AS8-1

Risk assessment of volatile organic compounds (VOCs) and endocrine disrupting chemicals (EDCs) in consumer products

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VOCs are volatile organic compounds ubiquitously present in the environment as well as in various consumer products. Of VOCs, benzene, toluene, ethylbenzene, and xylene (BTEX) are the major chemicals investigated in this study although other critical VOCs are numerous.

In general, humans are exposed to VOCs not by single chemical but by mixture compounds such as BTEX and others. Therefore, risk assessment especially for VOCs should be carried out for mixture exposure scenario in consumer products. However, the real situation to perform the risk assessment for VOCs is entirely based on single chemical exposure due to lack of toxicological data for mixture compounds. Given the limited situation, risk assessment of VOCs showed that correction fluids and adhesives are of concern for benzene exposure exceeding risk limit of 1.0E-06, and ethylbenzene and xylene far exceeded hazard index (HI) of 1, which is a criteria for safe limits of human exposure. DEHP and DBP were also analyzed in cosmetics and human exposure level was assessment. HI values of DEHP and DBP due to exposure to cosmetic products did not exceed tolerable daily intake (TDI) or reference dose (RfD), showing less than 1 (HI < 1). These data suggest VOCs and EDCs investigated in this study were shown to be safe although continuous efforts need to be made to monitor regularly and development of risk assessment methodology for mixture exposure to VOCs or EDCs.

AS8-2

Toxicological concern in cosmetic products

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Cosmetic products are unique, as diverse as foods and drugs, and have a history covering thousands of years with the use of many ingredients from natural sources but present technology has led these products to be introduced by many synthetic ingredients. Cosmetic products play an essential role in people’s self-esteem by helping them feel confident in appearance from looking good and smelling nice. They have a huge impact on users. Excluding perfumery and decorative cosmetic products, many items of hair care, skin care, oral care and toiletry products are used daily among most population groups. Like foods and drugs, cosmetic products that put on the market must not cause damage to human health when applied under normal or reasonably foreseeable conditions of use. In practice, cosmetic products have rarely been associated with serious hazards but this does not mean these products are safe especially when used on daily basis and extensively over a large part of body. The fact that cosmetic products compose of a number of chemicals and some of them may affect health. Besides, ingredients used in cosmetic products are generally not tested for long-term results. The accumulation from an alarming amount of some chemicals in the products that can be absorbed into skin or breathed into lungs through continuous use may ensue with serious health problems including cancer. With the modern technology dealing with cosmetic products e.g., nanotechnology, it is needed to concern more on the toxicological aspects, both short and long term toxicities, in cosmetic products.