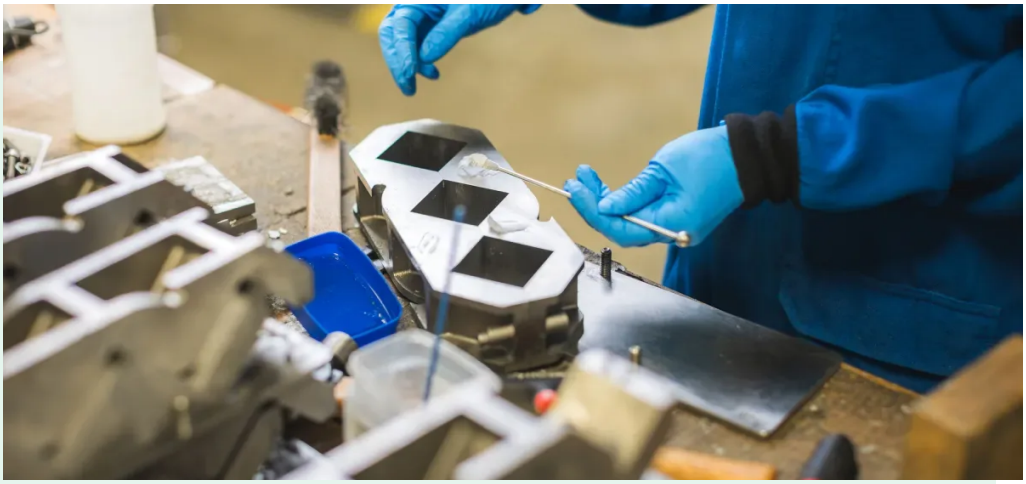
2026 年 10 月 6 日

环境与气候 | CET-6 / KAOYAN / IELTS / TOEFL | 641 词

Brimstone and its one-stop process for making cleaner cement and critical minerals

Brimstone及其一站式工艺：同时生产更清洁水泥与关键矿物

难度 进阶 · CET-6 425-500 · KAOYAN 50-65 · IELTS 6-6.5 · TOEFL 4-4.5



图片：MIT Technology Review

During the more climate-focused Biden administration, the company’s primary pitch was its ability to produce cement while generating about 60% less greenhouse-gas emissions. It achieves this by switching to silicate rocks instead of standard limestone, which releases carbon dioxide when it’s heated. The conventional process for creating cement, the binding used to produce concrete, contributes about 8% of the world’s carbon dioxide pollution.

Under the protectionist and climate-denying Trump administration, however, the company is now stressing the secondary benefits of its process: the ability to extract other valuable materials from those same silicate rocks.

The company has said for years that its process could also generate materials that can be used to strengthen cement. But in early 2025, Brimstone highlighted that it would be able to also produce smelter-grade alumina, the raw material used in aluminum.

重点词汇

15 词条

emissions*
n 排放物，排放

dubious*
adj 怀疑的，存疑的

extract*
v 提取，开采

domestic*
adj 国内的

stumble*
n 失误，挫折

subsidize*
v 补贴，资助

restoring*
v 恢复，归还

protectionist*
adj 贸易保护主义的

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Brimstone and its one-stop process for making cleaner cement and critical minerals / 续

It then revealed it had another trick up its sleeve late last year : the ability to make steel, magnesium, titanium, and other critical minerals from the same rock in a single refinery.

The company's CEO, Cody Finke , said those materials represent a $2.4 trillion global market. Brimstone's approach promises to provide a domestic path for goods mostly produced today in China, the subject of Trump's harshest trade policies and rhetoric.

Key indicators

Industry: Heavy industry

Founded: 2019

Headquarters: Oakland, California, US

Notable fact: In 2023, the company earned third-party industry certification for its process for manufacturing Portland cement, allowing its product to qualify for standard manufacturing projects.

Potential for impact

The company made a very big deal of its newfound ability to produce all these other goods, arguing its process would bolster national security and usher in the "next generation of industrial refining." The basic environmental promise is that generating all these materials from the same rock and a single mining process would require dramatically less energy and produce far less waste than manufacturing them separately.

"I think that we have one of the generational companies that's actually able to create an industrial revolution," Finke says.

To which we would say: Well, we'll see.

Caveats

Brimstone has yet to produce anything at a commercial scale, and it faces numerous financial and technical challenges. Some observers are dubious that the company will be able to economically extract sufficient quantities of so many materials from a single type of rock-or overcome the cost and labor issues that make mining and refining minerals a tough business in the US.

Brimstone also suffered a major stumble last year, when the Trump administration revoked a $189 million grant intended to subsidize its next plant, a planned commercial demonstration project in Reno, Nevada.

Finke says the company continues to have fruitful conversations with the administration about restoring those funds, in which Brimstone has emphasized its potential to boost domestic production of critical minerals. He has previously said the company will be able to proceed with the development of the plant, even without that grant or other subsidies.

Next steps

重点词汇

15 词条

refinery*
n 精炼厂

bolster*
v 增强，巩固

revoked*
v 撤销，取消

slash*
v 大幅削减

binding
n 黏合剂

usher in
v 开启，引入

Caveats
n 注意事项，警告

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The company expects to begin operating the Reno facility, which will only produce cement, supplementary materials, and alumina, in 2028. That means Brimstone will still need to finance and build its first full-scale factory to deliver the steel, titanium, and other critical materials, likely pushing the timeline for doing so into the next decade.

Based on its progress so far, though, the company has already lined up several commercial deals. That includes agreements to supply cement to retail giant Amazon and alumina to Century Aluminum, one of the US's largest producers of its namesake metal.

Even if Brimstone doesn't bring about another industrial revolution, the company is equipped to slash emissions from cement, which is reason enough to pay close attention.

If Brimstone also manages to dramatically reduce the energy, pollution, and costs associated with extracting and refining rock to produce all-or any-of those other goods, that would represent a big corporate and climate win as well.

重点词汇

15 词条

阅读笔记

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