UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 11 2016

OFFICE OF WATER

MEMORANDUM

SUBJECT: Coverage for Zirconization™ Under 40 CFR Part 433 (Metal Finishing ELG)

FROM: Robert K. Wood, Director
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SUMMARY

The Engineering and Analysis Division and the Water Permits Division in the Office of Water at the U.S. Environmental Protection Agency have received questions about the applicability of 40 CFR Part 433 (the Metal Finishing ELG) to wastewater generated by Zirconization™. Zirconization™ is the trade name applied to a process that forms a zirconium oxide conversion coating on a metal substrate. The Metal Finishing ELG establishes effluent limitations, pretreatment standards, and new source standards for the Metal Finishing Point Source Category. After reviewing the available literature describing the Zirconization™ process, the Agency has concluded that the Zirconization™ process is a coating process, one of the six core metal finishing operations regulated by the Metal Finishing ELG, and, therefore, any wastewater generated by the process is subject to the Metal Finishing ELG.

BACKGROUND

The Agency promulgated the Metal Finishing ELG, on July 15, 1983 (48 FR 32485), amending it several times, most recently on November 7, 1986 (51 FR 40421). The Metal Finishing ELG established discharge requirements for wastewater produced by facilities engaged in at least one of six core operations: electroplating, electroless plating, anodizing, coating, chemical etching and milling, and printed circuit board manufacture.

Coating, as noted, is one of the six core metal finishing operations which triggers coverage by the Metal Finishing ELG. The *Final Development Document for Effluent Limitations Guidelines and Standards for the Metal Finishing Point Source Category* (EPA 440/1-83/091, June 1983) describes coating as a manufacturing operation that "includes chromating, phosphating, metal coloring and passivating" (p. III-24). EPA has historically interpreted the definition in a fashion

that does not limit it to chromating, phosphating, metal coloring, and passivating, i.e. EPA's interpretation also covers processes that otherwise meet the characteristics of coating operations.

EVALUATION

The *Metal Finishing Guide Book* (January 7, 2013) quotes DuBois Chemicals explaining the benefits of Zirconization™ as a passivation operation:

> TMC (zirconization) pretreatments work by passivating the substrate with respect to corrosion…

Additionally, the following literature sources describe Zirconization™ as a conversion coating process:

The July/August 2012 issue of *Metal Finishing* magazine contains an article by Bruce Dunham, Marketing Manager, Dubois Chemicals, describing Zirconization™ as follows:

> Conventional phosphate-based pretreatments (i.e., iron phosphate and zinc phosphate) have been the primary conversion coating of choice for about 100 years. With Zirconization, zirconium oxide replaces the iron phosphate in the conversion coating.

Furthermore, according to Surfacequery.com, a database of surface finishing abstracts, Zirconization™ is described as "…a future conversion coating."

CONCLUSION

Because Zirconization™ is a conversion coating and passivation operation, EPA concludes wastewater generated by Zirconization™ or a process that applies a zirconium oxide finish to a metal substrate is subject to the Metal Finishing ELG.