

GLASS STORAGE GUIDELINES

Glass staining during storage or shipment is normally caused by an alkaline attack triggered by the presence of water. Water from a leaky pipe or roof may collect between the glass panes when stored inside a building if the glass is packed too close together in crates or on racks. If the glass is stored outside, water may collect between the panes from rain, snow or groundwater.

Condensation of water vapor on the glass can also cause glass staining and etching when glass is stored outside or in an unheated warehouse. The condensation is a result of the glass temperature being below the dew point of the surrounding air. The glass temperature changes more slowly than the air temperature because of its bulk and the temperature lag of the glass.

A crate or rack of glass stored overnight during cool temperatures may be close to the air temperature early in the morning. However, after sunrise the air temperature and moisture vapor content often increases rapidly, while the glass remains at a much lower temperature for hours. The results are condensation and trapped water, making it difficult for the water to evaporate—sometimes taking up to 24 hours to evaporate. If the same temperature cycle reoccurs, the glass surface can remain wet for weeks or months. As the water evaporates, the alkaline solution becomes more and more concentrated, eventually etching the glass surface.

If glass is stored in crates, on racks or under conditions where it touches or is separated by interleaving materials, ensure that it is kept dry at all times.

Once water is allowed to penetrate between the glass panes, the potential for staining and etching increases. If the interfaces become wet, separate the glass plies to allow them time to dry.

Since water vapor is a gas, it readily penetrates between glass plies that are in contact with each other. To prevent moisture condensation, keep the glass temperature above the dew point of the surrounding air. For glass stored indoors, maintain a uniform indoor temperature. For glass stored near loading docks, do not expose the glass to cold outdoor air temperatures longer than 15 to 20 minutes.

Velocity strongly recommends not storing glass outdoors. For glass stored outdoors, try to keep the glass at the outdoor air temperature or warmer. Store the glass crates or racks under cover to protect against rain, snow and direct sunlight and do not obstruct air movement around the crates. Direct sunlight on crated glass can cause breakage from thermal stresses.

For insulating glass, high temperatures from solar heating can cause expansion of the air spaces, which results in glass breakage or damage to the edge seals. Shaded areas with surfaces heated by the sun are ideal.

Do not wrap stored glass in polyethylene sheets or other impermeable material. Instead, use roofing paper, which does not allow the liquid to penetrate, but allows the passage of water vapor.

If construction delays occur, make arrangements to have the unprotected glass stored off site to prevent staining damage.