

Abstract Submitted  
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**Transport of Nanomaterials in Air and Aquatic Systems – An Ontological Approach** ASHOK VASEASHTA, Marshall University — Advances made over the last few years provide new opportunities for scientific and technological developments in nanostructures and nanosystems with unique architectures, desired characteristics and improved functionality. Despite major developments in this field, there is a significant gap in our knowledge of the environmental, health, and ecological impacts associated with nanostructured materials. Since innovations in the field of nanotechnology occur faster than the policymakers can develop safe handling practices; a comprehensive and fundamental investigation is necessary based on dynamic transport of nanomaterials in the environment and its impact on human health and ecology. A matrix of parameters which govern transport of nanomaterials such as exposure routes, chemical composition, surface structure, solubility, size and shape effects, toxicity, absorption, distribution, metabolism, agglomeration, and excretion rate and mechanisms is proposed in this investigation. The complex nature of naturally occurring and engineered nanomaterials and transport either in the environment or via different exposure routes with human body necessitate an ontological modality. A theoretical basis for ontologies used for transport of nanomaterials in the environment such as air, water, and soil and human body will be presented. A comprehensive investigation will prove beneficial to risk assessment and ensuring safe practice in nanotechnologies.

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