Alternatives to Animal Testing for Chemical Risk Assessment

A Defra LINK Project

Project no. LK0984

DATASET DOCUMENTATION

Roberts et al skin sensitisation (LLNA) dataset of selected EINECS chemicals

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1 Aim of this Document

This document provides supporting information relating to the Roberts et al [1] dataset reported in the framework of the Defra LINK LK0984 project. The dataset described in this document is available on http://www.inchemicotox.org/.

2 The Roberts et al Dataset

The Roberts et al dataset presents the results of skin sensitisation murine local lymph node assays on 44 chemicals that were selected from the European Inventory of Existing Commercial Chemical Substances (EINECS). The results for 40 of these chemicals are given in a Table provided as Supporting Information accompanying the paper on the publisher's website (http://pubs.acs.org/doi/suppl/10.1021/tx700169w) and the results for the other four are given in the Results and Discussion section of the paper.

The Roberts et al dataset is available on the inchemicotox web-site in Excel .xls format. It was created and contributed to the project for publication by Lhasa Limited. Care has been taken in its preparation but Lhasa Limited does not warrant that the information contained in it is wholly accurate and any use of it is entirely at the user's risk.

The following information is provided for each chemical: name, common synonyms, 2D structure, SMILES, CAS number, EINECS number, molecular formula, molecular weight, assay type and test method followed, species, vehicle, induction concentration (where given), EC3 (where specified), potency classification, reference, Klimisch reliability score for study/data, and specific comments relating to the reported test result.

For one substance (2-chloro-3',4'-dihydroxyacetophenone) there is a discrepancy between the potency classification given in the supplementary Table (strong extreme) and the text (moderate). The latter has been given precedence, and this has been noted in our dataset under Comments. In several instances a weak or moderate sensitisation potential was found that was unexpected from the chemical structure; the presence of sensitising impurities, auto-oxidation products or skin irritancy were suggested by the authors as explanations and these have been noted in the Table under Comments.

The Klimisch study/data reliability score was judged, for all substances with one exception, as 2 (reliable with restrictions). This was based on the test method conforming to OECD Test Guideline 429, but there being insufficient information on the purity of the individual substances tested. There is a general statement in Roberts et al that the chemicals were at least 97% pure. However, Klimisch et al state: "Data on the purity of a substance are necessary particularly if impurities may have a substantial influence on the toxicity. This can be assessed only on a case-to-case basis". The reliability of the study result for 2-chloro-3',4'-dihydroxyacetophenone was judged as 3 ("not reliable") based on the discrepancy of the potency classifications given in the text of the paper and the supplementary Table.

3 References

1. Roberts DW, Patlewicz G, Dimitrov SD et al. TIMES-SS – A mechanistic evaluation of an external validation study using reaction chemistry principles. Chem. Res. Toxicol. **20**, 1321-1330 (2007).

2. Klimisch HJ, Andreae M and Tillmann U. A systematic approach for evaluating the quality of experimental and ecotoxicological data. Regul. Toxicol. Pharmacol. 25, 1-5 (1997).