# ICC-ES PMG Listing

**PMG-1016**

*Reissued: February 1, 2010*

*This listing is subject to re-examination in one year.*

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CSI: Division 15—MECHANICAL
Section: 15140—Domestic Water Piping
Section: 15180—Heating and Cooling Piping

Product: Merflex® PEX OT® Tubing
Merflex® PEX OT® Oxygen Barrier Tubing

Listee: Mercury Plastics, Inc.
15760 Madison Road
Middlefield, Ohio 44062
www.mercury-plastics.com

Additional listees:

Embassy Industries
315 Oser Avenue
Hauppauge, New York 11788

Roth Industries, Inc.
268 Bellew Avenue South
Watertown, New York 13601

*Cash Acme*
2400 7th Avenue SW
Cullman, Alabama 35055

Compliance with the following codes:

2009 *International Plumbing Code*® (IPC)
2009 *International Mechanical Code*® (IMC)
2009 *International Residential Code*® (IRC)
2009 IAPMO *Uniform Plumbing Code*™ (IAPMO UPC)*
2009 IAPMO *Uniform Mechanical Code*™ (IAPMO UMC)*

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Compliance with the following standards:

ASTM F 876 Standard Specification for Crosslinked Polyethylene (PEX) Tubing
NSF 14 Plastics Piping System Components and Related Materials
NSF 61 Drinking Water System Components – Health Effects
LC1004 PMG Listing Criteria for PP, PEX, PEX-AL-PEX and PP-AL-PP Piping, Tube and Fittings Used in Radiant Heating and Water Supply Systems

Identification:

The tubing must be marked every 5 feet (1524 mm) with the manufacturer's product name (Merflex® PEX OT® or Merflex® PEX OT® Oxygen Barrier Tubing; nominal tubing size; material designation (PEX); standard dimension ratio (SDR9); temperature and pressure ratings; ASTM F 876 designation; production code; the name of the inspection agency (NSF International); the potable water designation (NSFus-pw) or potable water/radiant heat designation (NSFus-pw-rfh), and either the ICC-ES evaluation report number (ESR-1852) or the ICC-ES PMG listing mark. The ICC-ES PMG listing number is optional (PMG-1016). (See Table 1 for additional listee marking information).

Installation:

Merflex® tubing must be installed in accordance with the manufacturer's published installation instructions, the applicable codes and this listing. Where differences exist, the instructions in this listing must govern.

**Water Service:** Merflex® PEX OT® Tubing must be installed underground in a manner that ensures external loads will not cause a decrease in the vertical dimension of the cross section exceeding 5 percent. Tubing must be installed to provide an allowance for contraction of the line due to temperature change prior to backfilling. In areas with poor soil conditions (plastic clays), the trench bottom must be prepared using granular material to provide a stable base. Potable water service tubing must not be located in, under or above cesspools, septic tanks, septic tank drainage fields or pits.

**Water Distribution:** Merflex® PEX OT® Tubing laid horizontally must be secured in such a manner that temperature-induced expansion and contraction are accommodated. In areas using the IAPMO UPC, PEX tubing must not be installed within the first 18 inches (457 mm) of piping connected to a water heater.

**Radiant Heating Systems:** Merflex® PEX OT® Oxygen Barrier Tubing is used in radiant heating systems. Installation is to comply with the applicable chapters in the referenced mechanical codes and with the manufacturer's published installation instructions. Details of the design and installation of the radiant heating system are to be submitted to the code official for approval. All circuits are to be formed from continuous lengths of tubing, from manifold supply to return. No splices are allowed. The system may be installed in either concrete or wood floors. When the system is embedded in concrete floors, a moisture barrier is to be laid over a concrete base slab a minimum of $3^1/_2$ inches (89 mm) thick. Under-floor insulation and reinforcing mesh is then to be placed on the slab. The tubing is uncoiled and attached to the mesh using plastic fasteners. A concrete topping is then laid over the tubing. When embedment is in concrete, installation (including minimum concrete cover) is to comply with IBC Section 1906.3 or UBC Section 1906.3, as applicable. When the tubing is installed over polystyrene foam plastic boards, the boards are to comply with IBC Section 2603, IRC Section R316, or UBC Section 2602, as applicable. Mounting brackets and installation hardware are provided by the manufacturer. Horizontally laid pipe is to be secured in such a way that temperature-induced expansion and contraction are accommodated.

