

# BEST PRACTICES



## Cutting Copper in Car Brakes is Helping Protect Washington's Salmon

A video from the Northwest Fisheries Science Center shows juvenile coho salmon swimming in two tanks. When a researcher drops a bit of predator scent into the water, the fish in one tank immediately freeze and drop to the tank floor to avoid attracting attention. In the other tank, however, the young fish continue to swim about obliviously. What's going on here? Copper..

Scientists have known for years that copper can affect fishes' sense of smell, reducing their ability to avoid predators. This is true even at extremely low concentrations.

In Puget Sound and the streams and rivers that feed it, copper pollution is a real problem. Hundreds of thousands of pounds of copper enter these waters every year from sources such as plumbing pipes, pesticides and vehicle brake pads.

Many people may not even know that car and truck brakes contain copper, but it can be a significant ingredient in some brake pads and shoes, helping the friction material disperse heat. As brakes wear down, that friction material turns to dust and washes off into streams and rivers, with much of it eventually ending up in Puget Sound.

Washington Department of Ecology scientists estimate that 250,000 pounds of copper enters Puget Sound every year from vehicle brakes.

Brake manufacturers were aware of the concerns, but reformulating thousands of products that need to meet extremely high standards for performance is not an easy feat. The Brake Manufacturers Council, an industry group, worked with Washington and California to develop legislation designed to gradually phase copper out of brakes. Manufacturers wanted state regulations on the books to create a level playing field where everyone would be held to the same standards.

In 2010, the Washington Legislature passed the Better Brakes Law, and California passed a similar law the same year. Better Brakes required manufacturers to begin reporting the copper content in their products in 2015, and to eliminate other toxic chemicals like asbestos, cadmium, chromium, lead and mercury. The law also created a framework to phase out copper completely by 2025.

The first step on that path came December 1, 2015, when the law called for the Department of Ecology to review data from manufacturers and find out whether low-copper and copper-free brakes were available in the state. In fact, the data showed that more than 3,000 brakes from more than 100 manufacturers are now available that meet either the "low-copper" standard for containing less than 5 percent copper by weight or the "copper-free" standard for less than 0.5 percent copper.

Furthermore, the data showed that the average copper content in brakes had fallen by 25 percent since the Better Brakes Law took effect. Manufacturers report that they are replacing copper with new formulations including ceramics, synthetic aramid fibers (like Kevlar), carbon and other less-hazardous materials.



The next step in reducing copper will be for the Department of Ecology to bring together a panel of industry experts, safety regulators and environmental stakeholders to advise the state whether a complete phase out of copper by 2025 is achievable. That group will meet several times during 2016.

So, you might ask, if we eliminate copper in brake pads in the next decade, will we save Washington's endangered salmon runs?

Unfortunately, it's not that simple. Stormwater runoff from highways and roads is a toxic soup of chemicals—copper, zinc, polycyclic aromatic hydrocarbons and many more. These chemicals persist in the aquatic environment and can harm aquatic organisms alone or in combination.

Still, reducing copper from brakes will remove a significant obstacle to the recovery of salmon and improve our state's environment for all fish.

What's more, in early 2015, brake manufacturers, states and the U.S. Environmental Protection Agency signed an agreement modeled on Washington's program that will extend our standards to the entire country.

That's the big picture. Right now, each of us can help to protect salmon by asking our repair shop or auto parts store whether low-copper or copper-free brakes are available when the time comes to replace our brakes.

How can you tell? Brake manufacturers now place a LeafMark on every package of brakes. One leaf colored in means the brakes meet the 2015 standards for lead, mercury and other toxics, two filled in mean the brakes contain less than 5 percent copper by weight, and all three filled in mean the brakes contain less than 0.5 percent copper by weight.

You can see the effects of copper on coho yourself at

<http://tinyurl.com/cohovideo>

Learn more about the Better Brakes program at <https://ecology.wa.gov/Waste-Toxics/Reducing-toxic-chemicals/Better-Brakes-law>



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