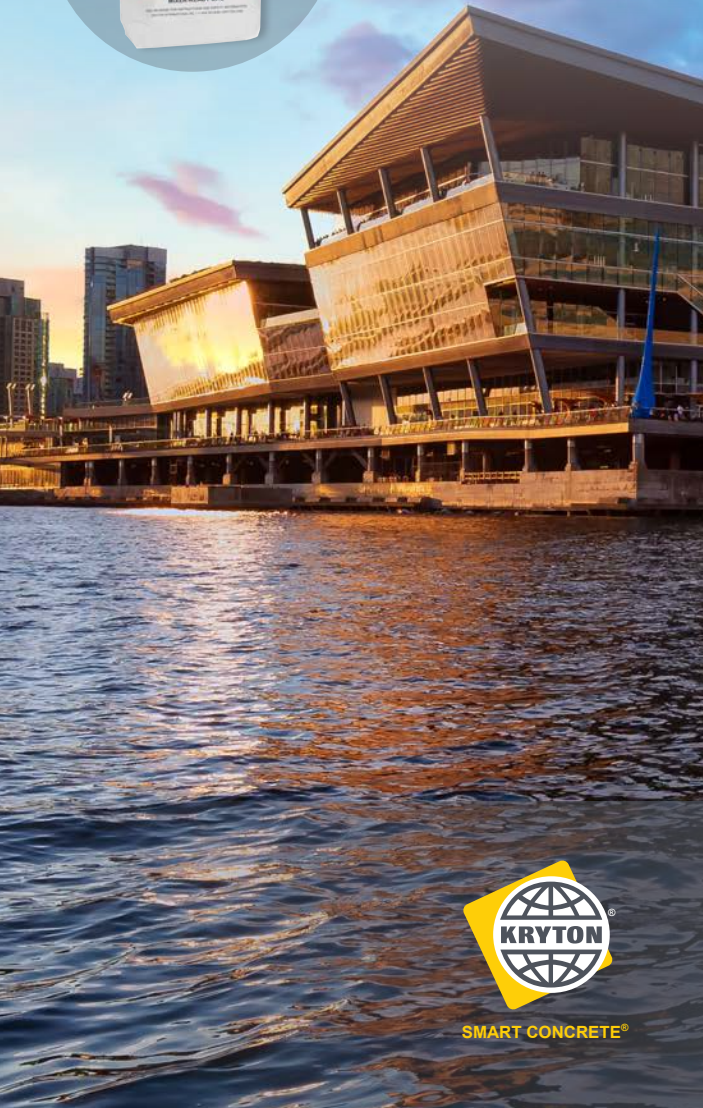


# Hard-Cem<sup>®</sup>

## ENVIRONMENTAL BENEFITS



### WHY ENVIRONMENTAL BENEFITS

Concrete is the world's most used building material. And for good reason! It can withstand fire, rot, and severe weather. It can also be made from regionally sourced materials, making it widely available and affordable. These well-known benefits have made concrete indispensable around the world for centuries. That remains the case even now, making concrete a vital element in the development of sustainable and resilient communities.

However, the manufacturing of concrete requires the production of cement, which is a great contributor to concrete CO<sub>2</sub> emissions. In fact, each pound of cement produces 0.9 lb of CO<sub>2</sub>.

**To mitigate that impact, you need to reduce your concrete's carbon footprint.**

There are a number of solutions for this, including using newer cements with lower carbon content and ultimately, producing concrete with less cement in general.

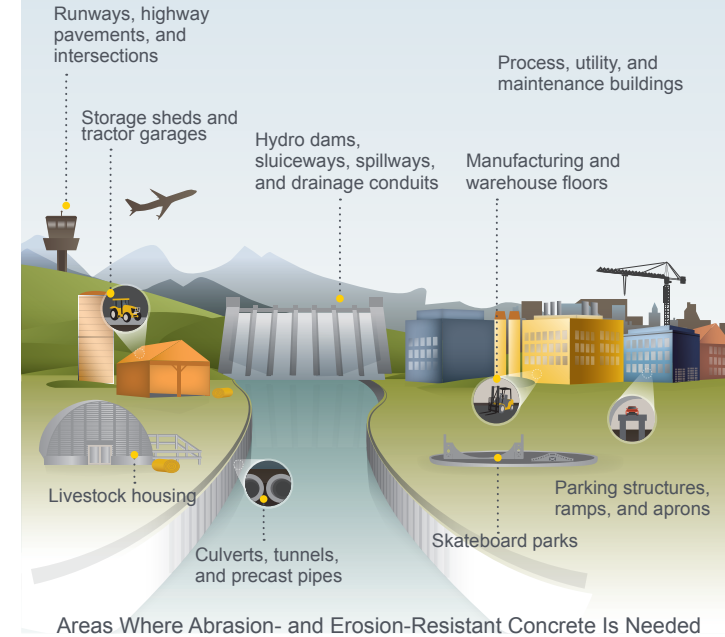
### WHY HARD-CEM

Using low-carbon concrete while keeping it durable is not an easy balance to maintain. In particular, the concrete's resistance to abrasion and erosion is likely to suffer as a result. But that's why we have Hard-Cem.



