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EUROPEAN CENTRE FOR ECOTOXICOLOGY AND TOXICOLOGY OF CHEMICALS

SCIENCE NEWS FLASH:
New ECETOC report addresses relationship between activity and toxicity for non-polar narcotic chemicals

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The relationship between the toxicity of narcotic chemicals and the octanol water partition coefficient (K_{OW}) has been widely explored. An alternative but closely related property can be used to directly frame toxicity within the concept of phase equilibrium thermodynamics. This property, termed chemical activity, is inversely proportional to solubility, proportional to toxicity and should be applicable for the prediction of effects in aquatic species.

The ECETOC document employs an extensive set of existing data, and provides a proof of concept for the relationship between chemical activity and toxicity for narcotic chemicals. The task force used published methodology and freely available software to classify the data according to Mode of Action (MOA). The analysis of MOA 1 (non-polar narcosis or baseline toxicity) substances shows promise as an alternative to K_{OW}-based predictions of effect. The data also brings to light a lack of high quality chronic aquatic toxicity data in general and in particular for substances outside the MOA 1 domain.

The document is published as ECETOC Technical Report 120: *Activity-Based Relationships for Aquatic Ecotoxicology Data: Use of the Activity Approach to Strengthen MoA Predictions.* http://bit.ly/ecetoc-tr120

ECETOC is Europe's leading industry association for developing and promoting top-quality science in human and environmental risk assessment of chemicals.

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