

## Heavy Metals Rules for Refinish Products

PPG manufactures a wide variety of coatings. There are many ingredients that are used in coatings formulations which when combined provide properties, both protective and decorative, required by the customer. Each ingredient has a specific purpose in a formulation. Some of these products may contain metals, as pigments for color or anticorrosive properties or as additives for performance enhancements. Some of these ingredients, which are described as “heavy metals,” are categorized by their higher density on the periodic chart.

There are regulations in the U.S. and other countries that are designed to limit exposures to specific heavy metals due to environmental, health and/or safety concerns. Managers of coatings operations have the responsibility to be familiar with these regulations and assess how they may affect their employees and their business. Before using a coatings product, the entire product label and Safety Data Sheets (SDS) should be reviewed. It is essential that facilities understand what they are working with and how to safely handle products.

A number of the regulations that may affect our refinish customers are listed in this bulletin. These regulations may cover the substrate repair and coatings application processes (OSHA), the applied and cured coating product ingredient content - as delivered to the customer (RoHS) or the waste management and disposal process (RCRA/TCLP).

All relevant regulations should be reviewed to understand their full intent. Besides the regulations listed in this bulletin, there may be other federal, state and local rules applicable to coatings facilities. ***Other heavy metals not covered in this bulletin may be regulated in different areas of the world. This review is not intended to be all inclusive. It is the responsibility of coatings facility operators to maintain an up to date knowledge of all applicable laws and regulations.***

### OSHA standards

The presence of certain metal and metal compound components may contribute to potential Environmental, Health and Safety (EHS) risks associated with the use or disposal of specific products. Some metals, such as but not limited to lead, hexavalent chromium, cadmium and selenium are regulated by various federal and regional governmental agencies. In 2006, the U.S. Occupational Safety and Health Administration (OSHA) published a new standard for hexavalent chromium. There are also OSHA standards for lead and cadmium.

The OSHA standards set Permissible Exposure Limits (PEL) for the workplace, which if exceeded, require the implementation of specific compliance activities. Compliance activities may include: workplace monitoring, medical surveillance, Personal Protective Equipment (PPE) including respiratory protection, hygiene practices, housekeeping, hazard communication training, establishment of regulated areas and engineering controls. Another option for reducing exposures would be to substitute products for those items that contain the heavy metals of concern.

For applicable OSHA standards, it is essential that the employer make an initial determination as to the potential for worker exposure. All refinish processes should be reviewed. Besides coating application processes, substrate prep operations including sanding, grinding and parts welding operations should be scrutinized. Older vehicles may have been coated or treated with a lead, hexavalent chromium or cadmium containing material. Although most U.S. original equipment automobile manufacturers have moved to eliminate use of these heavy metals, fleet and previously refinished vehicles may be a potential source.

Coatings processes may be evaluated by utilizing air monitoring data, historical monitoring data or objective data. Objective data might include identification of products that contain the items of concern used on site. PPG product Safety Data Sheets identify hazardous ingredients in Section 2, based upon hazard communication requirements. Container labels also list product ingredients. The PPG Refinish website offers a list of "PPG Products Containing Restricted Metals" which indicates the PPG Refinish products that contain intentionally added lead, hexavalent chromium, cadmium and/or selenium.

During this initial recognition phase, it would be appropriate to make a list of products utilized that contain lead, hexavalent chromium, cadmium and selenium and identify the frequency and quantity consumed in the coatings process.

If there are likely worker exposures to these metals in the workplace, federal, state and local regulations should be consulted. Compliance with OSHA standards, found at [www.osha.gov](http://www.osha.gov), is an excellent starting point; however, be aware that regulations are periodically revised. It is essential to stay current with all regulations.

The information gathered during the recognition phase of your investigation can be used to identify where there is a potential for worker exposures. If necessary, air monitoring determinations should be made by using industrial hygiene air sampling and analytical methods. It is important to work with an EHS professional and American Industrial Hygiene Association (AIHA) accredited industrial hygiene laboratory. It may be possible to sample and analyze for several metals at the same time.

