Thesis Title Possible Exposure to N-nitrosodiethanolamine from Cosmetics in Thailand

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ABSTRACT

N-nitrosodiethanolamine (NDElA), a compound known to produce some tumors in many species of animal, was detected in widely used consumer products such as cosmetics, hand and body lotions and hair shampoos. Mehthods for determination and confirmation of N-nitrosodiethanolamine (NDElA) in cosmetic product available were modified. The NDElA fraction was isolated from cosmetic product. Samples are cleaned up by a preliminary wash of the aqueuos mixture of the cosmetic and remove ingredients deleterious to the analytical system by using a series of selected solvents adsorbing column (silica gel 40). The isolated fraction was then analyzed for NDElA using a high pressure liquid chromatograph (HPLC) interfaced with a

thermal energy analyzer (TEA) as a detector. The optimum chromatography was obtained by using 60/35/8 (v/v/v) isooctane/methylene chloride/methanol as mobile phase on an NH_2 column with a C_{18} guard column. N-nitrosodiisopropanolamine was as the internal standard.

In this study, 37 cosmetic products have been analyzed for NDElA contamination. The results indicated that about 38% of the analyzed products were contaminated with NDElA at level greater than 190 ppb. The highest NDElA level was found in cleansing foam as facial cosmetics at level of 34,646 ppb. The shampoos showed the most frequent contamination cosmetic products by the ratio 7 of 11 samples.