

2021 Sustainability Report Ten-Nine Technologies

Carbon neutral from cradle to gate



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From our founder

Sustainability is in our DNA. When I founded Ten-Nine Technologies in 2014, it was with a set of guiding principles that included working only in parts of the periodic table that had low toxicities and abundant supply. I also chose to utilize only synthesis methods that I knew to be scalable and sustainable. As Ten-Nine Tech moves into large-scale manufacturing, these early foundational commitments are showing their incredible value - both to our carbon footprint and to our bottom line.

The world can no longer afford solutions that work but are not sustainable. Ten-Nine Tech's mission is to create the world's most powerful AND most sustainable battery active materials.

I'm pleased to present this – Ten-Nine's first sustainability report - as we build our corporate future based on ethical, transparent, and responsible behavior towards our employees, our communities, and our world.

Paige Johnson

Founder and CEO, Ten-Nine Technologies

Carbon neutral from cradle to gate

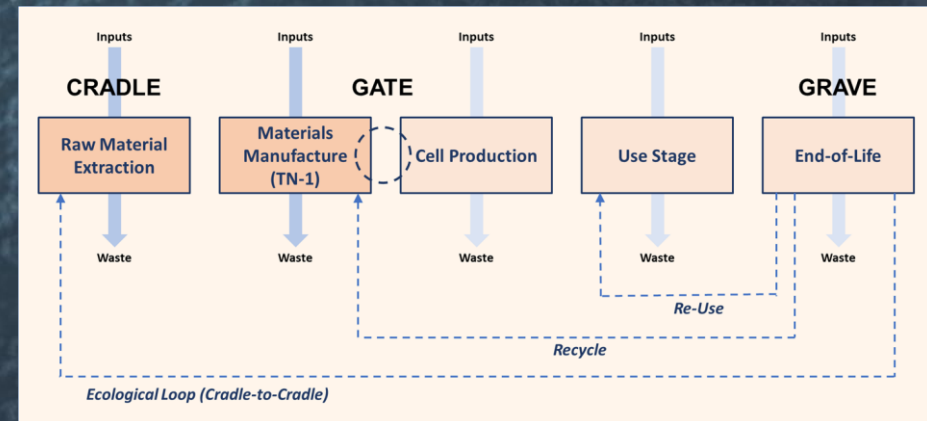


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Life cycle assessment of TENIX™

The 2021 opening of Ten-Nine Tech's pilot plant, TN-1, with an annual capacity of twenty-four tons allowed us to move beyond lab-scale projections and for the first time to quantify the carbon footprint of our flagship product, TENIX™. TENIX™ is a proprietary, patent-protected nanomaterial that significantly increases the performance of both single-use and rechargeable batteries.

Ten-Nine Tech contracted with Minviro, a global life cycle assessment (LCA) firm headquartered in the UK, to look at the greenhouse gas emissions, or carbon footprint, of the production of TENIX™. Minviro's study started with input materials (CRADLE) and ended as the product leaves the plant (GATE). As we move toward market entry, we will be able to extend our analysis to include cradle-to-grave, and even cradle-to-cradle in future years.



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LCA results by scope

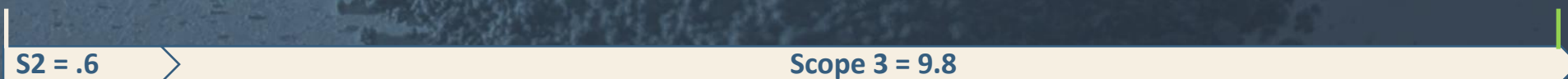
The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard defines three scopes of emissions that allow manufacturing processes and services to be readily compared across companies and locations.

SCOPE 1 emissions are *direct* emissions of greenhouse gases from company operations. Because Ten-Nine Tech does not burn fossil fuels at the TN-1 plant, our Scope 1 emissions are zero.

SCOPE 2 emissions are *indirect* emissions from the generation of purchased or acquired energy such as electricity. Ten-Nine Tech has chosen to utilize 100% renewable wind energy available from our utility provider. Our Scope 2 emissions are .6 kg of carbon dioxide for every kg of TENIX™ we produce.

SCOPE 3 emissions are all other *indirect* emissions within the cradle-to-gate stage, including those associated with the extraction, production, and transportation of our chemical precursors. Scope 3 emissions are the highest of the three at 9.8 kg of carbon dioxide per kg of TENIX™ produced.