*Compliance with all applicable requirements of the OSHA Hexavalent Chromium Standard, except engineering controls, shall be in effect Nov. 27, 2006 for facilities with over 20 employees and May 30, 2007 for facilities with 19 or less employees. Where engineering controls are mandated they must be complete by May 31, 2010. Depending upon exposure levels determined to be at or above the PEL, respirator protection may be required per 29 CFR 1910.34.*

When levels of exposure for the items of concern are above prescribed levels stated in the standards, review the OSHA standards and all related regulations to determine your plan for corrective action to reduce levels.

## **RoHS**

The EU Directive 2002/95/EC “Restriction on the Use of Certain Hazardous Substances” (RoHS) requires all Member States (per Article 4(1) of the Directive) to ensure that materials and components of electrical and electronic equipment put on the market after July 1, 2006 do not contain the following specific hazardous substances: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBBs) or polybrominated diphenyl ethers (PBDEs) at levels greater than the tolerated maximum concentration values established by the EU Commission Decision 2005/618/EC. The value for lead, mercury, hexavalent chromium, PBBs and PBDEs is 0.1% or 1000 ppm and the value for cadmium is 0.01% or 100 ppm. *This directive impacts coated electrical parts and products exported to Europe, though similar rules are being developed in other areas of the world.*

The PPG Refinish website offers a list of “PPG Products Containing Restricted Metals” which indicates which PPG Refinish products contain intentionally added lead, hexavalent chromium, cadmium and/or selenium - coatings regulated under RoHS. Alternative products that do not contain these substances are listed and available through your PPG jobber.

## **TCLP Waste Characterization**

Facilities that use refinish coatings will generate waste streams that must be managed and disposed of following all federal, state and local regulations. Waste streams, including used booth filters, must be handled properly. Regulations typically require that these waste streams be characterized prior to disposal.

If a waste stream is known to contain leachable/soluble heavy metal pigments/additives (e.g. lead, hexavalent chromium, cadmium, barium, selenium and mercury), specific methods of disposal are required. The composition of these waste streams would likely be classified as a hazardous waste due to the characteristic of toxicity, using the Toxicity Characteristic Leaching Procedure (TCLP), test Method 1311 (40CFR 260.11). Some waste streams are specifically identified as a hazardous waste (“listed” hazardous wastes). Reference, however, should be made to the Resource Conservation and Recovery Act regulations located at 40 CFR 260, to determine whether a waste stream should be managed as a hazardous waste. The generator of the waste stream is responsible for characterizing the waste and determining whether the waste generated must be managed as a hazardous waste.

It is also possible that waste disposal for specific content may be restricted or even banned for certain processes. The PPG Refinish website offers a list of “PPG Products Containing Restricted Metals” which indicates which PPG Refinish products contain intentionally added lead, hexavalent chromium, cadmium and selenium. Coatings processes that utilize these products may generate waste streams where there is a potential concern. If the generator wishes to reduce the characteristic toxicity there are alternative products available that do not contain the heavy metals of concern.

PPG provides guidance on disposal information for its uncontaminated products only. If waste streams contain non PPG products, their content will not be fully defined. It remains the obligation of the generator to properly characterize and dispose of their wastes in accordance with applicable federal, state and local regulations.

### **Coatings options**

Depending upon the regulation affecting the coatings operation, the end user may choose to eliminate or control the use of specific coatings in order to meet the regulation. If complying with RoHS, substitution for listed products is required. If complying with OSHA standards or TCLP requirements, at minimum an end user should be aware of the content of products used, and then make an educated decision as to how to control exposures.

With the PPG Intermix System, topcoat formulas are provided with matching labels and SDS information and are segregated by content according to the possibility of added lead, hexavalent chromium and/or cadmium (and selenium), divided into a -1 through -4 classification. Intermix color formulas designated as -2 and -4 have pigments which contain these heavy metals. Intermix color formulas designated as -1 and -3 do not utilize any of the color bases which contain these pigments. Coatings operations may choose to take advantage of the -1 and -3 formulation alternatives. Factory pack formulas may also contain these heavy metals. If a facility chooses not to use products that contain, the factory pack labels and PPG product SDS will identify hazardous ingredients.

Products that contain these heavy metals of concern are also found on the “PPG Products Containing Restricted Metals” list at the PPG Refinish website. The list also indicates available substitutes which do not contain these heavy metals. If recommended substitutes are deemed inappropriate, consult with your local PPG rep for performance alternatives.

### **Waiver Statement**

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