

standardized expert query and the way of using the generated results remain to be discussed. The results could either be used to generate one Risk- Priority - Ranking list for broad application in different use contexts or either to develop a function which fits any expert appraisal, subject to the choice of its included parameters or to create specific lists on demand.

### **Exposure to volatile organic compounds and health risk assessment in residents living near an optoelectronics industrial park**

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Optoelectronic industrial activities are associated with the increasing concentrations of volatile organic compounds (VOCs) in the Central Taiwan Science Park (CTSP), but residents' VOCs exposures and potential health risks are unknown. This study aimed to determine outdoor and indoor levels of VOCs and to assess health risks among residents living near the CTSP during 2006-2007. We conducted the outdoor sampling of VOCs at ten sites near the CTSP and collected indoor samples from nine houses located at five communities. The steel canisters were used to perform 24-hour outdoor and indoor sampling every season. Qualitative and quantitative analyses were conducted by using the gas chromatography with a mass-selective detector. The self-administered questionnaire was used to record residents' time activity information in the outdoor and indoor environment. The chronic hazard index (HIC) and the cancer risk were used to assess the non-carcinogenic and carcinogenic risks of VOCs in residents. The average concentrations of the total VOCs and 14 specific VOCs in the indoor environment were significantly higher than those in the outdoor environment every season. Ethanol ( $77.8 \pm 92.8 \mu\text{g}/\text{m}^3$ ), toluene ( $67.0 \pm 36.7 \mu\text{g}/\text{m}^3$ ) and acetone ( $37.7 \pm 27.5 \mu\text{g}/\text{m}^3$ ) were three dominant components in the indoor air samples. These three VOCs were also the main outdoor pollutants with the average concentrations of  $56.9 \pm 19.0 \mu\text{g}/\text{m}^3$  for toluene,  $26.8 \pm 49.6 \mu\text{g}/\text{m}^3$  for ethanol and  $25.8 \pm 9.8 \mu\text{g}/\text{m}^3$  for acetone, respectively. Residents exposed to VOCs had the mean HIC values ranged  $2.8 \times 10^{-4}$  ~  $1.3 \times 10^{-1}$  and the mean cancer risk of exposure to benzene was  $3.8 \times 10^{-4}$  based on time-weight patterns. Residents living near the CTSP exposed to the higher levels of indoor VOCs and might have the estimated cancer risk above the general acceptable level ( $1 \times 10^{-6}$ ) due to benzene exposure. We suggest that the log-term

monitoring of VOCs and reducing benzene exposure in residents should be performed to prevent the public health.

Key words: Central Taiwan Science Park, Health Risk Assessment, Volatile Organic Compounds.

### **Risks are more likely when thinking concrete – The effect of construal level on risk estimates**

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People's subjective risk estimates and in particular their accuracy in estimating risks is important for insurance industry, economy, science and overall in everyday life. However, although people are confronted with probability considerations every day in professional and private contexts research has shown that humans are not good intuitive statisticians. A large body of research literature reveals that probability estimates are influenced and systematically biased by many different factors. A rather new perspective to investigate how people mentally represent future events which influences their decisions is Construal Level Theory (CLT; Liberman and Trope, 2010). Research on CLT has shown that mental representations of events are influenced by the perceived psychological distance. That means that people tend to represent targets that are perceived as proximal, in kinds of low-level construals (concrete), compared to distal perceived targets, which are more likely to be represented in kinds of high-level construals (abstract). Interestingly, this phenomenon is bi-directional. That means that the kind of mind-set (concrete vs. abstract) people have adopted (e.g., after priming) influences the perceived psychological distance and thereby mental representations. Furthermore, CLT research revealed that also probability estimates are influenced by the current mind-set. Recent study findings suppose that thinking in a high-level manner (abstract) leads to a lower estimated probability of occurrence of an event compared to a low-level manner (concrete). This was shown for instance by Wakslak and Trope (2009) who manipulated participants thought processes (i.e., letting participants adopt an abstract or concrete mind-set via priming) and investigated participants' estimates regarding the probability of occurrence of neutral future events. In our research we applied the idea of different construal level (CL) mind-sets to the risk context and asked participants to estimate risks from different domains (e.g., health, accidents). The current research explored the influence of CL