

034. WHAT QUALIFIES A SAFE AND GOOD PMU INK?

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Aim: This work takes a closer look at PMU inks and discusses safety aspects and relevant chemical and physical properties of high performance inks. There are many PMU inks available each having specific performance characteristics like viscosity, ink flow and color stability. In addition, safety issues like allergies could influence the pigmentation result badly. Currently the performance of PMU colors is assessed by a PMU artist. This represents a subjective opinion guided by the preferences and the pigmentation technique of the artists. But on the other hand quantitative analysis like rheology or particle size do not predict well the ink-needle interaction, a major factor for the pigment uptake. Therefore, new methods for ink flow optimizations are required.

To better understand the complex issue we have done a comparative study of PMU inks with different analytic methods. Results are then compared and discussed on the basis of the performance in the skin.

Methods: The ingredients and heavy metal impurities of selected PMU inks are evaluated. High-speed camera investigation of PMU inks in action on tattoo- and PMU-needles was used to identify the flow properties. In addition, physical and chemical properties, such as particle size, viscosity and zeta potential was measured.

Results & Conclusions: The high speed camera videos demonstrated significant differences of the ink flow on the needle. These data predict well the pigmentation results of the PMU artists. Therefore, this method is a promising tool for quality control and ink flow optimizations.