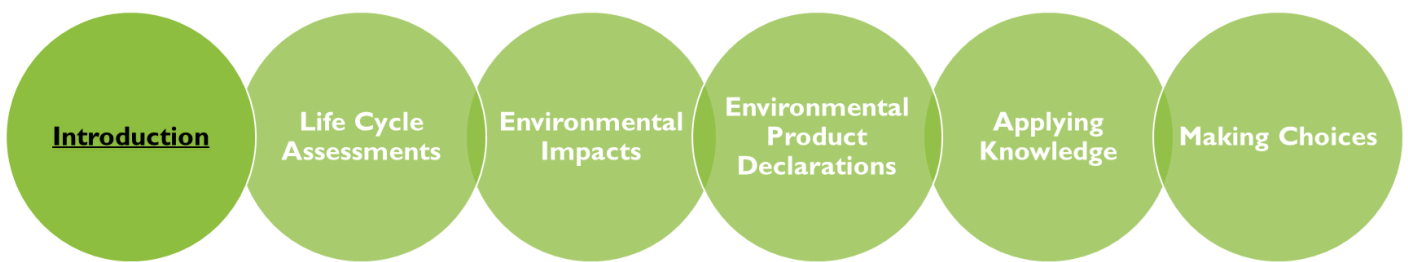


Evaluating the environmental impacts of hot and cold water supply systems in a building to aid product choice: Introduction



Keywords

- Environmental Product Declaration (EPD)
- Life Cycle Assessment (LCA)
- Green House Gases (GHG)
- Carbon reduction
- Sustainable solutions
- Built environment

Article Highlights

This is the first in a series of bulletins which together describe the environmental benefits of plastic piping systems in hot and cold water systems. The bulletins build a resource which supports the development of knowledge of Environmental Product Declarations (EPDs) and Life Cycle Assessment (LCA) to select the best sustainable options.

What does the bulletin cover?

This introduction is a jargon buster. It explains what EPDs are, how have they evolved and why should they be used in the UK. It summarises the main drivers for change.

Introduction

The temperature of our planet is rising at unprecedented levels, commonly referred to as Global Warming, with the majority of Governments worldwide believing that it is extremely likely to have been caused by humans.

Through this series of bulletins, the BPF Pipes Group is raising awareness of the environmental considerations for piping system material selection in buildings. The bulletins together set out the international and national commitments to reduction of green house gases; explain the methodologies for determining the environmental impact of a material, product or system through Life Cycle Assessment (LCA); and show how LCA is presented in the form of an Environmental Product Declaration (EPD). The independently prepared and verified EPDs for plastic piping systems inside buildings are used in the bulletins to demonstrate key features of an EPD and assist readers in identifying the right questions to ask when evaluating options.

Key Drivers for Change

1992 United National Framework Convention on

- International treaty. Adopted 1992. Came into force March 1994.
- Sets non-binding limits on greenhouse gas emissions for individual countries but contains no enforcement mechanisms.

2005 Kyoto Protocol

- International treaty. Adopted 1997. Came into force February 2005.
- Commits the 192 signed up parties to reducing emissions of 6

2008 The Climate Change Act

- UK Act of Parliament.
- Commits the UK to specific reduction targets of the 6 Kyoto GHG by the year 2050, of at least 80% lower than the 1990 baseline.

These initiatives encourage National Governments to own reductions of carbon and greenhouse gas emissions in line with increasingly stringent targets. In 2017, emissions from residential and business sectors combined accounted for 35% of all carbon emissions in the UK (Source: BEIS), mostly created by the continued high use of fossil fuels for space heating and cooking, i.e. operational activities.

Building construction is under scrutiny as a contributing factor on carbon emissions. Close to 50 million tonnes of GHGs are produced as a result of manufacturing, transporting, installing and disposing of construction products and materials used in the UK (including imported products) – this is equivalent to nearly 8% of the UK's GHG emissions. As emissions are reduced from our use of buildings, these emissions become more important, and there will be an increasing focus to measure and reduce embodied carbon in the future.

