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CHEMICAL ANALYSIS OF INKS ACCORDING TO EUROPEAN COUNCIL RES AP(2008)1: ARE TESTS ACCURATE AND RELEVANT?

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Introduction: The EC Resolution ResAP(2008)1 is the basis for most national legislations on tattoo inks. Legal limits are proposed for contaminants (heavy metals or polycyclic aromatic hydrocarbons (PAH)). Further on, tattoo inks must not contain or release listed primary aromatic amines (PAA).

Discussion: The requirements for PAA are unsatisfactory: First, impurities (PAA) are mingled with ingredients (pigments that may release PAA). Besides a differing hazard scenario, high single doses vs. potential low level chronic contamination, information on both substance classes cannot be gained with one analytical method. Furthermore, neither kind of release (enzymatic, photo degradation by sunlight or laser) nor limits are specified, which renders it impossible to develop analytical methods. Both methods described in the resolution take advantage of the textile norm EN 14362 for the determination of sweat soluble dyes. As cleaving conditions were adopted in the Swiss but were altered for tattoo inks in the Dutch method, results from both methods are comparable but not the same. Irrespective of these differences, both methods suffer from the impossibility to adequately dissolve pigments and therefore fail to detect some problematic pigments and give rise to high measurement variances for the others.

Conclusion: Taking into account the different pathways for the release of PAA from pigments, it would be best to ban pigments that release PAA and analyse pigments not PAA.

Further on, limits, not methods, should be fixed for free PAA and nitrosamines while for PAH and heavy metals consensus methods linked to legal limits are needed.