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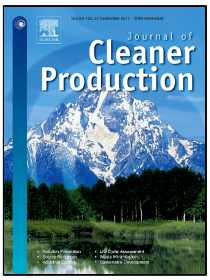

Review of Cr(VI) environmental practices in the chromite mining and smelting industry – relevance to development of the Ring of Fire, Canada

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Review of Cr(VI) environmental practices in the chromite mining and smelting industry – relevance to development of the Ring of Fire, Canada

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Abstract

During stainless steel production, new chromium units are obtained from ferrochrome, a relatively crude alloy produced from chromite ore. Large chromite reserves have recently been discovered in the so-called Ring of Fire, Canada. Due to the strategic importance of uninterrupted stainless steel production in North America, it is highly likely that these reserves will be exploited in the foreseeable future. However, the Ring of Fire is located in an area that forms part of the largest peatland in the world, as well as the traditional territories of several First Nations (indigenous American communities), which highlights the environmental and social sensitive nature of the intended developments. In this review, relevant mining and/or smelting processes were considered within the context of possible prevention and mitigation of hexavalent chromium, Cr(VI), formation, and the treatment of