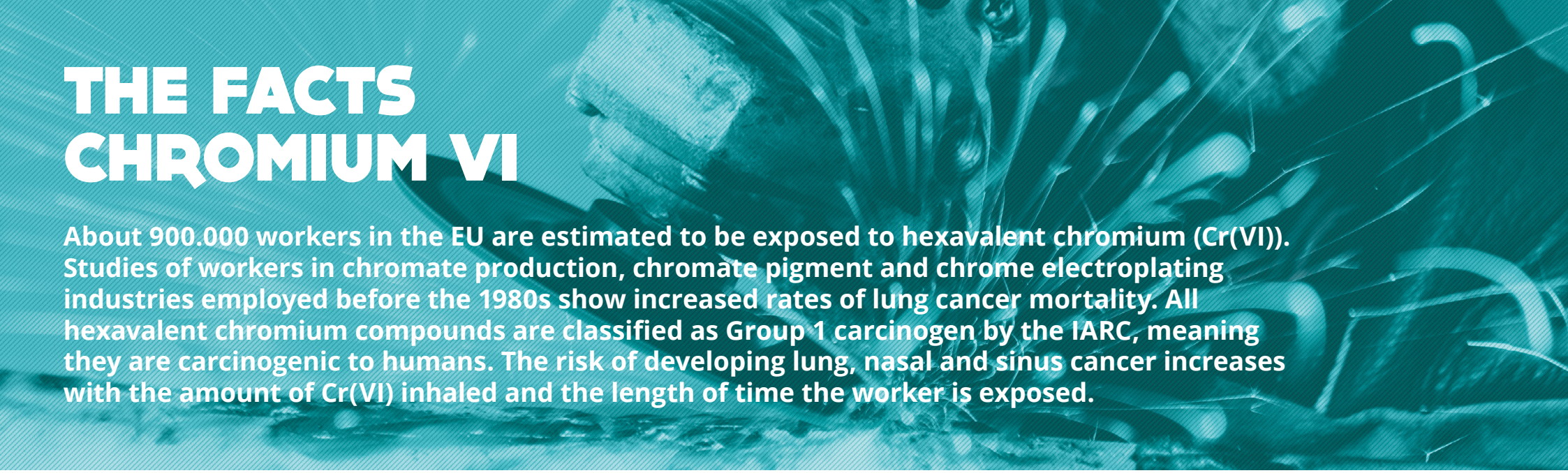

THE FACTS
CHROMIUM VI

About 900.000 workers in the EU are estimated to be exposed to hexavalent chromium (Cr(VI)). Studies of workers in chromate production, chromate pigment and chrome electroplating industries employed before the 1980s show increased rates of lung cancer mortality. All hexavalent chromium compounds are classified as Group 1 carcinogen by the IARC, meaning they are carcinogenic to humans. The risk of developing lung, nasal and sinus cancer increases with the amount of Cr(VI) inhaled and the length of time the worker is exposed.

Where risks occur

Workplace exposure occurs mainly in welding and other types of "hot work" on stainless steel and other metals that contain chromium, during the use of pigments, spray paints and coatings, operating chrome plating baths. Industries where exposure occurs are shipyards, construction, repair and painting of auto bodies, trucks, trains and airplanes.

More about the substance

Chromium VI is a form of the metallic element chromium. It is usually produced by an industrial process. Chromium metal is added to alloy steel to increase hardenability and corrosion resistance. Major sources of worker exposure to Cr(VI) occur during "hot work" such as welding on steels containing chromium metal and abrasive blasting, sanding and grinding Cr(VI)-coated materials. Cr(VI) compounds may be used as pigments in dyes, paints, inks, and plastics. It also may be used as an anticorrosive agent added to paints, primers, and other surface coatings. The Cr(VI) compound chromic acid is used to electroplate chromium onto metal parts to provide a decorative or protective coating. Cr(VI) exposure occurs through breathing it in, ingesting in food or water, or direct contact with the skin.

How symptoms can affect you

Breathing in high levels of Cr(VI) can cause symptoms like a runny nose, sneezing, coughing, itching and a burning sensation. Repeated or prolonged exposure can cause sores to develop in the nose and result in nosebleeds and damage to the nasal septum. Some employees become allergic to hexavalent chromium so that inhaling chromate compounds can cause asthma symptoms. Prolonged exposure to airborne Cr(VI) can cause lung cancer.

Latency period between exposure and chromium-VI related lung cancer can be up to 20 years.

What you can do

Best solution is to control exposure by elimination, substitution or engineering controls, for example using a less toxic material or process, like the extracted welding torch and use proper ventilation systems. Workers must know the proper way to perform a task in order to minimize their exposure and to maximize the effectiveness of the control. The use of personal protective equipment, should follow after measures that control workplace exposure.

SOLUTIONS AND GOOD PRACTICES? WWW.ROADMAPONCARCINOGENS.EU/CHROMIUM

References: RIVM, OSHA, IARC, European Commission

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