APPLICATION BULLETIN

BERGDAHL ASSOCIATES, INC.
2990 Sutro Street, Reno Nevada 89512
Phone: 775-323-7542 Fax: 775-323-7595

Humidity - Temperature - Time
Effects on Sealant Cure

Cure
Application life and cure times are dependent upon ambient environmental conditions. Humidity and temperature affect material cure as indicated below.

Humidity

- Manganese dioxide cured polysulfides
  Relative humidity affects the cure rate. Humidity below 10% increases tack free and cure times. Humidity above 80% accelerates or shortens the cure time.
- Dichromate cured polysulfides
  Relative humidity negligibly affects tack free time and cure time.
- Epoxy Cured Polythioethers
  Relative humidity does not affect tack free time and cure time.

Temperature
Ambient temperature affects the cure of all sealants. Increasing the temperature reduces cure time. Decreasing the temperature increases cure time.

It is possible to reduce cure times of polysulfide sealants by applying heat. To do this, it is recommended that the polysulfide sealant be allowed to first dwell at ambient conditions for at least the application time of the material. For example, a Class B-1/2 material should dwell for at least 30 minutes.

Once the application time has passed the ambient temperature can be increased. Polysulfide sealants with a two hour, or less, application time can obtain a serviceable cure hardness of 30 Durometer A after eight hours at 125±5°F (52±3°C).

Note: Accelerating the cure of polysulfide sealants above 140°F (60°C) can affect performance properties and is not typically recommended without testing.

Most polysulfide sealants develop a high state of cure in 14 days at 75°F (25°C), longer cure times further improve ultimate resistance to fluids, heat, and pressure. Maximum cure is usually obtained in 30 to 50 days.

Polythioether sealant cure time can also be reduced by increasing the ambient temperature at which the material cures. Please contact your local representative for more information

The above is excerpts from the PRC® and Pro-Seal® aerospace sealants application guide.

Rule of thumb: for every 17°F (10°C) rise in temperature, application life is reduced approximately by half, and for every 17°F (10°C) dip, it is approximately doubled.