

Research points to catalytic converter as pollution source

ND team finds high platinum levels in Roseland; wider study proposed

By WAYNE FALDA
Tribune Staff Writer

Hailed as an effective means of curtailing automobile pollution, the catalytic converter apparently has a darker side: The device has been releasing invisible deposits of platinum alongside our streets and highways for the past 25 years.

Researchers at the University of Notre Dame and elsewhere have identified the catalytic converter as the source of unusually high environmental levels of the metal, which has been described as an allergen and a suspected contributor to the development of asthma.

A team of Notre Dame researchers scooped up soil at Douglas Road and Indiana 933 south of Roseland and found platinum levels "at levels far above natural abundances," said Charles Kulpa, a biologist and director of the Center for Environmental Science and Technology.

Catalytic converters use platinum — as well as palladium and rhodium — to convert carbon monoxide, volatile organic compounds and nitrogen oxides into less harmful emissions.

The team found a marked enrichment of all three metals in the roadside soil. They measured platinum levels at the Indiana 933 intersection at 90 parts per billion — or 8 to 10 times higher than background levels.

The evidence points to the catalytic converter as the culprit and raises broader questions because metals can be taken up by plants through the root system.

"Is it getting into the food crops? We don't know," said Clive Neal, a Notre Dame geologist and director of a research facility that can help answer that question.

That question is part of a proposal to the American Chemical Society to conduct a wider systematic and comprehensive survey to look for platinum elsewhere as well as

look into the hidden consequences of these decades-long deposits.

Among the objectives of their proposed study is to determine the buildup of the platinum-group elements along the Chicago freeways and other places that are expected to have even higher levels of the metals.

Even the sample taken locally "is almost minable," said Neal, who suggests that concentrations might be so high elsewhere that the roadside soil "could be scooped up" so the metals can be reclaimed.

In addition to expanding the study to higher-traffic areas, the Notre Dame team will also test the soil and the air at the university's environmental research facility tucked away in the remote wilderness of Michigan's Upper Peninsula.

Located just north and west of Land O' Lakes, Wis., the Notre Dame Environmental Research Center would be used as a control to determine the levels of the metals in a pristine environment.

The issue is especially timely, Kulpa said, because the Environmental Protection Agency is considering whether to require the installation of catalytic converters on smaller engines that are currently exempt, such as lawnmower engines.

"We have the capability on campus to do this work," Kulpa said.

Neal directs the Inductively Coupled Plasma-Mass Spectrometry Research Facility, which has highly sensitive machines that can detect the presence of metals at extremely low levels.

"We have developed a technique that has (lowered) detection limits in the part-per-quadrillion range," Clive said.

The facility can detect the rate at which platinum-group metals will move through plants.

The proposal to the American Chemical Society is for a study that would run into 2005.

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Tribune Photo/PAUL RAKESTRAW

Geologist Clive Neal is part of a team of researchers at the University of Notre Dame that has demonstrated that automobile catalytic converters have been releasing elements like platinum along roadsides for the past 25 years.

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