tubular package or mechanically in lines (see Figure 2); additional distribution is unnecessary – this is achieved during the adhesive trapping stage.

Figure 2: Applying adhesive in lines

During application of the adhesive, adhere to the pattern on the photo as closely as possible. Prepare rills with a thickness of 3-5 mm approx. 5 mm from the edge. For the dowel sockets, apply the adhesive around the inside of the edge of the dowel socket. The dowel moves the adhesive further inside the frame. The extra deep grooves ensure that excess adhesive is not caught between the dowel and profile. An extra adhesive rill is prepared along the convex side (heel) before the dowels are inserted.

Dimensions and configurations of the frame joint are described in Appendices 0.1 and 0.2.
During the bonding process, pay attention above all to the amount of adhesive applied. After closing the corner joint, a small, excess amount of adhesive should be pressed out on all sides of the joint to create a 100% tight connection (see Figure 3).

Figure 3: The adhesive is squeezed outwards.

Apply the adhesive across the entire joint before inserting the dowels. Apply the adhesive both along the inside of the edge of the dowel socket and on the threshold side (see Figure 4).
The adhesive is transported into the frame by the dowel.

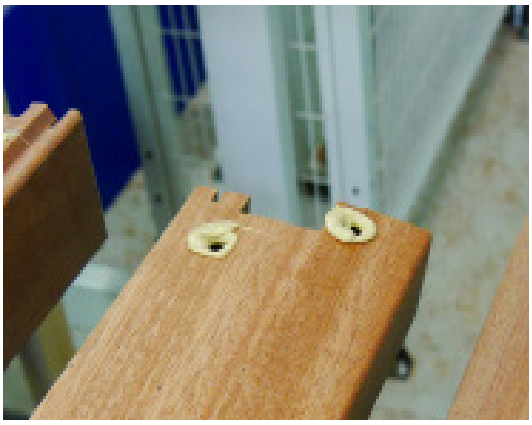

Figure 4: Application of adhesive for dowel sockets in threshold

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B. BRIDLE JOINTS

For bridle joints, the adhesive should be applied to the threshold (see Figure 5) and an extra adhesive rill should be prepared along the top of the jamb (see Figure 6).

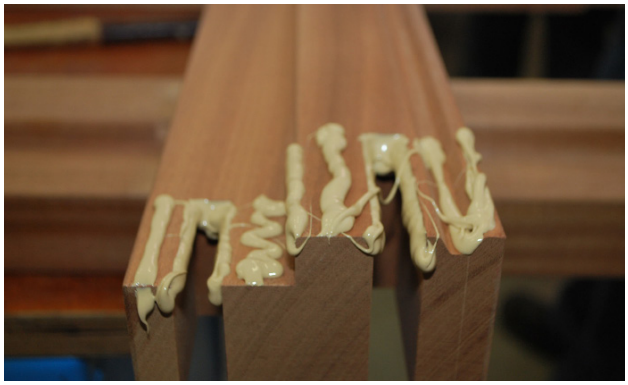

Figure 5: Applying adhesive rills to the threshold of a bridle joint

When applying the adhesive, adhere to the pattern on the photo as closely as possible. Adhesive rills of 3-5 mm. Pay attention to the adhesive rills on the top of the convex side (heel).

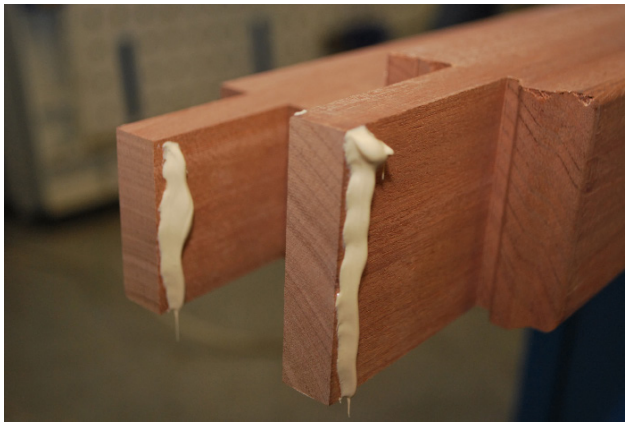

Figure 6: Applying the adhesive rills to the pin on a bridle joint

An adhesive rill is applied to both sides of the pin. This adhesive is distributed over the surface when the joints are interlocked.

7. ADHESIVE TRAPPING

A. OPEN TIME

The adhesive trapping stage should be performed within 20 minutes after starting to apply the adhesive. Open time depends largely on the relative humidity and ambient temperature in the space. Average values of 20°C in terms of temperature and 65% relative humidity apply. Shorter open times apply at higher temperatures or humidity levels (see table).

Relative humidity (%)	Temperature (°C	Open time (min.)
65	20	20
80	25	12

B. PRESSING PRESSURE

Keep the pressing pressure as low as possible. Do not apply any more pressing pressure than is necessary to close the joint. A maximum pressing pressure of 20 bar should be used as a guide. A higher pressure may only be used if it is evident that the current pressure is insufficient to close the joint. The joint should be closed at all times. After closing the joint, reduce the pressure as quickly as possible (within 5 seconds). **Joint closed = stop pressing.** During the adhesive trapping stage, adhesive will be pressed out of the joint on all sides. If this does not happen, do not increase the pressing pressure. This means that an insufficient amount of adhesive has been applied.

C. PRESSING TIME

After closing the joint, the pressing pressure should be reduced within 5 seconds.

D. FULL BONDING

After reducing the pressing pressure, the adhesive has not yet fully bonded, which means that the connection is delicate. Excessive pressure resulting from tensile forces due to the weight of the frame or force during transport can lead to an incomplete connection. Care should be taken at all times to ensure that the joint remains closed. This can be achieved in the following ways:

1. Not subjecting the joints to any pressure for 6 hours after bonding. Store vertically or horizontally during this time.
2. By minimising pressure on the joint (e.g. smaller formats, lighter wood types or an alternative form of transport/hanging) or by mechanically reinforcing the joint in a different way (temporarily). The method should be presented to SKH for approval.

8. PAINTING OVER THE ADHESIVE

The adhesive adheres well to paint. Depending on the paint system, the adhesive should be coated within 4 to up to 72 hours in order to guarantee maximum paint adhesion.
Paint adhesion tests can be requested from paint suppliers.

9. ENVIRONMENTAL ASPECTS

Due to the composition of the product, there are restrictions on storage, handling and application.
For detailed information, please request a Material Safety Data Sheet (MSDS).

10. STORAGE, SHELF LIFE AND TRANSPORTATION

The Frame adhesive 0819 SLS funnels and tubular packages have a shelf life of 12 months when unopened. The 0819 SLS window frame adhesive should be stored in a cool, frost-free place. Transport during freezing weather is possible as long as the product temperature remains above 0°C. Dispose of leftover material and cleaning water at the local or municipal depot for household chemical waste.

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