

Hex-Cr Plating is Now Sustainable



Presented By
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Serving the Hard Chrome Industry for over 92 Years

www.Plating.com



Sustainable Hard Chrome Plating

Is now available and has proven to be 100% Zero Discharge:

- To the Land
- To the Waterways
- To the Airstream

Learn how to adopt this State-Of-The-Art Technology

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Cr Regulations in Electroplating

Hexavalent Hard Chrome is being attacked for its supposed environmental, workplace and public safety dangers. Some regulators want to further restrict its use.

The current federal regulations on Hex-Cr (chromic acid) are:

Air Discharge: 0.006 mg Cr-6/dscm Cr

Water Discharge: 1.0 ppm Total Cr (hex and tri)

OSHA PEL: 5 ug/cm³ Cr

The Sustainable Hard Chrome process not only exceeds these numbers, but provides ZERO chrome discharge to the environment.

While this may seem impossible to achieve, the results speak for themselves.

Is Hex-Cr Overly Dangerous?

Chromic acid is no more hazardous than many other industrial chemicals. The beauty of the Hex-Cr bath is there is only one primary chemical to deal with which is easy to contain and use safely with the Sustainable Process.

This differs from other plating process where several additional hazardous chemicals are needed. Therefore, the potential safety and environmental dangers are much greater with these than they are for Hex-Cr plating.

Hex-Cr plating poses no dangers to the environment, the workers or the public if it is handled and used appropriately.

Sustainable Hard Chrome Makes this a reality.

Benefits of Adopting the Sustainable Hard Chrome Process

A new development has proven that Hex-Cr can be safely used without harm to the workers, the public or the environment.

- ❖ The land is protected with specially designed containment.**
- ❖ All chemicals and liquids are recycled for reuse.**
- ❖ Special mist eliminators remove all Cr from the airstream.**
- ❖ There is no Cr discharge. Waste treatment and sewer connection are not required and are eliminated.**
- ❖ Chrome misting is controlled without having to use a fume suppressant.**

Adopting Sustainable Hex-Cr Plating

- Existing Hex-Cr plating operations may require an initial facility review and a brief engineering phase. Some equipment changes will be needed depending on the circumstances.
- A special high-efficiency triple-catalyst bath is used which plates faster, but more importantly, reduces the Cr mist generated. Most existing Hex-Cr baths can be converted if they are not overly contaminated.

The cost of adopting this technology varies with the situation. However, the OPEX costs will be significantly lower when using the Sustainable Approach.

The 7-Step Process

Most existing hard chrome operations will require the following modifications:

- 1) Convert to the High-Efficiency Triple Catalyst Bath to reduce Cr misting.**
- 2) Use an appropriate solution level and control it within reason. This may require using slightly longer anodes and fixtures.**
- 3) Convert any air agitated processes to an Eductor Agitation system.**
- 4) Install tank side baffles and special push-air where appropriate.**
- 5) Adopt specially designed ventilation hoods, eliminators and HEPA filters.**
- 6) Use manual (not automated) ventilation wash-down, only once per shift.**
- 7) Install Zero Discharge Recovery and a specialized recycling type containment system.**

A Typical Sustainable Hex-Cr Operation

The shop stays clean, the environment and workers are protected.



Designed for Zero Discharge



Plenty of Room for Maintenance

Environmental Testing

Results from a Sustainable Hex-Cr Plating Operation

After 8 hours of operation at 20,000 DC amperes.

<u>EPA Cr Stack Test:</u>	<u>Zero Cr (non-detectable)</u>
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<u>OSHA Cr PEL Test:</u>	<u>mg Cr/cm₃</u>
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Tank side worker:	0.090 (>55 x below PEL)
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Plating helper:	0.032 (>156 x below PEL)
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<u>Dust Wipes:</u>	
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Cr Tank Hoods:	0.004 (the hoods stayed clean)
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Plating shop floor:	0.027 (the surrounding equipment also stayed clean)
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The test results were provided by an accredited and a certified environmental laboratory.
(copies are available upon request)

Conclusion

The Sustainable Hex-Cr process has demonstrated that it can now be used safely while protecting the environment, the workers and the public.

- There is no point in replacing it with unproven equipment or processes. This also means there is no need to further restrict hard chrome plating.
- Instead, applying the new Sustained Technology will result in saving America's critical aviation, defense and industrial businesses.
- Companies adopting this technology will thrive with new market opportunities.

The regulators can never lower Cr discharge levels to below Zero.

God gave us Hex-Cr for a purpose; our task is to use it responsibly.

Thank You

The staff at Plating Resources, Inc. offers a warm and hardy THANK YOU to all of the hard chrome shops we had the pleasure of working with over the past 92 years.

Your valued input made this presentation possible.

We sincerely appreciate your support.

We look forward to providing you the technology needed to adopt the Sustainable Hex-Hard Chrome method.

Plating Resources, Inc. www.Plating.com

Please email any comments or questions on this to vicky@plating.com.