

Copper-Free Brake Initiative

Level B Effective: January 2021

The Copper-Free Brake Initiative is a set of voluntary practices for reducing heavy metals and other pollutants in storm water runoff from roads and highways, as part of a 2015 Memorandum of Understanding (MOU) between the U.S. Environmental Protection Agency (EPA), the Environmental Council of the States (ECOS), and various vehicle industry associations. The Initiative is modeled after laws and regulations implemented by California, Washington, and other states to reduce and gradually phase-out copper and other heavy metals from commercial vehicle brake friction materials. The Initiative does not supersede any applicable federal or state laws or regulations, which should be separately reviewed to identify specific requirements for current and future brake friction materials sold and used within their respective jurisdictions. www.copperfreebrakes.org

Copper-Free Brake Initiative Phase-In Plan

The phased approach in the Copper-Free Brake Initiative includes three designated levels to guide and enforce copper reduction levels in friction materials: A, B and N. As of January 2021, most commercial vehicle drum brake lining formulations already meet the 2025 N-Level copper-free requirements while most air disc brake (ADB) formulations comply with 2021 B-Level requirements.

LEVEL

A

January 2015

Greater than
5% Copper

Can be sold but not
produced after 2021



LEVEL

B

January 2021

Less than
5% Copper



LEVEL

N

January 2025

Less than
0.5% Copper



NOTE: The above Leafmarks™ are trademarks of the Motor and Equipment Manufacturers Association.

What can fleet owners expect as OEM brake suppliers work towards copper compliance?

Be aware

Do not assume that copper-reduced or copper-free alternatives in the near-term will result in equivalent performance of today's ADB systems that use copper in ADB pad formulations.

1

Be vigilant

Conduct more frequent visual inspections of key ADB components like pads and rotors; observe and make note of any noticeable changes in wear or performance.

2

Choose wisely

When choosing replacement pads, remember that copper compliance does not mean compliance with Federal Motor Vehicle Safety Standard (FMVSS) No. 121 (Air Brake Systems). Additionally, OEM friction materials are designed to maximize component durability, while maintaining compliance.

3

Ask an expert

When in doubt, ask questions from reliable industry sources. Hendrickson has resources available to help navigate copper compliance and its experienced brake application experts are always available to provide assistance.

4

FAQ Navigating Copper Compliance for ADB Systems

Q: Why is it challenging to remove copper from ADB pads?

A: Historically, copper has played an important role in air disc brake (ADB) applications for commercial vehicles. The presence of copper in ADB pad formulations helps reduce thermal fade and optimize wear characteristics. The challenge is finding a suitable alternative to copper while maintaining similar wear characteristics and performance of today's ADB systems.

Q: Does copper compliance guarantee FMVSS 121 compliance?

A: Not always. OEM pad suppliers in the U.S. are subject to FMVSS 121 requirements for performance and safety. However, this same standard does not apply to aftermarket pad suppliers, so copper compliance does not necessarily mean aftermarket pads will also comply with FMVSS 121 requirements. OEM pads are designed and tailored to achieve the delicate balance of component durability, wear life expectations and compliance, and OEMs will continue to strive for this balance as they work towards copper-free alternatives. Hendrickson recommends specifying OEM pads to help support your operation's efforts in complying with both FMVSS 121 and copper requirements.

Q: Will there be any need to consider increasing the size of the chambers on Hendrickson MAXX22T™ trailer air disc brake systems as further copper-compliant pads are introduced?

A: Copper-reduced or copper-free ADB pad formulations may pose challenges for compliance with current FMVSS 121 requirements for commercial vehicles. Using a larger chamber size can help create more braking force to compensate for any performance changes that may occur as copper is further removed from pad formulations in the future. Please contact Hendrickson for assistance in addressing such issues with respect to your particular trailer and Hendrickson equipment.

Q: If I have a Hendrickson MAXX22T system with Type 18/24 brake chambers and want to install Genuine Hendrickson replacement brake pads, do I also need to update the brake chambers to Type 20/24 at the same time?

A: It depends on the required gross axle weight rating (GAWR) for the trailer and other factors. See Hendrickson Literature No. **L809 (Brake Certifications)** for guidance on brake chamber, brake lining and tire SLR combinations needed to satisfy GAWR requirements. For MAXX22T B-level friction material currently supplied by Hendrickson, customers who require a GAWR greater than 20,000 pounds must use Type 20/24 brake chambers. For a GAWR of 20,000 pounds or less, either Type 18/24 or Type 20/24 brake chambers may be used.

Q: Does the Copper-Free Brake Initiative apply to drum brakes?

A: Yes, it applies to all commercial vehicle brake friction material. However, in contrast to ADB systems, drum brakes have a larger brake lining surface contact area, which means drum brakes generally operate at lower temperatures than air disc brakes. This makes it more feasible for drum brake linings to be produced with little to no copper. All of Hendrickson's current trailer drum brake product offerings already meet 2025 requirements for the Copper-Free Brake Initiative.

Q: What resources does Hendrickson have available for navigating copper compliance?

A: Reference the following Hendrickson literature (available on hendrickson-intl.com) and www.copperfreebrakes.org for additional information regarding copper compliance and the Copper-Free Brake Initiative:

- **L809** - Brake Certifications
- **L1225** - ADB Application Guide
- **T72009** - MAXX22T Maintenance Manual
- **L949** - RTR Catalog