As an admixture with a unique metal-mineral microstructure, Hard-Cem fortifies the remaining cement paste in a mix to increase the concrete's resistance to abrasive and erosive forces. That doubles the concrete's wear life, reducing the number of replacement and repair sessions the concrete will need, which in turn, lowers its lifetime carbon footprint.

## APPLICATIONS



Hard-Cem can be used in any ready-mix, shotcrete, or precast concrete to improve abrasion and erosion resistance and extend the wear life of the concrete. It is typically used in the following industries:

- Industrial
- Infrastructure
- Mining, oil, and gas
- Agriculture
- Hydro
- Manufacturing

## ADDITIONAL GREEN HARD-CEM BENEFITS

- ✓ Contributes to LEED certification
- ✓ Does not contain VOCs
- ✓ Helps comply with OSHA silica exposure requirements with its dust-free use
- ✓ Allows treated concrete to remain recyclable
- ✓ Reduces worksite waste with dissolvable packaging

# HARD-CEM IN THE FIELD

KAMLOOPS, BC, CANADA  
NEW AFTON MINE



The original concrete in the truck-turning and rock chute areas of New Afton Mine wore out to the point that it needed to be replaced after only three years. This was an unexpected disruption that was likely to repeat itself, which would only increase the mine's operating costs and embodied carbon emissions. Hard-Cem changed that. With its application in the mine's replacement concrete, the more durable concrete has allowed the mine to skip at least two replacement events, which has reduced the mine's lifetime carbon footprint by nearly 50%.

## HOW WE MANUFACTURE HARD-CEM SUSTAINABLY



MADE WITH 100% RECLAIMED INDUSTRIAL MATERIALS



STORED IN A CONTAMINANT-FREE ENVIRONMENT



MANUFACTURED IN A CLOSED SYSTEM WITH NO BY-PRODUCTS



CAPTURED PROCESS DUST AND WASH WATER FOR TREATMENT AND REUSE



PACKAGED IN DISSOLUBLE BAGS FOR ZERO PACKAGING WASTE

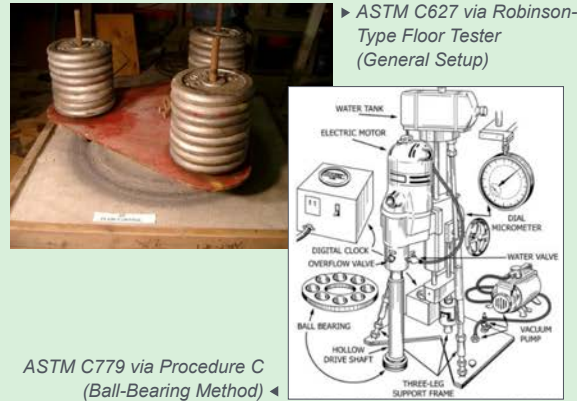


TRANSPORTED SAFELY AND SUSTAINABLY

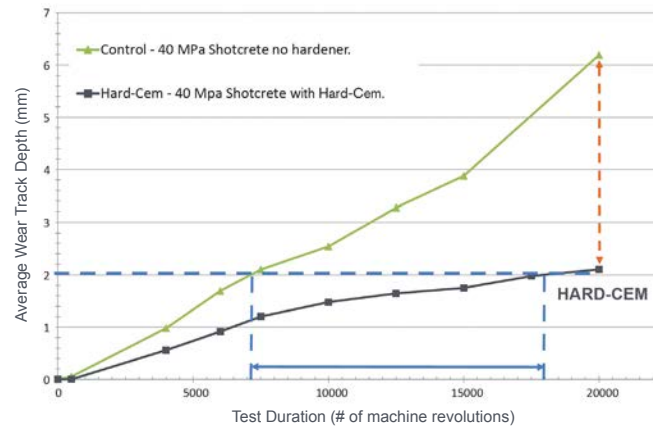
## PROVEN RESULTS

### HARD-CEM IN TESTING

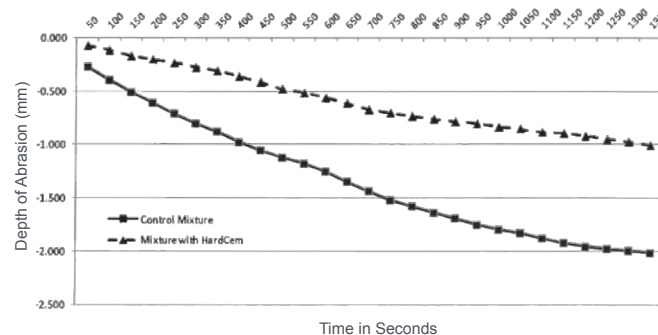
Under ASTM C627 and ASTM C779 testing methods, Hard-Cem demonstrates that when treating concrete, it typically halves the amount of abrasive wear the concrete encounters.



Hard-Cem vs Control Shotcrete



Time vs Abrasion



Kryton headquarters are in Vancouver, Canada. Our solutions are sold by over 50 distributors worldwide.

To find the Kryton distributor nearest you, visit our website: [www.kryton.com](http://www.kryton.com).

For more environmental benefit details on Kryton's Hard-Cem, [contact a Kryton representative](#) for more information on Hard-Cem and its environmental product declaration.



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