Scope 1 = 0



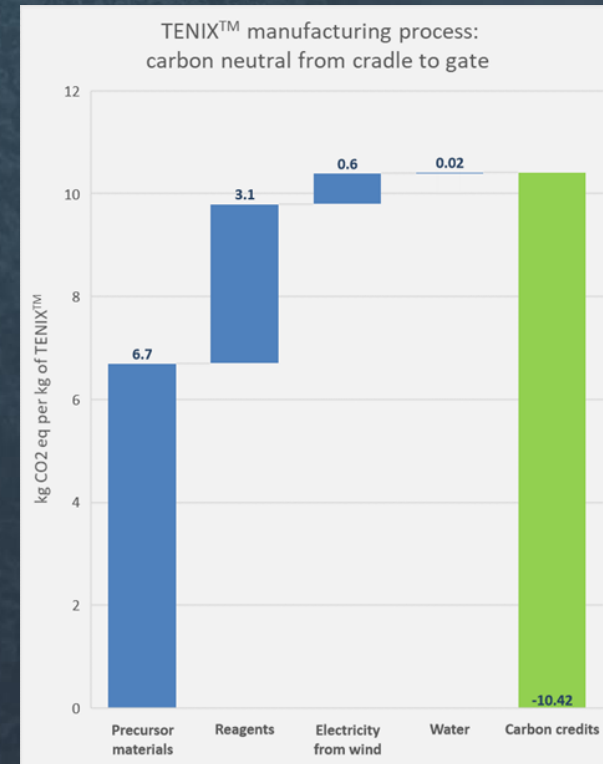
Total GHG emissions = 10.4

Carbon neutral from cradle to gate

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To offset the indirect emissions in Scopes 2 and 3, Ten-Nine Tech purchases verified carbon credits. As we produce TENIX™ we retire carbon credits, and we have embedded this practice in our corporate accounting protocols. We always stay on the climate-positive side of the equation, retiring a few more credits than needed to balance our already low production carbon footprint. The offsets we purchase come from a range of Gold Standard certified projects all over the globe that are designed to meet the United Nations Sustainable Development Goals.

We recognize that emissions are not the only aspect of sustainability, so we also purchase our precursor materials and reagents from reliable chemical suppliers recognized for their own high ESG (Environmental, Social, and Governance) standards. Our suppliers monitor their upstream sources to ensure that they are CAHRA (Conflict Affected High-Risk Area) free, have acceptable social license to operate, and arrive at our plant along as low-carbon a route as is feasible.



Carbon neutral from cradle to gate

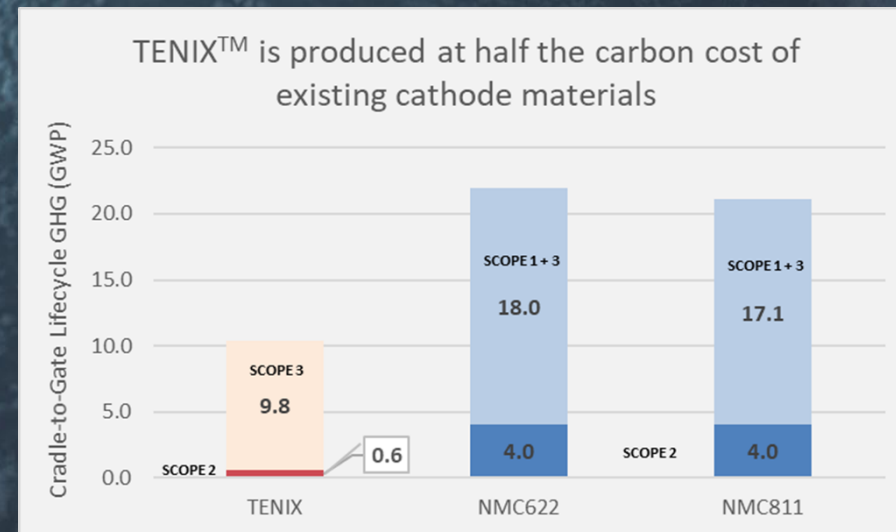
Half the carbon and none of the cobalt

Quantifying our carbon footprint lets us compare TENIX™ to other battery active materials. We are incredibly pleased to announce that TENIX™ has just HALF the carbon footprint of some nickel-manganese-cobalt (NMC) cathode powders, which are among those most commonly used to make lithium-ion batteries.

Cobalt also has hazardous toxicity and environmental impacts as well as a supply chain rife with human rights violations.

TENIX™ is cobalt free.

Our LCA detailing Scopes 1, 2, and 3 emissions allows us to compare the carbon footprint of TENIX™ with that published for selected existing cathode materials. Not only are our Scope 2 emissions a fraction of those associated with production of NMC powders, but the metal precursors for TENIX™ have significantly lower Scope 3 global warming potential than those used to create NMC powders derived from equivalent ore deposits (data from Minviro LCA, 2021, and Kelly et. al, 2021).



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References and resources

Life Cycle Assessment study of TENIX™ manufacturing prepared by Minviro for Ten-Nine Technologies on 24 November 2021.

Kelly and others, 2021, Energy, greenhouse gas, and water life cycle analysis of lithium carbonate and lithium hydroxide monohydrate from brine and ore resources and their use in lithium ion battery cathodes and lithium ion batteries, Journal of Resources Conservation & Recycling, 174 (12), DOI:10.1016/j.resconrec.2021.105762.

Carbon credit retirement ledger created by Rock Whisperer LLC and made part of Ten-Nine Technologies' books upon first batch of production.

TENIX™ data is generally outlined on our website at <https://www.ten-ninetech.com/>; detailed information available upon request.



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