

Some Discrepancies between Experimentally-Based Theory of Toxic Metals Combined Action and Actual Approaches to Occupational and Environmental Health Risk Assessment and Management

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Abstract : Assessment of cumulative health risks associated with the widely observed combined exposures to two or more metals and their compounds on the organism in industrial or general environment, as well as respective regulatory and technical risk management decision-making have presumably the theoretical and experimental toxicology of mixtures as their reliable scientific basis. Analysis of relevant literature and our own experience proves, however, that there is no full match between these different practices. Moreover, some of the contradictions between them are of a fundamental nature. This unsatisfactory state of things may be explained not only by unavoidable simplifications characteristic of the methodologies of risk assessment and permissible exposure standards setting but also by the extreme intrinsic complexity of the combined toxicity theory, the most essential issues of which are considered and briefly discussed in this paper.

Keywords : toxic metals, nanoparticles, typology of combined toxicity, mathematical modeling, health risk assessment and management

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