



Hexavalent Chromium Cr(VI) - OSHA Regulation Update

OSHA, in February, 2007, published the revised standard for Hexavalent Chromium, dropping the allowable exposure limits (PEL) from 52 micrograms per cubic meter to only 5 micrograms per cubic meter on an 8-hour time-weighted average. Based on this new standard, many facilities may now have employees who are overexposed.



For more information... See [Hexavalent Chromium Safety Updates](http://www.microaironline.com/hexchrome.html) on Micro Air Website: <http://www.microaironline.com/hexchrome.html>

What is it?

Chromium hexavalent Cr(VI) compounds exist in several forms. Industrial uses of hexavalent chromium compounds include chromate pigments in dyes, paints, inks, and plastics; chromates added as anticorrosive agents to paints, primers, and other surface coatings; and chromic acid electroplated onto metal parts to provide a decorative or protective coating.

Hexavalent chromium can also be formed when performing "hot work". In these situations the chromium is not originally hexavalent, but the high temperatures involved in the process result in oxidation that converts the chromium to a hexavalent state.

Processes producing Hexavalent Chromium:

- Welding / Cutting on stainless steel
- Melting chromium metal.
 - Metal Cutting - all types
 - Laser
 - Plasma
 - Oxyacetylene
- Plasma Spraying
- Thermal Cutting
- Chrome Plating
- Coating Processes
- Pre-Cast Concrete Products
- Surface Protection on Automobile / Aircraft metallic parts



What are the effects and...What's all the fuss about?

Eye & Skin Contact		
Effect	Skin Ulcers	Dermatitis
	Permanent Eye Damage	
	Kidney Damage linked to high dermal exposure	
Ingestion		
Effect	Stomach Upset	Ulcers
	Convulsions	Kidney/Liver Damage
	Death	

Inhalation - Short Term ($\geq 2 \mu\text{g} / \text{m}^3$)		
Effect	Runny Nose	Nosebleed
	Itching	Nasal Ulcers
	Nosebleed	Lung Irritation
	Holes in Nasal Septum	
Inhalation - Long Term ($\geq 2 \mu\text{g} / \text{m}^3$)		
Effect	Significantly Higher Rates of Cancer	

How to Control Fumes & Dust that may contain Cr(VI)

The new **OSHA** standard requires employers to institute effective engineering controls to reduce and maintain employee exposures to Cr(VI) at or below $5 \mu\text{g} / \text{m}^3$ no later than May 31, 2010.

Micro Air provides you with the engineered solution to Hexavalent Chromium overexposure. Micro Air's line-up of high efficiency collectors including [cartridge dust collectors](#), [portable source capture collectors](#), [downdraft tables](#), or [clean air booths](#), all equipped with exclusive [REDMAX cartridges](#) providing 99.99% efficiency, is the **cost-effective** solution to your customer's Hex Chrome issues.



TM1000 - Triple-Tested Solution for Hex Chrome in Oklahoma Weld Shop

Placement of TM1000, in a Weld Shop in Oklahoma proved, after being tested three separate times, to be the hand's down solution for capturing smoke & dust laden with Hexavalent Chromium. Air sample tests, ordered by the owner, in conjunction with shop's insurance carrier, had everyone baffled for a short while. Witnessing the tests were the Weld Shop Owner, Shop Foreman and the local Micro Air Distributor.



Test #1 - Particulate sampling, using [SKC model 225-600](http://www.skinc.com) sampling device, which is placed inside the welding hood, directly in the workers breathing zone failed miserably. All who witnessed were baffled, as visually, it was apparent that dust and smoke were being captured and contained by the TM1000. The owner was questioned if there were other stainless steel weld operations on the shop floor. If there were, contaminants could be migrating to the test area, but the answer was no. More information on sampling device available at <http://www.skinc.com/instructions/38009.pdf>

Test #2 - Testing done in same area, using the SKC particulate sampler 1 week later also failed to meet the 5 micrograms per cubic meter test criteria, while once again, visually, smoke and dust were being captured.

Test #3 - This time the weld operation was removed from the middle of the shop floor and isolated to a corner of the room. Testing this time proved successful, passing with flying colors prompting the shop foreman to search the shop floor for any other weld stations involving stainless steel. Two such areas were located about 50 feet away from the original site of welder #1. While the TM1000 was capturing the contaminants from the operation, it was also pulling contaminants from the two operations 50' across the room.



The Shop owner, once the reason for the two failed tests was identified and corrected, was extremely happy with the performance of the Micro Air TM1000 and ordered 4 more TM1000 portable collectors for other operations in the shop.

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