Fumalock®

Our legacy for future generations

General Metal Finishing | Functional chrome | atotech.com

A sustainable fume suppressant for Cr(VI) hard chrome plating

FLUORINE-free

non-PFAS

The first non-PFOS, non-PFAS and fluorine-free fume suppressant for hard chrome plating

Fumalock is the first non-PFOS, non-PFAS, and fluorine-free fume suppressant for hexavalent hard chrome plating on the global market. It is a highly effective fume-suppressing process based on surface-active components. The fume suppressant is designed to form a dense foam barrier layer that prevents the exhaust of hazardous aerosols. The standard emissions for this new fume suppressant are compliant with local regulations.

The Fumalock process provides an excellent balance between a controlled foam blanket and the reduction of surface tension to values below 42 (32 – 42) mN/m. It has a wide working window and consists of two products which allow for a more thorough control of the foam blanket. The process is strongly resistant to hard water, tolerates metal impurities excellently, and is is also easy to control, handle and operate.

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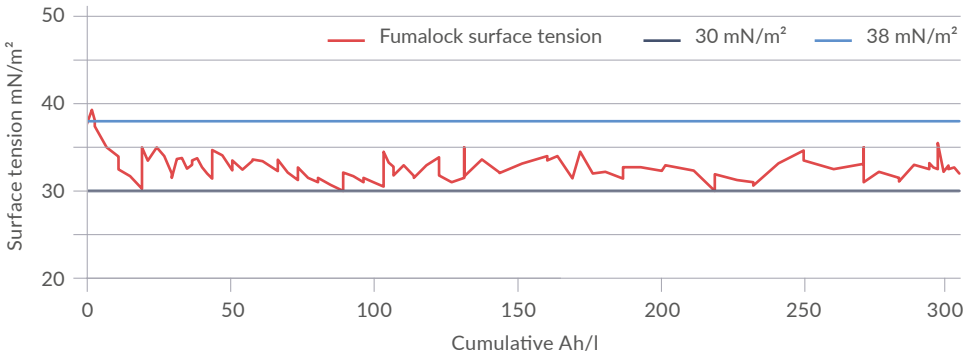
Maximum flexibility and protection

Image 1:
Fumalock foam blanket on bath surface of chrome plating bath

Two components offering maximum operational flexibility

The fume suppressant consists of two surface-active agents, both of which are free of fluorine-based compounds. Fumalock A acts as a foam generator and Fumalock B acts as a foam controller, which ensures a dense layer of foam is formed on the bath surface to achieve full coverage and eliminate mist.

Fumalock surface tension vs. Ah/l



The above graph shows the surface tension behavior of the Fumalock fume suppressant in a 170l bath that was operated over a three-month period. The surface tension created by Fumalock varied between 32 and 42 mN/m² throughout the period.

Protecting the plating peripherals and reducing chemistry consumption

Effectively reducing the surface tension and covering the bath surface with the foam barrier ensures aerosols are not emitted into the air and reduces Cr(VI) contamination into the air extraction system. Lower Cr(VI) emissions result in reduced chemical drag-out into the rinses and reduced chemical consumption.

Features and benefits

- Non-PFOS, non-PFAS and non-fluorine-based process
- Complies with EPA, CEPA and REACH regulations
- Greatly reduces chromic acid misting during operation
- Controllable dense foam blanket thickness and surface tension
- Passes the NESHAP stack test
- Lowers the chance of contamination of adjacent plating solutions by chromic acid fumes
- Increases the lifespan of ventilation systems and other plating line equipment
- Possesses strong resistance to hard water