

BEST PRACTICES FOR ENVIRONMENTAL EVALUATION OF WATER AND SEWER PIPES

The International Standards Organization (ISO) has developed a series of standards on environmental management. These standards, known collectively as the “14000 series,” were first published almost twenty years ago and have been kept current by a process of review and reaffirmation over the years.

The ISO 14000 series standards that are specifically for Life Cycle Assessment (LCA) are the following:

- ISO 14040 – describes the principles and framework for life cycle assessment
- ISO 14044 – specifies the requirements and provides guidelines for life cycle assessment
- ISO 14025 – establishes the principles and specifies the procedures for developing Type III environmental declarations

NO NEED FOR UNPROVEN METHODS

For pipe materials that do not have a good environmental track record, it is tempting to ignore these internationally recognized standards and instead adopt less rigorous criteria for analyzing environmental impacts. In fact, in North America there have been several attempts to use “alternate” LCA methods.

There should be concerns when non-ISO LCA methods are used. The ISO standards are internationally recognized standards that require rigorous assessment, critical review, and data transparency.

PROBLEMS WITH NON-ISO METHODS

Alternative LCA methods all have major shortcomings:

- Analysis is skewed in favor of the material that developed the unproven methodology.
- Data inputs are not transparent.
- There is no independent review of the data and the assessment methods to verify compliance with consensus standards.
- There is no certification by an independent third-party organization to verify compliance with standards.

ONLY PVC PIPE'S LCA COMPLIES WITH ISO STANDARDS

As of the publication of this document, PVC is the only pipe material in North America to follow the ISO standards for environmental assessment. Other materials have performed assessments, but have used alternate methods that are not transparent.

The PVC pipe industry has also published an “Environmental Product Declaration” (EPD). The PVC EPD is a Type III environmental declaration that was prepared per ISO 14025 and certified by NSF International.

EVALUATING THE SUSTAINABILITY OF PIPE MATERIALS

The PVC pipe industry recommends that utilities evaluate their pipe material choices with independent and unbiased environmental data and assessment. Only by standardizing their LCA methodology can utilities ensure meaningful comparisons of the environmental impacts of all materials. The ISO 14000 series is the tried-and-true system for achieving those comparisons.

References: International Organization for Standardization, ISO 14040:2006, “Environmental Management – Life Cycle Assessment – Principles and Framework” (2016); International Organization for Standardization ISO 14025:2006, “Environmental Labels and Declarations – Type III Environmental Declarations – Principles and Procedures” (2015); International Organization for Standardization ISO 14044:2006, “Environmental Management – Life Cycle Assessment – Requirements and Guidelines” (2016); Uni-Bell PVC Pipe Association, “Environmental Product Declaration for PVC Pressure Pipe: Potable Water, Sewer Force Main; PVC Non-Pressure Pipe: Sanitary Sewer and Storm Sewer Pipe Systems,” (2015)