O12. DIARYLIDE PIGMENTS UNDER SUNLIGHT – WHAT DO IN VITRO TESTS TELL US?

Christopher Hohl[1]

[1]*Kantonales Laboratorium, Basel, Switzerland*

Tattoo inks often contain diarylide pigments as colorants which are widely used in combination with titan dioxide in its rutile modification to obtain yellow and orange color tones. They consist of a benzidine derivative as the central structural element. As tattoos tend to fade with time and photodegradation of pigments being responsible to a certain extent, we developed an in vitro method simulating solar irradiation of a pigment in the skin. The method basically consisted of applying the diazo pigment alone or mixed with rutile in a matrix of lysed bovine collagen between two plates of varying UV-light transparency and irradiating for 0.5-1.5 h under daylight conditions. Photodegradation was characterised by the HPLC determination of the four guide compounds 4-chloro-aniline, ortho-toluidine, 3,3'-dichlorobenzidine and PCB 11.

Tests with the two often used pigments C.I.21095 and C.I.21110 showed as an important result, that already after 0.5 h of irradiation under daylight containing UVA, both underwent strong photo degradation to the carcinogenic 3,3'-dichlorobenzidine when mixed with rutile.

Under these conditions, other azo pigments probably also form hazardous aromatic amines, giving these kinds of studies a high degree of urgency.