Models: **Tubing:**

Merflex® PEX OT® Tubing is manufactured from crosslinked polyethylene (PEX) materials satisfying NSF 14 and 61, as well as ASTM F 876.

Merflex® PEX OT® Tubing is available in red, white, blue and grey.

Merflex® PEX OT® Oxygen Barrier Tubing is the same as Merflex® PEX OT® Tubing but with an oxygen barrier.

The tubing is available in nominal diameters of $^1/_8$, $^1/_4$, $^3/_8$, $^1/_2$, $^3/_4$, 1 and $1^1/_4$ inch (3.2, 6.4, 9.5, 12.7, 19.1, 25.4 and 31.8 mm), and in coils ranging from 25 to 1000 feet (8 to 305 m) long.

Merflex® PEX OT® Tubing is pressure-rated for 100 psi (689 kPa) at 180°F (82°C) and 160 psi (1100 kPa) at 73°F (23°C) with for a standard dimension ratio of 9. Standard dimension ratio is the ratio of outside diameter to wall thickness and is constant for all Merflex® PEX OT® Tubing sizes.

Merflex® PEX OT® Oxygen Barrier Tubing is pressure-rated for 100 psi (689 kPa) at 180°F (82°C) with a standard dimension ratio of 9. Standard dimension ratio is the ratio of outside diameter to wall thickness and is constant for all Merflex® PEX OT® Oxygen Barrier Tubing sizes.

**Fittings:**

Fittings for the PEX tubing must comply with ASTM F 1807, ASTM F 1960, ASTM F 2080, ASTM F 2098 or ASTM F 2159, and be recognized in a current ICC-ES evaluation report.

Conditions of Listing:

1. Tubing must be manufactured, identified and installed in accordance with this listing, the applicable code and the manufacturer's published installation instructions. Tubing and fittings must be installed by Mercury Plastics trained installers. The manufacturer's published installation instructions must be furnished to the code official. The instructions within this listing must govern if there are any conflicts between the manufacturer's published instructions and this listing.
2. When installation is in fire-resistance-rated assemblies, evidence of compliance with IBC Section 713 (penetrations), UBC Section 709 (walls and partitions) and UBC Section 710 (floor/ceiling or roof/ceiling), as applicable, must be provided to the code official for approval.
3. Merflex® tubing must be protected from exposure to direct sunlight. Tubing and fittings must be protected from physical damage with an oversized flexible corrugated sleeve at structural mass penetrations and when the tubing is uncovered. Annular spaces between sleeves and pipes must be filled or tightly caulked in an approved manner.
4. During placement of cover over the tubing, the tubing must be maintained at the greater of $1^1/_2$ times the working pressure or 100 psi (689.4 kPa).
5. Each installation must be pressure-tested for leaks in the presence of the code official or the code official's designated representative.
6. Clearances from heat-producing equipment must be in accordance with the applicable code.
7. Fittings used with Merflex® must be recognized in a current ICC-ES evaluation report as complying with NSF 61 and ASTM F 1807, ASTM F 1960, ASTM F 2080, ASTM F 2098 or ASTM F 2159.
8. The use of tubing on hydronic systems is limited to applications using potable water as the transfer fluid.
9. Minimum bending radius of the tube must be eight times the outside tube diameter. The outside diameter is the nominal diameter plus $^1/_8$ inch (3.2 mm).
10. The tubing is manufactured by Mercury Plastics in Middlefield, Ohio, under a quality control program with inspections by NSF International (AA-633).

**TABLE 1 — MANUFACTURER'S TRADEMARK CROSS REFERENCE TABLE**

| MERCURY PLASTICS, INC. | EMBASSY INDUSTRIES | ROTH INDUSTRIES | CASH ACME |
|---|---|---|---|
| Merflex® PEX OT® Tubing | Embassy/LiquiPEX or HousePEXc | RothPEXc Systems | Cash Acme PEX OT® Tubing |
| Merflex® PEX OT® Oxygen Barrier Tubing | Inferno Heating Systems<br>Embassy/LipuiPEX w/ $O_2$ Barrier<br>HousePEXc w/ $O_2$ Barrier | RothPEXc Systems w/$O_2$ Barrier | Cash Acme PEX OT® w/$O_2$ Barrier |