Washington state moves to ban copper in brake pads

April 12 2010, By PHUONG LE , Associated Press Writer

(AP) -- When a driver hits the brakes, friction releases copper shavings that fall onto the road and are eventually washed into rivers, where environmentalists say the metal could pose a hazard to marine life - especially salmon, one of the Pacific Northwest's most prized products.

Washington state responded to the problem last month by becoming the first in the nation to pass a law to phase out the use of copper in brake pads. The move could eventually make copper-free pads the industry standard in the U.S.

"You think about all of this traffic, every day on the road, braking and going," said Curt Hart, spokesman for Washington Department of Ecology. "All of it in total starts to really make a difference."

The new law bans brake pads containing more than 5 percent copper starting in 2021. The allowable amount could drop almost to zero in 2023 if manufacturers show it is possible.

California lawmakers have considered similar legislation, and industry officials expect other states to follow Washington's lead.

The auto industry did not oppose the legislation.

"It was a balanced approach, balancing the needs of our consumers and environmental concerns," said Curt Augustine, policy director for the Alliance of Automobile Manufacturers, a trade group of 11

manufacturers, including Ford, Chrysler and Toyota.

Many brake pads are made of steel, brass and copper fibers - materials designed to create friction and draw off heat. Some contain ceramics, Kevlar and other nonmetallic compounds.

The irony is that copper replaced asbestos as a key ingredient in brake pads in the early 1990s after asbestos was banned as a health danger. Though a federal appeals court overturned part of that ban in 1991, manufacturers continued to use copper.

Copper is a major source of water pollution because it is present in so many products, including plumbing, paint and building materials.

A study by the nonprofit Sustainable Conservation found that one-third of 530,000 pounds of copper released from human activity in the San Francisco Bay watershed in 2003 came from automobile brake pads.

Similarly, state ecology officials in Washington estimate 70,000 to 318,000 pounds of copper are released into Puget Sound each year, with about one-third coming from vehicles.

Researchers have yet to document any instances in nature of copper from urban runoff causing widespread problems for aquatic life. But laboratory studies by government scientists have shown that copper at the low levels that have been found in waterways harms young coho salmon's sense of smell, reducing their ability to escape from predators.

"It doesn't take a lot of copper to interfere with the salmon's sense of smell," said Nat Scholz, a research zoologist with the National Oceanic and Atmospheric Administration who has contributed to studies on the subject.

Copper is also toxic to plankton, which form the base of the aquatic food chain.

Brake pads contain as much as 25 percent copper, a metal used because it is good at dissipating heat, Augustine said. Heavier and high-performance vehicles tend to have more copper, but many cars already contain less than 5 percent, he said.

The industry believes it can produce a safe and reasonably priced brake pad without copper, said Terry Heffelfinger, director of product engineering for Affinia Global Brake & Chassis, a major brake maker. One alternative may be ceramic brake pads, which have grown in popularity in recent years.

"I think this does go a long way toward eliminating a very toxic item in our marine environment," said state Sen. Kevin Ranker, who sponsored the bill.

More information: Washington Legislature: http://www.leg.wa.gov

©2010 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.

Citation: Washington state moves to ban copper in brake pads (2010, April 12) retrieved 25 April 2024 from https://phys.org/news/2010-04-washington-state-copper-pads.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.