

Lithium Brines Reserves and Resources in Northern Chile

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ABSTRACT

Northern Chile is characterized by a succession of north–south trending ranges and basins occupied by numerous saline lakes and salt crusts, collectively called salars.

Discovery of lithium in the Salar de Atacama of northern Chile during a study in 1969, initiated the identification of one of the world's major continental regions of lithium brines. Today, the Central Andes offer a significant portion of the world's Li production.

The principal producer of lithium from brine is Chile. In 2020, produced 18,000 tons of lithium metal, some 22% of the world's total of 82,000 tons of lithium (t Li). Chile's total cumulative production during the last 35 years was 246,956 t Li.

Chile became a major producer due to the large size of the Salar de Atacama and the high quality of lithium brines.

Lithium rich brines are predictable over a large area of Northern Chile from which some 59 occurrences have been reported so far.

Here, we are counting only 23 deposits that include exploration or evaluation efforts. Of these cases, only two; the Salar de Atacama and the Salar de Maricunga are the subject of evaluation work with enough detail to be able to define lithium reserves. Recent numbers are 10.879.000 t corresponding to almost 52% of world reserves.

Reports, evaluations and exploration surveys on 23 salars completed during the last decade provide an updated view on the current situation of lithium brines. This revision analyses several studies in order to better understand Chile's remarkable current and future situation in relation to lithium brine reserves, resources and exploration.