

PTFE Heat Shrink Tubing Instructions

Heat shrinkable PTFE Tubing requires approximately 650° +/- 25° F (340° +/- 5° C) to recover. Upon reaching approximately 625° F (330° C) the PTFE goes into the "gel" state (amorphous from crystalline). PTFE begins to shrink at 650° F (340° C) and completes its recovery during the cooling cycle. The mandrel being covered must be able to withstand this range of temperature. We recommend preheating large-diameter mandrels and giving sufficient time for recovery. Even heating and cooling of all sides will provide the best results.

PTFE Heat Shrink 2:1 and 4:1 Recovery Procedures

1. Always assure good ventilation in the immediate work area prior to beginning the heat shrink process.
Caution: Fumes may cause nausea and dizziness
2. Heat Shrink PTFE Tubing requires 650° F +/- 25° F (340° C +/- 5° C). This is a liberal and safe range. PTFE goes into the "gel" state (amorphous from crystalline) at approximately 625° F (330° C). PTFE begins to shrink at 650° F (350° C).
3. The mandrel (part) to be covered by Heat Shrink PTFE must be able to withstand this range of temperature.
4. The mandrel being covered may act as a heat sink-literally freezing the PTFE tubing before it has a chance to recover completely and smoothly. It is therefore recommended that you preheat large diameter mandrels.
5. Heat Shrink PTFE needs to be allowed a fair degree of recovery. Highly restricted radical recovery tends to induce longitudinal loss, while excessive restriction tends to induce splitting.
6. Even heating and cooling of all sides provides the best results. Uneven heating or cooling tends to split the side still in the "gel" state while the other side is in the hard or crystalline state-especially upon recovery.
NOTE: Shrink starts when the PTFE is brought upon the "gel" state but completes its recovery during the cooling cycle. In its gel state, the tubing becomes crystal clear and glassy in appearance.
7. Sources of heat are optional-up to a point.
 - a. Ovens are highly reliable. Even heating and cooling are easily maintained. Bring the tubing and mandrel up to temperature, turn off the heat, and allow to cool with circulating fan running.
 - b. Use of hot air guns is a good method, provided sufficient BTU output is available to soak the Heat Shrink PTFE and its mandrel without over-heating.
 - c. Clean gas flames have been used successfully, as long as skilled care is taken to ensure that "burning" of spots does not destroy the essential use of stresses Zeus has built into the material.
 - d. Infrared rays have been practical only when the mandrel absorbs heat and converts it back into the PTFE (which does not normally have sufficient interference with the infrared wave lengths to convert their energy into heat).