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An evaluation of lead levels in paints sold in the Sri Lankan market

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An investigation has been carried out to ascertain and evaluate lead levels in different solvent based and water based household paints sold in the Sri Lankan market. Unlike in developed countries, in developing countries like Sri Lanka, relatively little or no attention has been devoted to the potential for lead exposure which is considered to be a major health hazard. Lead has been used in paints, gasoline, water pipes and many other products. At present lead based paint is one of the most significant sources of lead exposure. There are two common basic types of lead pigments known as white lead ($\text{Pb}(\text{OH})_2 \cdot 2\text{PbCO}_3$) and red lead (Pb_3O_4), which have been widely used in the paint and coating industry. Lead dust can form when lead based paint is scraped, sanded, or heated. But later people realised that exposure to lead dust released from lead based paints caused lead poisoning in children as well as in adults. Lead is a highly toxic, heavy metal. Its adverse effects on health include hyperactivity, low intelligence quotient (IQ) scores, hearing loss, behavioral disorders, kidney toxicity and anaemia

In this study five brands of white coloured enamel paints and seven brands of white coloured emulsion paints sold in the Sri Lankan market as household coatings were investigated over a time period of six months in 2007. Experimental results indicated that the levels of lead in the enamel paints ranged from $5.7 \pm 1.7 \text{ mg kg}^{-1}$ to $2452.3 \pm 109.1 \text{ mg kg}^{-1}$ and it was from $4.1 \pm 0.3 \text{ mg kg}^{-1}$ to $688.2 \pm 16.3 \text{ mg kg}^{-1}$ in emulsion paint sample analysed. Out of the five enamel paint and seven emulsion paint brands analysed two enamel paint brands and one emulsion paint brand showed the presence of considerably high amounts of lead and thus those products cannot be recommended for applications, since they have a potential risk of causing health hazards pertaining to lead poisoning especially in children. Therefore, experimental results revealed that high levels of lead pigments and lead additives are still used by some paint and coating manufacturers in Sri Lanka with increased risk of exposure to people, for whom domestic sources of lead exposure is more important than exposure through leaded petrol.

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