

Transport and Reception of the PET Container

The characteristics of bi-axially oriented PET bottles are such that special handling procedures must be followed during warm weather to minimize heat shrinkage and resultant filling line problems. Once PET containers are exposed to elevated temperatures and time, the memory of PET material begins the process to revert the bottle back to its original preform state. The resulting deformation of the base and or shoulder areas of the bottle is directly proportional to the temperature and the length of time of exposure. The following table demonstrates the effect of elevated temperatures on PET bottles. This information is considered a guideline only. Stretch ratios between preform and bottle can greatly affect the outcome.

Temperature Range		Length of Exposure for Shrinkage to Occur
Fahrenheit	Celsius	
72	24	8 Months
85	29.5	37 Days
90	32	20 Days
100	38	5 Days
110 - 120	43 - 49	12 Hours
Over 120	Over 50	Less than 1 Hour

At 90 degrees Fahrenheit, temperature inside a closed stationary trailer can reach over 150 degrees Fahrenheit.

Sunlight whether it is direct or through a skylight will produce heat and resultant shrinkage will occur as will ultra violet light which easily penetrates cloudy and overcast skies.

The following recommendations will help to minimize shrinkage:

- Schedule deliveries such that receiving personnel have adequate time to unload and place bottles into warehouse storage before the next deliver arrives.
- Unload trailers immediately upon arrival.
- If trailers are unloaded outside, move the pallets inside immediately.
- Storage in the warehouse should be in the coolest section, away from skylights and away from heaters (in the winter).
- Storage under metal roofs with limited air space should be avoided.
- Common carriers should be informed to deliver loads immediately when delivery instructions are requested.
- Top hatches or small doors in the front and rear of trailers and insulated trailers
- Trailer doors should be opened as soon as possible upon arrival.

Should bottle shrinkage occur in a load, it will normally occur in the top layers of the pallets first, Thus, if shrinkage is encountered, production may often be continued by pulling off the top layer of suspect pallets and running The balance of the pallet. Overflow Capacities should be very closely watched when shrinkage is evident. Fill point adjustments may be required.

Good Manufacturing practices strongly recommend adherence to a first-in, first-out warehousing policy.