



Press Release

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Safer, “Greener” Alternatives in the Sign Manufacturing Process

By: Hal Perkins, American Traffic Safety Services Association (ATSSA) Sign Committee Member

There are more than ten million traffic signs on our nation’s roadways, and the majority of these signs are manufactured using aluminum as the primary backing substrate. Aluminum sign blanks must go through a chemical reaction process called “*conversion coating*” to allow the reflective sign sheeting to properly adhere to the surface, and to protect the sign against corrosion.

Government regulations regarding the conversion coating process have expanded over the last decade, and OSHA placed even stricter limits on worker exposure to the process in 2006. The metal finishing industry responded to these regulations by creating new conversion coating technologies and members of the American Traffic Safety Services Association (ATSSA) believe that the specifications should be uniform – across-the-board – at all levels of government.

Conversion coating is the process of chemically changing the surface of the aluminum to give it more adhesion capability and corrosion resistance than it would have without it. The process is accomplished through various production methods and by using various chemicals. It has been a practice performed by the metal finishing industry since the 1920s.

By far, the most successful conversion coating system used on aluminum has been based on hexavalent chromium – or chromate – and is generally the “yardstick” against which all other conversion coating methods are measured.

Hexavalent chromium conversion coatings fall under the ASTM B-449 standard, which covers application and performance standards. Hexavalent Chromium is now more regulated than it has ever been. Additionally, hexavalent chromium is now listed as a known carcinogen by the Environmental Protection Agency, and the European Union has also issued directives such as End-of-Life Vehicles, Restriction of Hazardous Substances, and Waste Electrical and Electronic Equipment, which all ban the production of or importation of components containing hexavalent chromium.

The new OSHA limitation on hexavalent chromium exposure is a mere 9.7 percent of the previous limit, which has the American metal finishing industry deeply concerned over the future of hexavalent chromium conversion coats. Additionally, U.S. military specifications do not allow the use of any toxic or hazardous materials in products they use.

A new ASTM standard currently exists for conversion coatings known as ASTM B-921. ASTM B-921 has the same adhesion and corrosion resistance testing methods as the traditional ASTM B-449 specification, the difference being that ASTM B-921 covers any conversion coating regardless of chemistry, as long as it is not hexavalent chromium. The three largest companies who make reflective sheeting for adhesion to aluminum have all publicly stated their support for ASTM B-921 as a viable alternative to ASTM B-449.

It is ATSSA's policy to support and encourage all jurisdictions to adopt non-hexavalent chrome sign blank conversion coating standards as an alternate to existing hexavalent chrome standards. ATSSA policy states that the performance and testing methods are the same as B-449, and that non-hexavalent is more environmentally friendly and provides increased human safety during the manufacturing process.

Do your sign blank specifications mention ASTM B-449 compliance, hexavalent chrome, chromium, or some combination of these words? Do your specifications call out a brand name that is hexavalent chromium based, such as Alodine 1200? If after a review you find your specifications restrictive to hexavalent chromium only, ATSSA strongly encourages you to add the alternate – ASTM B-921 – to your specifications. You can do this by stating, *“aluminum sign blanks must be conversion coated to ASTM B-921 or ASTM B-449 standards”* or, *“aluminum sign blanks must be conversion coated to sheeting manufacturer's recommendations.”*

Sign companies and government agencies should also eliminate brand names from their specifications – such as Alodine – and replace them with the process name itself – *conversion coating*.

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Author:

Hal Perkins
Custom Products Corp
Halp@cpcsigns.com
800-367-1492
800-206-3444(fax)