LACO TECHNOLOGIES

APPLICATION NOTE

NOTE #06-14

# VACUUM DEGASSING EPOXY & SILICONE

## SCOPE

This application note covers the vacuum degassing process used for epoxies and silicones

## BACKGROUND

When epoxies or silicones are mixed with the required additives, accelerator, filler etc., air bubbles become trapped within the mixture. Vacuum degassing is the process of using vacuum to remove gases from compounds which become entrapped in the mixture when mixing the components. If not removed before the material cures then the air bubbles will cause defects such as nodules, cavities, hollows in the finished cast. Sometimes such defects remain out of sight just below the surface only to appear after a period of use.

Alternate methods can be used to remove or minimize the quantity of air bubbles, but vacuum used in degassing applications can improve the quality of products and shorten processing cycles compared to other methods.

## DESCRIPTION

A vacuum degassing system comprises of two main items; a vacuum chamber and pump. To select a vacuum chamber for your purpose, ensure that your container will fit into the chamber and that there is sufficient space in your container to allow for expansion of the liquid to be degassed.

When this mixture is put into the vacuum degassing chamber and the air pressure above it reduced, i.e., evacuated, then the air bubbles which were formed now expand and rise to the surface where they burst. In practice, vacuum degassing causes the whole mixture to expand to about two to six times its original volume before expansion decreases.

This process can take from one to several minutes depending upon the nature of the mixture, the volume of the vacuum chamber and the speed of the vacuum pump used with it. Mixing can be done by hand or an electric mixer before degassing, depending upon the quantities involved. Mixing of the product can also be performed in the vacuum chamber to enhance and speed up the degassing process. If degassing is too slow, then you may need to either increase the evacuation speed by changing the pump or decreasing chamber size to reduce the pump down time, or decrease the accelerator.

## BENEFITS

A vacuum system used in degassing applications can improve the quality of products and shorten processing cycles. It reduces gas bubbles and pockets that would weaken the epoxy or silicone.

## RELATED PRODUCTS

LACO Technologies offers vacuum degassing systems in the following configurations:

- Table top Vacuum Degas System
- Cart mounted Vacuum Degas System
- Vacuum Degassing chamber with mixer

## REFERENCES

- Vacuum Degassing Chambers Manual
- Application Note 06-15: Vacuum Degassing Hydraulic & Other Oils