# SELECTION – INSTALLATION – MAINTENANCE – USE OF PTFE HOSE ASSEMBLIES

## 1.0 SCOPE:

This document is a guide for the use, selection, installation and inspection of Aerocom PTFE hose, fittings and accessories. This document should be used in conjunction with other specific Aerocom technical data, industry standards and all applicable federal, state and local regulatory requirements.

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that hose assemblies are safe, effective, and fully satisfactory for the intended end use.

## 2.0 GENERAL:

Aerocom PTFE hose and assemblies are used in a wide variety of applications and environments. This document is intended as a guide to help end users develop a system that will ensure the safe use of our products. It is the end users' responsibility to determine through their own analysis, testing and historical knowledge the suitability of the hose end fitting and accessories. Additionally, the end used must assure that proper safety precautions are met and that the system does not present hazards to personnel or property.

When used in conjunction with other components or incorporated into equipment, the end user must provide adequate health and safety warnings.

Additional information and technical help are available through Aerocom at 514-695-8883.

## 3.0 HOSE & FITTING SELECTION & APPLICATION:

3.1 **Application** Hose and hose assemblies can fail for a variety of reasons, and failure can happen without warning. Any system that incorporates Aerocom hose products must be designed in a fail-safe manner so that if failure should occur the system will not endanger person or property.

3.2 **Conductivity** Aerocom conductive PTFE hose dissipates static charges that may build up from the fluid movement. Static dissipates along the conductive inner wall of the PTFE to the end fitting. Systems must be properly grounded so that static does not build up.

For specific applications such as compressed natural gas, specific conductivity and electrical bonding test may be required. Please refer to ANSI/IAS NGV 4.2-1999; CSA 12.52-M99.

3.3 **Compatibility** Aerocom PTFE hose is compatible with a variety of fluids, gases and media. End fitting material, jackets and innercore should be selected based on the compatibility of the material being transferred and the environment where the hose is used. Aerocom recommends that all users validate full material compatibility with industry chemical resistance data as a guide: the actual service life needs to be determined by the end user testing under the extremes of the application.

3.4 **Effusion** Effusion is the permeation or seepage through the hose wall. Effusion could potentially result in high concentrations of vapors that are flammable, explosive, corrosive or

toxic. System designers must take effusion into account and design against these potential hazards. Even if the hose and fitting material are compatible the potential of effusion must be taken in account to protect against possible hazards.

3.5 **Pressure** Hose must be selected based on the maximum allowable working pressure being greater or equal than the systems maximum operating pressure. Pressure excursions or spikes above the rated maximum working pressure could cause failure or shortened hose life. Do not use proof pressure or burst pressures as system pressure.

3.6 **Temperature** PTFE has an exceptional operating temperature range; however, all of the components of the assembly must be considered when defining the temperature requirements. Temperatures that exceed the temperature range of the assembly can degrade the hose or accessories. Consideration must be made to the system's steady state temperature as well as the transitory temperatures that the hose assembly may see. Use care in selection of the routing of the hose as not to come in close proximity to other high temperature components.

3.6 **Size**
The internal diameter size of the hose should be considered so that the system does not exhibit excess pressure loss or that the high fluid velocity does not generate heat.

3.7 **Hose Length and Routing**
When determining the length of hose assemblies consideration must be given to the length necessary to absorb motion, and that bends do not violate the minimum bend radius of the hose. The routing of the hose should protect against mechanical damage such as kinks, abrasion, crushing and other potential hazards.

**4.0 INSTALLATION, CARE & USE:**
To assure safe continuing use of the hose assemblies the end user must regularly inspect and maintain the hose assemblies. Frequency of the maintenance and inspection program should be determined based on the severity of the application and the inherent risks

At a minimum the program should include:
Periodic Visual Inspections: Inspect the assemblies for the following conditions; the hose must be taken out of service and replaced if there are signs of damage such as:

- Kinks, twists, flattened or crush hose
- Cracked, badly corroded or damaged end fittings or any sign of fitting pull away
- Broken braid wire sticking through the outer jacket
- Split, cracked, worn or abraded jacket the exposes the reinforcing braid wire. Be sure to check around clamp guards and shield that may come in contact with the hose assemblies

Functional Inspection: A functional test should be performed with the system at its maximum pressure. Check for leakage, freedom of movement, bend radius and lack of twisting. Care must be taken and personnel should avoid potential hazards when testing and using the system.

Additionally, end users must consider specific replacement intervals based on historical service life, regulatory or industry requirements, and the risk potential of the system.

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