

## Applied human toxicology, hazard and risk assessment - Exemplar Projects

### **Carcinogenicity & neurotoxicity assessment of pyrethroids**

For a multinational consumer products company, ToxMinds has been reviewing and assessing state-of-the-art toxicological information relevant to the carcinogenicity and neurotoxicity assessment of more than 10 synthetic pyrethroids. The quality of our substance-specific assessments were confirmed by academic experts in the field and subsequently presented in form of white papers for client internal safety documentation as well as for sharing with the external scientific communities and public authorities.

### **Weight of Evidence assessments – Skin sensitization**

ToxMinds reviewed and evaluated for two groups of chemical manufacturers the existing weight of the scientific evidence of two categories of chemicals (i.e., surfactants and polymeric materials) to cause skin sensitization in humans upon dermal contact through their use in cosmetic leave-on or rinse-off products. The evaluation included the assessment of the scientific validity of more than 30 skin sensitization studies conducted in guinea pigs according to the Magnuson-Kligman maximization test (GPMT) or Buehler test protocol or in mice, according to Local Lymph Node Assay (LLNA) protocol. The overall weight-of-evidence evaluation took also information from human repeat insult patch test and diagnostic patch test evaluations in humans as well as general market surveillance information into account. While the majority of the available studies did not reveal evidence for skin sensitization potential of the chemicals as a group, individual substances showed effects indicative of skin sensitization in the GPMT or the LLNA. In these cases we examined specifically whether these positive findings were related to specific issues related to the testing protocol (i.e., identification of false positives) or whether certain structural features or process impurities could have been responsible for the observed effects. A summary of our investigation on the polymeric material is currently in preparation for publication in a peer-reviewed scientific journal.

### **Critical review of the CLP STOT-RE criteria for inhaled particulates**

ToxMinds was tasked by a European metals industry association to identify the scientific issues related to the application of the GHS/CLP specific target organ toxicity (STOT) classification criteria following repeated exposure ('STOT-RE') to inhaled poorly soluble particles (PSP) of low toxicity. Our analysis identified a range of issues including the adequacy of inhalation data generated in the rat as a basis for human hazard identification of inhaled PSP due its specific sensitivity towards inhaled particles when compared with other rodents or non-human primates. Our findings have been put forward with request for further review of the C&L criteria at OECD level.