

P3. NICKEL FROM METAL-BASED PIGMENTS IN TATTOO INKS

Gordana Milojevic Miodragovic¹, Danijela Lukic¹

¹*Institute of Public Health of Vojvodina, Novi Sad, Serbia*

Aim: Nowadays, tattooing practice is worldwide adopted socio-cultural phenomenon. However, the injection of coloring agents into the skin might encourage allergic reactions, attributed to contained metals.

Method: This report presents a case of 11 tattoo inks analyzed on nickel content. All inks were formulated as water based liquids containing 3 to 6 metal based pigments, including iron oxide. Analytical method comprised of microwave digestion by nitric and hydrochloric acid and flame atomic absorption spectrometry, with limit of quantification at 0.3 ppm.

Results: Concentration of nickel in analyzed samples ranged from 1-48 mg/kg. It was noticed that 54.5% of analyzed samples showed nickel concentration above 5 ppm, while the remaining samples were between 1 and 2 ppm. Samples showing higher quantities of nickel were the ones containing only iron oxide pigments (CI 77499, 77491, 77492), whereas samples with lower nickel concentration contained also other pigments (TiO₂, CrO₅). The separation of the groups could be explained by the fact known from the literature, that many iron oxide pigments contain at least some trace amounts of nickel.

Conclusions: Knowing that 1 ppm of Ni is considered as the safe allergological limit, obtained nickel concentrations in analyzed inks indicate that their contact with the skin might pose a risk for the development of dermatological reactions in tattooed people. It should be mentioned that Serbian regulation for cosmetics and similar products doesn't define the maximum allowable level of nickel in tattoo products. European Resolution ResAP(2008)¹ describes maximum allowed concentration of nickel as low as technically achievable.