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Risk assessment of nickel in cosmetic products

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Nickel is present naturally in the earth. Chronic exposure of nickel may cause skin allergic reaction, skin rash, etc. Also, IARC classified nickel compounds in Group 1 (carcinogenic to humans) and metallic nickel in Group 2B (possibly carcinogenic to humans). For these reasons, the cosmetic regulation of nickel provides that nickel use in cosmetic products should be prohibited in Korea and EU. However, most cosmetic products in the markets can contain technically unavoidable traces of metals. First, we analyzed the content of nickel in 123 commercialized cosmetics for monitoring of degree of nickel contamination by using ICP-Mass. As the results, nickel is contained as up to 0.0039% in eye products (not detected 9 products), 0.0029% in make-up products (not detected 7 products) and 0.0003% in all other cosmetic products (not detected 30 products), respectively. Using the monitoring results and HT25 of nickel which is 0.188 mg/kg/day, life time cancer risk was evaluated for nickel in cosmetics to be 3.0×10^{-6} . So, nickel has a risk of carcinogenesis of less than 10^{-5} . Also, using the monitoring results and EC3 2.5% of nickel, the skin sensitization (AEL/CEL) was evaluated for nickel in cosmetics to be 1.1, which is greater than 1.

Biography

Chungsik Min has been working for many years at the MFDS (Ministry of Food and Drug Safety) of Korea. He has a professional experience in risk assessments for food safety management and reviewing data for drug authorization. Nowadays, he works at cosmetic research team under NIFDS (National Institute of Food and Drug Safety Evaluation, under MFDS), to manage the safety of cosmetics. He has a lot of interest in not only the safety of preservative and sunscreen in their effect but also the management of pollutant in cosmetics.

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