Hypothesis-Based Weight-of-Evidence Evaluation of the Human Carcinogenicity of Toluene Diisocyanate

Figure 1: TDI Reactions in Water

Individual Study Review (Step 1)

Table 1: Epidemiology Studies

Table 2: Animal Studies

Hypotheses to Consider (Step 3)

Table 3: Genotoxicity Studies

Table 4: In Vitro TDI and TDA Genotoxicity Assays

Evaluate Logic of Hypotheses for Each Realm of Evidence (Step 4)

Evaluate Logic of Hypotheses for All Realms of Evidence Together (Step 5)

Evaluation of Alternative Accounts (Step 6)

Conclusions (Step 7)

Despite limited epidemiologic evidence, the animal and genotoxicity data support TDI carcinogenicity in humans, consistent in results across studies and not limited to a single species. To accept this account, one must accept that TDI is a genotoxic carcinogen in animals and that carcinogenesis in humans after inhalation is plausible even though a large body of evidence does not support the inverse.

Acceptor 1: Doubt as to whether the available data support TDI carcinogenicity in humans. Acceptors have noted the lack of genotoxic effect of TDA in experimental animals, and associations between TDI and tumors in humans are due to chance. To accept this account, a causal relationship would be understood as not necessarily those of III.

Acceptor 2: Doubt as to the causality of TDI carcinogenicity in humans. Acceptors have raised questions about causality, lack of genotoxic effect of TDA in experimental animals, associations between TDI and tumors in humans due to chance. To accept this account, a causal relationship would be understood as not necessarily those of III.

Individual Study Review (Step 1)

Systematic Evaluation of Data Across Studies for Each Realm of Investigation (Step 2)

Table 1: Epidemiology Studies

Table 2: Animal Studies

Hypotheses to Consider (Step 3)

Table 3: Genotoxicity Studies

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