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Americans' Old Car Batteries Are Making Mexican Workers Sick

The removal of lead from car batteries, many from the United States, at recycling plants in northern Mexico has led to high levels of lead contamination, a new report found.

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After tests showed high levels of lead in Azael Mateo González Ramírez's body, his supervisor at a car battery recycling plant in northern Mexico insisted he keep working. Alejandro Cegarra for The New York Times

By Steve Fisher

Photographs by Alejandro Cegarra

Steve Fisher traveled to Monterrey, Mexico, and spoke with current and former workers at car battery recycling plants.

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After returning home from his job at a car battery recycling plant in northern Mexico one evening in 2019, Azael Mateo González Ramírez said he felt dizzy, his bones ached and his throat was raspy. Then came stomach pain, he said, followed by bouts of diarrhea.

The plant in Monterrey where he worked handled used car batteries, many from the United States, extracting lead as part of the process. Mr. González, 39, stacked the batteries, he said, near large containers of lead dust.

Medical tests, Mr. González said, showed high levels of lead in his body; experts agree that no level of lead is safe and over time it can result in neurological and gastrointestinal damage.

His supervisor at the facility, he said, insisted he keep working.

The city of Monterrey, a three-hour drive from Texas, has become the largest source of used car batteries from the United States, with steady growth over the past decade in the shipment of used American batteries to Mexico, according to the U.S. Environmental Protection Agency.

The increase in batteries from the United States comes as a [report](#) released Monday found significantly high levels of lead at many facilities, leaving workers vulnerable to a toxic metal that poses severe risks to human health.

Soil samples taken outside six battery recycling plants in Monterrey in 2022 revealed lead levels far above the legal limit in Mexico, according to the report by Occupational Knowledge International, a San Francisco-based public health nonprofit, and Casa Cem, a Mexican environmental group.



Soil samples taken outside some of the biggest battery recycling plants in Monterrey revealed lead levels far above the legal limit in Mexico, according to a report.



More than 75 percent of all used U.S. batteries were exported to Mexico in 2021, according to the United States Environmental Protection Agency.

While Mexico's regulations stipulate that facilities must remove lead from contaminated soil and can be shut down for violating environmental standards, Mexican government records show that in recent years few plants have been closed.

Mexico's lax environmental laws and even more lax enforcement encourages American companies to offload used car batteries to the country, where labor is cheaper and unions are weaker, according to experts in labor rights and occupational health.

"Workers in these plants are being poisoned day in and day out, and often without even their own knowledge of that," said Perry Gottesfeld, executive director of Occupational Knowledge International. "They don't get the training, they don't get the equipment and they don't get to operate in facilities that have adequate ventilation."

Over the past 10 years the number of car batteries shipped to Mexico from the United States has grown by nearly 20 percent, according to E.P.A. records included in the study by the two groups. In 2021, more than 75 percent of all used U.S. batteries were exported there, E.P.A. records showed.

At recycling plants, lead is removed from batteries, ground up, melted and turned into ingots that are used to make new batteries.

The world's largest car battery maker, Clarios, which is based in Milwaukee, Wis., bought two plants in Monterrey in 2019, and the report found lead levels in soil outside its facilities that were well above the legal limit in Mexico of 800 parts per million. (The samples in the report were tested and analyzed by an independent laboratory.)

At one Clarios plant, a soil sample showed lead levels of 15,000 parts per million, while at the other Clarios facility, a sample showed 3,800 parts per million of lead.

Clarios closed its last U.S.-based car battery recycling facility, in South Carolina, in 2021, following a series of fines by the E.P.A. for violations involving air pollution, hazardous waste and the improper transportation of lead batteries.

Shipping batteries to Mexico would save the company 25 percent in recycling costs, according to a filing by Clarios with the Securities and Exchange Commission.

"Certainly there is cost savings if you don't have to worry about upgrading your facility to meet the standards that are in place in the U.S.," Mr. Gottesfeld said.



Workers from a battery recycling plant in Monterrey owned by Clarios, a U.S.-based company. Soil samples taken outside two Clarios-owned battery recycling plants in Monterrey showed lead levels above Mexico's legal limit.



Commuters waited for public transport outside a convenience store near Monterrey.

A spokeswoman for Clarios said the company's facilities use "strict safety protocols and we provide our employees with state of the art protective safety gear."

"We work with local health, safety, and environmental authorities to ensure our facilities are not only in compliance, but set the benchmark for our industry," said the spokeswoman, Ana Margarita Garza-Villarreal.

Though Mexico's federal environmental agency has the power to shut down plants that violate environmental standards, agency documents show that officials temporarily closed parts of battery recycling plants just four times for air and soil contamination in the past 23 years.

Mexican law requires plants to have filtration systems to eliminate the spread of lead dust and companies must provide workers with face masks. But some filter systems are outdated or break down, the wearing of face masks is not strictly enforced and lead dust containers are in work areas that are not properly ventilated, according to interviews by The Times with 15 current and former workers at battery recycling plants in Monterrey.

Óscar Nuñez, 32, said he worked at a recycling plant owned by a Mexican company where the ventilation did not work well and lead dust penetrated his gloves.

"It was like prison in there," said Mr. Nuñez, who quit after three months over concerns for his health.

Elizabeth Coronado was a nurse at a Monterrey plant owned by Grupo Gonher, where Mr. González had worked, and was responsible for monitoring the health of workers in high lead exposure areas.

Of the roughly 300 workers whose blood samples she tested every three months, she said a third of them had 50 micrograms of lead per deciliter of blood in their system. The average for battery recycling workers in the United States in 2022 was nine micrograms, according to a battery trade group.

Lead experts in the United States say workers whose lead level reaches 30 micrograms of lead per deciliter of blood should be removed from the source of the metal.

"It's alarming," said Ms. Coronado, who left the plant in 2021 and now works at a local health clinic.

Ms. Coronado said the company typically gave workers with high levels of lead multivitamins and milk, neither of which experts say will do anything to ameliorate lead exposure. Instead, they say, the most effective treatments include giving patients medications that specifically target lead in the body and removes it.

Grupo Gonher did not respond to a request for comment.



While working as a nurse at a recycling plant owned by Grupo Gonher, Elizabeth Coronado found elevated levels of lead in the blood of many workers she tested.



While Mexican law requires companies to provide workers with face masks and other protective measures, enforcement of those provisions has not been strict, some current and former workers say.

Though no amount of lead in the body is safe, levels like those found in workers at the Gonher plant can have severe consequences, said Dr. Michael Kosnett, an expert on workplace lead exposure and an associate adjunct professor at the Colorado School of Public Health.

“It should not be tolerated,” he said. “Among the most significant long term adverse effects associated with blood lead in the teens or higher levels is a documented risk of death from heart disease.”

As for Mr. González, he said he had offered to curtain off containers holding lead dust. But his supervisor told him it was not a priority.

Mr. González said he was fired from the plant in 2021 as part of what the company told him was a restructuring. In his five years at the plant, he had never missed a day of work, he said, and believed he was dismissed at least in part because of the concerns he raised repeatedly about lead exposure.

Mr. González, who now works renting music equipment for private events, said friends who work at the recycling plant say little has changed.

“There is a lot of venom there,” he said.

Chantal Flores and Lorena Ríos contributed reporting from Monterrey.