

# Rio Tinto Smelter Modernization

Kitimat, BC, Canada

## BACKGROUND

Rio Tinto is a leading international mining group involved in exploration, mining and processing mineral resources worldwide. In 2011, Rio Tinto Alcan began a 4.8 billion dollar modernization project of its 60-year-old aluminum smelter in Kitimat, BC. The Kitimat Modernization Project (KMP) will boost production by 48% to 420,000 tons per year and reduce overall facility emissions by 50% making this facility one of the most modern smelters in the world and among the largest of Rio Tinto's smelters. Modernization includes construction of new potlines consisting of 360 pots housed in 6 buildings compared to the smelter's 900 smaller pots in 15 buildings. A potline building houses a series of pots (large electrolyte cells) that produce aluminum and can extend for more than a kilometre (0.6 miles) in length. Because all of the concrete, and especially the building floors will be exposed to an extreme amount of abrasion wear, the project team knows they need a reliable concrete hardening solution.

## SOLUTION

Hard-Cem was chosen as the concrete durability enhancing solution because of its proven performance in demanding mining environments. In conditions where concrete is subject to impact and abrasion from loaders, forklifts and other transport vehicles moving raw materials and finished goods from processing and production facilities to warehousing facilities, Hard-Cem is ideal.

Moreover, Hard-Cem doesn't affect the electrical conductivity of concrete making it a superior performing product for a smelter's electrical environment. Over 500 tonnes of Hard-Cem was used in an approximately 12,500 m<sup>3</sup> (16,700 yd<sup>3</sup>) of concrete in the KMP.

Hard-Cem is an integral concrete hardening admixture that will maintain the integrity of concrete relative to abrasion and erosion. Hard-Cem is unique in its ability to enhance the integrity of air-entrained and non-air entrained concretes. Hard-Cem delivers value and quality assurance for projects.

### OWNER:

Rio Tinto Alcan Inc

### ENGINEER:

Bechtel Canada

### CONTRACTOR:

DL Baker Canada

### CONCRETE SUPPLIER:

Kentron Construction, Division of YCS

### Total Area:

12,500 m<sup>3</sup> (16,700 yd<sup>3</sup>)

### PRODUCTS:

Learn more at [kryton.com](http://kryton.com)  
Hard-Cem®



Hard-Cem can be used in horizontal, vertical or inclined concrete.



Hard-Cem provides significant advantages for projects needing enhanced durability including: paving, industrial floors, precast pipe, and erosion control structures.