Soda Ash Life Cycle Assessment
Fact Sheet - Westvaco

Sustainability at WE Soda

We remain steadfast in our mission to provide long-term value for our stakeholders without losing our strong commitment to operating in a safe, reliable, and responsible manner. At WE Soda, we focus on further integrating sustainability considerations into our business strategy every day.

We believe that our sustainability performance is critical to our long-term success. We strive to meet the expectations of all our stakeholders while also conducting business in a socially, economically, and environmentally responsible manner that meets the needs of present and future generations.

What is Life Cycle Assessment?

Life cycle assessment (LCA) is an analytical tool used to comprehensively quantify and interpret the environmental impacts of the entire life cycle of a product. A LCA takes a deeper look at each stage of product's life, from raw material extraction to end of life management. We have partnered with Sustainable Solutions Corporation to conduct a cradle-to-gate LCA to better understand the environmental impacts associated with the life cycle of the Soda Ash products produced at our Westvaco facility in Green River, Wyoming.

Project Scope

Impact Assessment:	TRACI 2.1; IPCC AR6
Independent Review Conducted By	James Mellentine, Thrive ESG
LCA Standards:	ISO 14040, ISO 14044, ISO 14067
System Boundary	Cradle-to-Gate
Geographic Boundary:	North America
Functional Unit:	One kilogram
LCA Software:	SimaPro v9.4.0.2

Soda Ash Description

Soda ash is one of the most widely used and important commodities produced in the United States. It's widely used glass, including solar glass and a wide variety of essential chemicals like baking soda. It is used in water treatment, and in soaps, detergents, and other household cleaning products. It is also a key component in many metal refining processes, such as lithium, which is one of the building blocks of batteries for electric vehicles and energy storage.

Life Cycle Assessment Results – Soda Ash

This study was conducted according to the life cycle inventory (LCI) and life cycle impact assessment (LCIA) standards established by the International Organization for Standardization (ISO) 14040, 14044, and 14067 series. The results for the TRACI 2.1 (developed by US EPA) impact categories are shown below for an average kilogram of soda ash, with the inclusion of cumulative energy demand. These impact categories were chosen based on their relevance and general indication of the environmental impact of a product in North America.

Cradle-to-Gate TRACI 2.1 with Cumulative Energy Demand – Soda Ash

Impact category	Unit (per kg)	Soda Ash
Global warming potential (IPCC AR4)	kg CO2-Eq.	0.917
Ozone depletion potential	kg CFC-11 Eq.	1.57E-08
Acidification potential	kg SO2-Eq.	0.002
Eutrophication potential	kg N-Eq.	6.17E-05
Smog formation potential	kg O3-Eq.	0.018
Fossil Fuel Depletion	MJ-surplus	0.313
Cumulative Energy Demand	MJ	7.40

Product Carbon Footprint Results – Soda Ash

For product carbon footprints, the latest Intergovernmental Panel on Climate Change Assessment Report methodology (AR6) was used to also calculate the global warming potential.

Cradle-to-Gate Product Carbon Footprint (IPCC AR6 Methodology)

Impact category	Unit (per kg)	Soda Ash
GWP100 – Fossil	kg CO2-Eq.	0.966
GWP100 – Biogenic	kg CO2-Eq.	0.002
GWP100 - Land Transformation	kg CO2-Eq.	0.000
GWP100 – CO2 Uptake	kg CO2-Eq.	(0.002)
GWP100 – Total	**kg CO2-Eq.**	**0.966**

For more information, contact us at

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