

Putting the Brakes on Water Pollution: The Pursuit for Copper Free Brakes

Copper is often used in brake pads because it dissipates heat quickly; therefore, improving braking performance. However, as the brake pads wear down, the copper (which is highly toxic to aquatic life) from brake dust makes its way into nearby waterways, harming the wildlife that lives there. Brake pad dust accounts for half of the copper entering waterways in urban areas. According to the Washington State Department of Ecology, nearly 130,000 pounds of copper enter Puget Sound each year. Furthermore, in 2010, the EPA estimated that 1.3 million pounds of fine dust/materials were released into California's environment. Copper pollution is a serious threat to the environment and our aquatic populations, which is why the Environmental Protection Agency (EPA) spearheaded the 'Copper-Free Brake Initiative' to effectively reduce the use of copper in the manufacturing of brake pads.



EPA Initiative

On January 21, 2015, the EPA, the Environmental Council of the States, and several leading groups of the automotive industry signed an initiative aimed at reducing the use of copper and other harmful materials in motor vehicle brake pads. The eight industry groups who co-signed the initiative include the following:

- Motor and Equipment Manufacturers Association,
- Automotive Aftermarket Suppliers Association,
- Brake Manufacturers Council,
- Heavy Duty Manufacturers Association,
- Auto Care Association,
- Alliance of Automobile Manufacturers,
- Association of Global Automakers, Inc., and
- Truck and Engine Manufacturers Association.

The signed initiative called for reducing copper in brake pads to less than 5 percent by weight by 2021 and to less than 0.5 percent by 2025. In addition to copper, this voluntary initiative aims to phase out other materials that may be harmful to humans, aquatic and wildlife – including



antimony, mercury, lead, cadmium, asbestiform fibers, and chromium-six salts in motor vehicle brake pads. The initiative will ultimately decrease runoff of these materials from roads into the nation's streams, rivers, and lakes and includes:

- Education and outreach to promote nationwide reduction of copper and other harmful compounds in brake pads/brake pad materials,
- Testing friction materials and constituents for alternatives,
- Marking and labeling friction material packaging and products,
- Providing reporting registrars' and agents' contact information to manufacturers, suppliers and other industry entities, and
- Working towards achieving the goals in the Copper-Free Brake Initiative within specified timeframes.



Following the initiative, California and Washington passed new regulations banning the sale of brake pads containing more than 5% copper. In Washington, the rule is referred to as "The Better Brakes Law." Beginning January 1, 2021, brake pads sold and distributed in California and Washington must contain less than 5% copper by weight. By 2025, the amount of copper must be reduced further to no more than 0.5% by weight. At this time, the 'Copper-Free Brake Initiative' is completely voluntary, with only the States of Washington and California implementing legislation. Although only two states have decided to enforce regulations, many brake manufacturers have made the effort to reduce (and, in some cases, eliminate) copper materials in the manufacturing of their products.

Why Copper Free Brakes?

Ultimately, EPA enacted the Initiative due to claims by environmental groups and regulators that as brake pads wear down, copper and other metals are deposited onto roadways where they are washed into nearby waterways, negatively affecting fish, amphibians, invertebrates, and plants alike. To date, the changes in brake pad composition, as required by legislation in California has reduced copper saturation in urban runoff by an estimated 61%.

What to Look For: New Compliance Codes

When searching for copper-free and copper-reduced brakes keep your eye out for the three new compliance designations published by the Automotive Aftermarket Suppliers Association



(AASA). These compliance codes correlate with the various phases of the implementation timeline. **Note that compliance code A is not compliant with the ‘Copper-Free Brake Initiative.’**

Compliance Code A	Compliance Code B	Compliance Code N
<p>No regulation on copper composition by weight</p> <p>Asbestiform fibers, less than 0.1% by weight</p> <p>Cadmium and its compounds, less than 0.01% by weight</p> <p>Chromium (VI)-salts, less than 0.1% by weight</p> <p>Lead and its compounds, less than 0.1% by weight</p> <p>Mercury and its compounds, less than 0.1% by weight</p>	<p>Contains between 0.5% and 5% of copper by weight</p> <p>Asbestiform fibers, less than 0.1% by weight</p> <p>Cadmium and its compounds, less than 0.01% by weight</p> <p>Chromium (VI)-salts, less than 0.1% by weight</p> <p>Lead and its compounds, less than 0.1% by weight</p> <p>Mercury and its compounds, less than 0.1% by weight</p>	<p>Contains less than 0.5% of copper by weight</p> <p>Asbestiform fibers, less than 0.1% by weight</p> <p>Cadmium and its compounds, less than 0.01% by weight</p> <p>Chromium (VI)-salts, less than 0.1% by weight</p> <p>Lead and its compounds, less than 0.1% by weight</p> <p>Mercury and its compounds, less than 0.1% by weight</p>

What Does the Initiative Mean for You?

Understanding the parts you are choosing to use on your vehicle and paying attention to the language of brake pad compliance codes are vital to ensure protection of our waterways from undue copper/metal burden. While maintaining compliance with these regulations is up to the manufacturers, we can all do our part by choosing to buy and use quality, environmentally conscious products in our everyday life.

Visit the following websites for more information on copper free brakes and the Copper Free Brake Initiative as it relates to stormwater management practices:



Environmental Bulletin

National Aeronautics and
Space Administration



April 2022

<https://www.epa.gov/npdes/copper-free-brake-initiative>

<http://www.copperfreebrakes.org/index.html#needtoknow>

<https://www.carparts.com/blog/the-copper-free-brake-initiative-how-the-new-laws-will-impact-you/>

https://www.epa.gov/sites/default/files/2015-11/documents/copper_brakepads_mou.pdf

<https://www.tomorrowstechnician.com/brake-edge-code-updates-explained/>

Please visit <https://code200-external.gsfc.nasa.gov/250/environmental/environmental-bulletins> to explore other topics of environmental importance.

