Abstract No: 652 ***Climate and Environment***

IMPLICATION OF LEAD (Pb) IN FAST MOVING ENAMAL PAINTS AVAILABLE IN THE DOMESTIC MARKET

M.N.A. Mubarak[1] and S. Malavipathirana[2, 3]*

[1]Industrial Technology Institute, Colombo, Sri Lanka
[2]Postgraduate Institute of Science, University of Peradeniya, Sri Lanka
[3]Department of Chemistry, Faculty of Science, University of Peradeniya, Sri Lanka
**malavisarath@gmail.com*

Lead (Pb) is commercially attractive element and provides a supreme value to be used in paint industry. It has the ability to hold pigments and keeps the color vibrancy. Further, Pb and Pb compounds help paints to stand well in difficult weather conditions and also insist high degree of corrosion resistant. Nevertheless, Pb has proven cancers in experimental animals. United State Environmental Protection Agency (USEPA) accordingly, has classified Pb as a "probable human carcinogen". Despite various occupational and public health measures being in place to mitigate the Pb exposure, cases of Pb poisoning are still reported particularly in developing world. Nervous, renal, endocrine, and hepatic systems are the major susceptible organs of Pb. Lead paint is a major source of potential Pb poisoning. This study reports levels of Pb in fast moving, selected enamel paints as a potential contributor of Pb in the environment. Well known popular paint brands were randomly purchased for the study. The samples were prepared for Atomic Absorption Spectrometric (AAS) analysis in compliance to ASTM 3335 – 85a method by ashing and followed by treating with con. HNO_3. The results were assessed against the SLS 539:2010 standard. About 67 % of the collected market products were found to be over the SLS maximum limit of 600 mg Pb /kg. But the SLS standard value itself is a remarkably higher than US standard of 90 mg Pb/kg. Amongst the seven different colors of six producers/importers, only one producer maintains the regulatory limit of Pb in all the colors. Besides the Pb values within the limit, the nearest exceeded Pb values in blue, white, red, black, green, yellow and orange color paints are critically higher by several orders of magnitude than the standard limit, and respectively associate with about 1.1, 10, 16, 16, 25, 32 and 33 fold increase. The presence of the highest Pb contents is reported with orange (75318 mg Pb/kg), green (64772 mg Pb/kg) and yellow (58018 mg Pb/kg) colors. The results raised the question of safe paints in the market. The exceptionally elevated levels of Pb found in locally manufactured paints would probably be attributed to use of substandard raw materials. The findings, more importantly stress that enforcement of practically safe domestic regulatory mechanism for Pb in paints is mandatory. Till then, restrictions must be in place for schools and play houses for kids to use only low Pb paints available in the market.