



SQM's solar salts contribute to a cleaner future

Around 4 million metric tons of GHG emissions are displaced annually (24 MMt_{CO2eq} in total) by all molten salt storages in CSP power plants compared to coal-fired power plants. This is equivalent to the carbon footprint of 651 times the distance earth-sun with a national rail by one passenger.

Concentrated Solar Power (CSP) with thermal energy storage has been proven to be a cleaner and more sustainable alternative to traditional power generation methods, especially when it comes to reducing greenhouse gas (GHG) emissions.

According to a recent study carried out by the Fraunhofer Institute, electricity generated by CSP plants with thermal storage produce significantly less GHG emissions compared to coal or natural gas. CSP plants emit only 7.6 kgCO_{2eq}/MWhel during the power generation phase, whereas coal plants emit 137 times and natural gas plants emit 58 times more GHG emissions per year, generating the same amount of electricity (4.05 TWhel).

The emission intensity factors for SQM solar salts are determined by calculating the average GHG emissions released during the production of solar salts and then relating it to the total generated electric energy to the grid by the respective CSP plant over a period of 30 years. The calculated average value of the solar salts carbon footprint from SQM is 0.60 kgCO_{2eq}/kg of solar salts. This value provides insight into the environmental impact of the production of solar salts, which is just one aspect of the overall carbon footprint of CSP plants.

In addition to reducing GHG emissions, CSP plants and thermal storage units also have other environmental benefits. They do not require water for cooling, which is a major advantage in arid regions. The use of CSP plants and thermal storage units, can also reduce the dependence on fossil fuels and promote energy independence.

CSP plants equipped with thermal storage have the unique value to solve the intermittency of the other renewable energy technologies like PV and Wind. The energy accumulated in the thermal storage can be released at convenience during the night hours or when the sun and wind are not available.

The electricity generated by this technology has the potential to mitigate the effects of climate change and promote a more environmentally friendly future. Moreover, thermal energy storage

powered by renewable energy sources, provides heat used in industrial processes avoiding the use of fossil fuels.

SQM produces solar salts, which are a clean and natural-source solution. These salts are made from sodium and potassium nitrate, which are derived from Caliche Ore and Solar Brines, two natural resources found in northern Chile. Potassium nitrate salts from SQM emits at least 54% less kg CO₂ ton* than the Ecolvent calculated value for alternative production processes, while Sodium Nitrate production process emits less Kg CO₂-Eq than any other NaNO₃ producers in the industry

ABOUT SQM:

SQM is a Chilean mining company that is present in strategic industries for sustainable development, such as health, food, technology, and clean energies.

The company has five business lines: Specialty Plant Nutrition; Iodine and Derivatives; Lithium and Derivates and Potassium. SQM's industrial chemicals division produces a range of products, including potassium chloride, sodium nitrate, and potassium nitrate. These chemicals are used in a variety of applications, such as industrial cleaning agents, food additives and clean energy. SQM is committed to producing high-quality products that meet the needs of its customers while also adhering to strict safety and environmental standards.

SQM is committed to upholding its corporate values of Excellence, Safety, Integrity and Sustainability. SQM continuously innovates by improving process so that the company can be a leader in the industry while supporting communities where it operates.

SQM places a strong emphasis on sustainability, to minimizing its environmental impact and promoting responsible mining practices. The company has implemented a variety of programs to reduce its water consumption, improve energy efficiency, and reduce greenhouse gas emissions.

ABOUT FRAUNHOFER INSTITUTE:

The Fraunhofer-Gesellschaft based in Germany is the world's leading applied research organization. Prioritizing key future-relevant technologies and commercializing its findings in business and industry, it plays a major role in the innovation process.

Founded in 1949, the Fraunhofer-Gesellschaft currently operates 76 institutes and research units throughout Germany. Over 30,000 employees, predominantly scientists and engineers, work with an annual research budget of €2.9 billion.