

Tubing Hazard Warnings & Use Instructions

Warning

1. These flexible tubings are made of "Silicone Rubber," and as such, the performance is affected by temperature and pressure. **The user must conduct tests to determine suitability for use in the user's process or application**
2. Some fluids can be absorbed by tubing material or can extract substances from tubing material. **It is the responsibility of the end user and/or device manufacturer or assembly designer to specify and document tubing performance and safety requirements.**
3. Tubing performance including life in a specific application is affected by the materials that come into contact with the tubing as well as the operating environment. **It is the responsibility of the user to determine suitability of tubing formulation for each application.**
4. This tubing is not intended or recommended for medical applications. **The use of this product in any medical application is solely the responsibility of the OEM and/or end user.**
5. To avoid catastrophic disconnecting during use, **always** use retaining clamps or adhesives when affixing tubing to fittings and/or connectors.
6. The end user should have system back up and adequate procedures in case of tubing rupture.
7. **Always** carefully read and follow the instructions of the manufacturer of the equipment in use, regarding tubing specifications and instructions for installation.
8. **Always** carefully inspect tubing for damage prior to shipment **and again** prior to actual use.

When installing tubing or setting up the equipment for use, the end user must **always** take great care to avoid nicking, cutting, piercing or other damage to lengths of tubing actually used.

9. Tubings are not intended to be used as injection ports. Punctures with hypodermic needles **will not reseal** and depending upon pressure, air bubbles can be drawn into the fluid stream or fluid leaks can occur.
10. **No tubing will last forever.** This is especially true in **peristaltic pumping** applications where, upon extended use or improper installation, **the tubing will rupture.**

The following factors have been found to influence tubing life in peristaltic pumps:

- Fluid being pumped/transported
- % occlusion of tubing walls
- Pump speed (i.e. roller impacts/minute) and total number of impacts
- Amount of system back pressure
- Temperature of fluid being transported as well as temperature of the operating environment
- Frictional drag due to improper maintenance or wearing of rollers and guides
- Twisting, kinking, or excess lengths of tubing installed in pump raceway

To avoid possible property damage or injury resulting therefrom, when using tubings in peristaltic pumps **always**:

- Carefully set up and monitor each of the foregoing variables during use of the tubing in peristaltic pumps.
- Read and heed the instructions of the manufacturer or supplier of the pump apparatus in use, regarding tubing installation, pump rollers, guide rollers and raceway maintenance and calibration.
- Inspect tubing for any damage prior to installation
- Check that proper tubing length is contained in the raceway portion of the pump and that the tubing is not twisted or kinked.
- Always select occlusion and RPM settings that will achieve the desired flow rate with minimum stress to the tubing.
- Always constantly monitor the tubing circuit during actual procedures for signs of the tubing beginning to crack, leaks, or air infusion and take appropriate action when observed.