

# LCA of the silicomanganese alloys production at Eramet Norway, Porsgrunn

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## **Introduction and background:**

Eramet Norway Porsgrunn specializes in refined ferromanganese and silicomanganese alloys, and with its furnaces and refining facility (Manganese Oxygen Refining - MOR), the smelter is their most flexible processing plant in terms of product qualities. The production of manganese alloys involves many process steps that require resources to be extracted and energy and water to be used. These processes also generate emissions and waste. Understanding of the life cycle inventory assessment is essential for making environmental improvement of the industrial process. This study will evaluate the environmental impact of the Eramet Norway's Manganese production plant in Porsgrunn. The study is a gate-to-gate assessment of production of one kilogram of manganese alloy at the plant in Porsgrunn, with boundaries including smelting and associated upstream and downstream processes involved.

## **Problem description and objective:**

LCA is crucial because a company may have a product or service that saves money, energy, or reduces emissions in one area of use, but the overall impact is greater. LCA helps to identify the overall impact of a process. The main objective of the study are;

- A literature review of LCA of the refined SiMn production.
- Using openLCA software to simulate LCA simulation of refined SiMn production gate-to-gate production at Eramet Norway, Porsgrunn.
- Evaluation a set of impact effects , such as, Global Warming Potential (GWP), Acidification Potential (AP), Particulate Matter (PM) and Photochemical Ozone Creation Potential (POCP).



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