

Adhesive Crystallization

WHAT IS ADHESIVE CRYSTALLIZATION?

Some Dymax adhesives can exist in two liquid states, as a “liquid crystal” as well as a normal liquid. Crystallization is the transformation from the liquid to the liquid crystal state. Heat will reverse the process and restore the adhesive to its liquid state with no loss in performance. There is no effect on strength, viscosity or any other adhesives property. Crystallization is accelerated by cold storage (<50°F). Sometimes crystallization even occurs at room temperature (70°F). When dispensed, the crystallized adhesive may appear opaque, thick, or granular.

PROCEDURE FOR REVERSING CRYSTALLIZATION

Tests performed at Dymax indicate that heating the original container of crystallized adhesive (in an oven or in a warm-water bath) to 100°F (adhesive temperature) will return the adhesive to its uncrystallized liquid state. The adhesive will reach 100°F in approximately 2 to 3 hours. Allow the adhesive to return to room temperature for consistent dispensing. As an example, an internal procedure may be as follows:

- Gently warm the original container of adhesive (or total daily consumption) to 100°F ± 5°F in oven or warm-water bath for 2.5 hours.
- Allow adhesive to cool to room temperature.
- Use in production.

Crystallization can develop in many types of packages such as syringes, cartridges and pails. It is also recommended that dispensing reservoirs, lines, valves, and needles are purged prior to prolonged periods of production shutdown (i.e., weekends, shutdowns, etc.).

NOTE: Only a very small number of adhesives are susceptible to crystallization and the likelihood of this phenomenon actually occurring is slight. Warming will restore the product to its original condition without affecting product performance. This warming procedure is repeatable and does not affect the adhesives.

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