

## **NASA/Penske - LTOC Catalyst**

A technology originally meant to orbit the Earth thousands of miles per hour is now traveling on Earth at much slower speeds.

Some years ago, engineers at NASA Langley Research Center invented a catalyst to keep space-based lasers operating efficiently. The catalyst, called a Low Temperature Oxidation Catalyst, or LTOC, recycles Carbon Monoxide and converts it into Carbon Dioxide. The catalysts have been used to measure wind velocity worldwide.

But, space isn't the only place where carbon monoxide is a problem.

The more powerful a car is and the faster it's driven, the more carbon monoxide its engine produces. Because of their closed-cockpit designs and long races, NASCAR vehicles can become deadly environments for racecar drivers.

An engineering team from Penske Racing decided to tackle the carbon monoxide poisoning problem and contacted researchers at Langley for help in solving it.

The Center's technology transfer experts recommended the LTOC as an option to use in developing a system that would improve the air quality inside racecars.

Through a licensing partnership with Langley, Penske successfully designed and tested a system with the catalyst technology in the Center's wind tunnels. The filtration system, called INCAR, converts the vehicle's carbon monoxide into carbon dioxide and scrubs other contaminants from the air NASCAR drivers breathe during a race.

Scientists and engineers from Science and Technology Corporation, or STC, supported Langley in the development of the original catalyst and are co-inventors on its patents. STC, a small business, also licensed the LTOC for specific laser applications and now manufactures catalyst products, including one for the Penske filtration system.

Today, because of its ability to protect the drivers' health and cost effectiveness, many other racing teams are also using the Penske system in their vehicles.