



# Concrete Technology in Focus

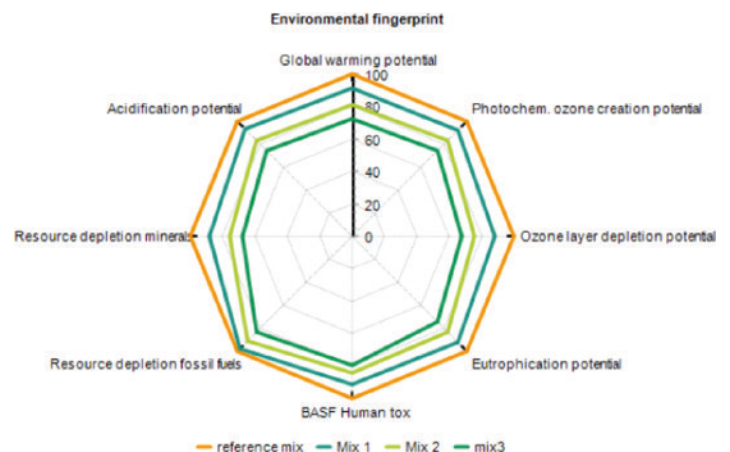
## Eco-Efficiency Analysis

### Overview

An important part of Master Builders Solutions strategy is to help our customers succeed. Responding to the profitability, sustainability and performance challenges our customers face each day, Master Builders Solutions strives to offer the best, most economical products with the lowest environmental impact. The Eco-Efficiency Analysis methodology was developed to evaluate the cost and environmental impacts of alternative products, processes and technologies. To date, Master Builders Solutions has completed more than 450 concrete product evaluations for our customers, government agencies and the design community.

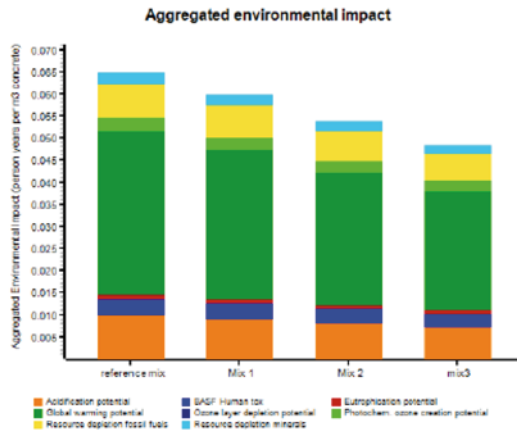
Eco-Efficiency Analysis evaluates the entire environmental life cycle of a product beginning with the extraction of raw materials through the end of life application. This “ecological analysis” quantifies the environmental impact of a product in key categories aligned with ISO standards for life cycle assessment.

The Eco-Efficiency Analysis analyzes a wealth of detailed information compiled from Master Builders Solutions’ in-house data, industry associations and government databases. A result of the analysis is an “environmental fingerprint,” shown in Figure 1, that provides a relative environmental comparison of the various alternatives being evaluated compared to a reference. The environmental impact is lowest at the origin of each axis within the environmental fingerprint.



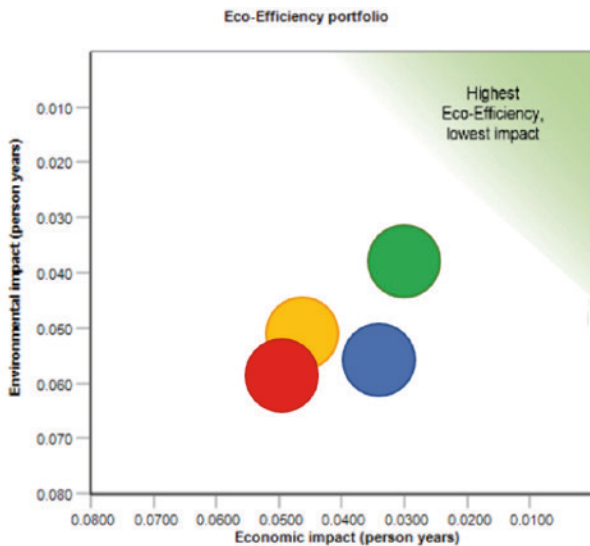
## Aggregated Environmental Impact

The normalized and weighted results are summed up to a total environmental impact. Results are expressed in terms of person years (or person days, person minutes, etc) by multiplying the total environmental impact by the total population of the region.



## Adding the Economic Impact

Social and statistical weighting factors are used to develop a single value to describe the ecological impact for each product or process. Each of these values is plotted against the total lifetime cost for the alternative derived from the economic component of the Eco-Efficiency Analysis. The most economical and ecological products or processes move directionally toward the upper right quadrant in the Eco-Efficiency Analysis profile.



## Validation

Eco-Efficiency Analysis ecological data acquisition and calculations are conducted according to the environmental protocol ISO 14040 and 14044. The Eco-Efficiency Analysis methodology has been third-party validated by the following organization:

- NSF International (Protocol P352 - Validation and Verification of Eco-Efficiency Analysis)
  - › NSF International, a not-for-profit, non-governmental organization, develops national standards and provides third-party conformity assessment services.

## More Information

The Master Builders Solutions brand brings expertise to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide. We leverage global technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, fiber reinforcement solutions, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts, and performance flooring solutions.

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