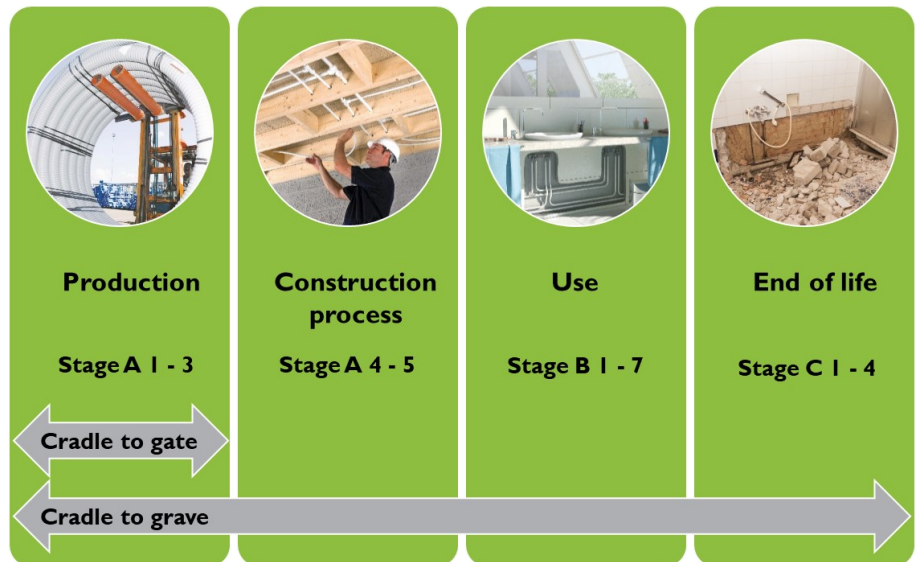
A well planned and constructed building can significantly reduce its carbon footprint by careful selection of products, by increasing levels of insulation, by controlling ventilation, extraction, heat gain and loss throughout design and by introducing "green" sources of energy, amongst other strategies. The evidence for the sustainable selection of products is collated and presented in Environmental Product Declarations.

What are EPDs?

An Environmental Product Declaration (EPD) is simply a fair and consistent means of presenting the Life Cycle Assessment of a product.

Full Life Cycle Assessment, or LCA for short, is an internationally standardised method for comparing all of the sustainability aspects of different products or services. LCA involves systematically collecting and evaluating quantitative data across a number of factors: manufacturing the materials; transforming them into products; product transportation and installation; the product's lifetime of use; and the product's disposal at the end of life.

When comparing construction products, it is important to ensure that the EPDs are covering the same life cycle stages. An EPD can be limited to the production stage only of a product or component. This is known as a 'Cradle to Gate' EPD. For plastic piping systems installed inside buildings, manufacturers have opted for a more comprehensive EPD covering 'Cradle to Grave', which additionally includes life cycle stages of transport to site, installation, use and decommissioning of the product including recycling.



Why use EPDs?

- Government departments and their related organisations must meet the minimum mandatory standards when buying goods and services as part of sustainable procurement - the process whereby organisations meet their needs for goods, services, works and utilities in a way that benefits not only the organisation, but also society and the economy, while minimising damage to the environment. The wider public sector is also encouraged to specify the minimum mandatory standards in tenders.
- With their consistent content and presentation, Environmental Product Declarations for all construction products can be successfully used to create an overall environmental impact of the fabric of a building.
- Comprehensive 'Cradle to Grave' EPDs can be used to make a positive contribution to sustainable procurement.

In the following bulletins, the underlying Life Cycle Assessment (LCA) and its presentation in the form of an Environmental Product Declaration (EPD) are explained.

Evaluating the environmental impacts of hot and cold water supply systems in a building to aid product choice

Bulletin 1: Introduction

Bulletin 2: Life Cycle Assessments (LCAs)

Bulletin 3: Balancing the environmental impacts

Bulletin 4: Interpreting Environmental Performance Declarations (EPDs)

Bulletin 5: Applying your knowledge

Bulletin 6: Asking the right questions - making choices

About the BPF Pipes Group

Part of the British Plastics Federation, the BPF Pipes Group is a trade association representing manufacturers and material suppliers of plastic piping systems across the UK.

Committed to sustainable construction, its aims are to provide a forum for the exchange of technical expertise between member companies and to promote the importance of plastic as a pipework material for the full spectrum of above and below ground, pressure and non-pressure applications. It also plays a key role in initiating and disseminating research and informing and influencing the standards bodies pertaining to plastic pipe systems. It works closely with TEPPFA, The European Plastic Pipes and Fittings Association.

Contact us:

Tel: 01932 343409

Email: secretary@bpfpipesgroup.com

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