



NICNAS Existing Chemicals Information Sheet

Lead Compounds in Industrial Surface Coatings and Inks

September 2007

Current situation

Because of their toxicity, lead compounds identified as having been used or currently being used in industrial surface coatings and inks (see Table 1) were declared Priority Existing Chemicals (PECs) for health risk assessment on 3 January 2006. Use of lead compounds in domestic surface coatings has been eliminated in Australia.

These chemical compounds were declared for assessment to identify health effects and risks, to determine if their use is essential in industrial surface coatings and inks, and if appropriate, recommend measures to minimise risks arising from their use. The outcomes of these evaluations are contained in the *Priority Existing Chemical Assessment Report No 29 on Lead Compounds in Industrial Surface Coatings & Inks* (released on 20 September 2007).

The assessment reveals that the continued use of lead compounds in industrial surface coatings and inks cannot be supported on health and safety grounds. The report makes recommendations to put into place restrictions on the use of lead compounds in these applications.

Table 1: Lead compounds used in industrial surface coatings and inks¹

Chemical Name	CAS Number	Chemical Name	CAS Number
Lead monoxide	1317-36-8	Lead octanoate	7319-86-0
Lead chromate	7758-97-6	Lead 2-ethylhexanoate	301-08-6
Lead sulfate	7446-14-2	Lead oxide	1314-41-6
Lead molybdate	10190-55-3	Lead nitrate	10099-74-8
Lead sulfo-chromate	1344-37-2	Lead naphthenate	61790-14-5
Lead chromate molybdate	12656-85-8	Lead peroxide	1309-60-0
sulfate red			
		Lead carbonate (white lead)	1319-46-6
Lead chromate oxide	18454-12-1		
		Lead chrome 1244	unknown

¹The compounds were identified through a joint Australian Paint Manufacturers' Federation (APMF) / NICNAS survey of surface coatings and printing inks industries. Pigment compounds are used either singularly or in combination to obtain the desired colour and shade. As at 2005, 93% of imports for industrial surface coatings and inks were lead chromates, with lead sulfate and lead molybdate accounting for the bulk of the remainder.

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Exposure

The adverse health effects of lead have been recognised for many years, particularly on young children, and the use of lead compounds in surface coatings intended for domestic use has been restricted for some time.

Users of industrial surface coatings containing lead compounds can be exposed to these chemicals by inhalation or through the skin. Workers and the general public currently risk exposure to lead through repainting of motor vehicles, both commercially and by hobbyists in the home, and repainting of structures such as bridges, where the old lead based paint needs to be stripped off. Use of lead free paints will eventually eliminate exposure to lead in these instances and therefore risk of health effects.

Health Effects

Lead compounds have diverse effects on multiple body systems such as the nervous, gastrointestinal, reproductive and circulatory systems. The toxicity of lead compounds is mostly related to the lead portion in the compound, however for the lead chromates there are additional toxic effects from the chromate group.

Recommended phase out of lead compounds in industrial surface coatings and inks

The report makes three proposals for further action:

1. Consideration by the Director of NICNAS to restrict the introduction of lead compounds for use in industrial surface coatings and inks and the introduction of preformulated surface coatings and inks, containing lead compounds.
2. Consideration by the Australian Safety and Compensation Council to prohibit the use of lead compounds in industrial surface coatings and inks in the workplace, through amendments to the *National Model Regulations for the Control of Workplace Hazardous Substances*.
3. Consideration by the National Drugs and Poisons Schedule Committee to prohibit the supply, sale and use of lead compounds in inks and to review existing requirements for paint containing lead.

The NICNAS assessment available at www.nicnas.gov.au is an example of industry, the community (including the Lead Education Abatement and Design – LEAD - Group) and government working together to achieve significant health outcomes by removing a significant source of lead exposure.