

Alternatives to Animal Testing for Chemical Risk Assessment

A Defra LINK Project

Project no. LK0984

DATASET DOCUMENTATION

NICEATM-ICCVAM Inorganic Compounds Skin Sensitisation (LLNA)

Prepared by:

Dr Martin Payne

Lhasa Limited,
22-23 Blenheim Terrace,
Woodhouse Lane,
Leeds LS2 9HD, UK.
martin.payne@lhasalimited.org

October 2009

www.inchemicotox.org

1 Aim of this Document

This document provides supporting information relating to the NICEATM-ICCVAM Inorganic Compounds dataset [1] 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 NICEATM-ICCVAM Inorganic Compounds Dataset

The NICEATM-ICCVAM Inorganic Compounds dataset presents the results of skin sensitisation murine local lymph node assays on 14 chemicals originally compiled by the US National Toxicology Program (NTP)'s Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM) and the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM), as part of a body of work to establish the applicability domain of the local lymph node assay. This data was published on the NICEATM-ICCVAM website as an Excel worksheet at the address: <http://iccvam.niehs.nih.gov/methods/immunotox/lna-panelDocs.htm>. The literature citations there have been checked in the current compilation and chemical structures included.

The Inorganic Compounds dataset is available on the inchemicotox web-site in Excel .xls format. 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, 2D structure, SMILES, CAS number, molecular formula, molecular weight, assay type and test method followed, species, vehicle, induction concentrations (where given) and stimulation indices (test/control), EC3 values (where specified), classification (sensitiser/non-sensitiser), original reference for the data, Klimisch reliability score for study/data and specific comments relating to the reported results.

The Klimisch study/data reliability scores were judged, for all data presented, with three exceptions described below, as 2 (reliable with restrictions). This was based on the test methods generally conforming to OECD Test Guideline 429, but there being insufficient information on the purity of the individual substances tested, which can potentially have a large impact on test results when the main component is non-sensitising. 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 EC3 values given in the original Table were partly obtained from the cited references and in other instances appear to have been calculated by the compilers from the dose-response data given in the cited papers. In several instances, more references were cited in the original Table than contained the data given. Only those papers containing the reported stimulation indices are cited in the present version. For beryllium sulphate and gold chloride EC3 values are given in the original Table that do not appear in the cited references and have no accompanying dose-response data in the Table from which they could be derived. For this reason the Klimisch reliability score for these

data are reduced from 2 to 3 (“not reliable”). Some EC3 values are based on an extrapolation of concentrations to give an SI of 3, well below the experimental values and are potentially prone to large errors. In particular, one EC3 value for potassium dichromate in DMSO is 0.01%, cf. experimental SI values of 8.8 and 10.1 at concentrations of 0.25 and 0.50%. This particular EC3 value is much lower than obtained from other experimental results reported in the Table and is therefore considered unreliable and assigned a Klimisch score 3.

3 References

1. Immunotoxicity: Allergic Contact Dermatitis Murine Local Lymph Node Assay (LLNA). Appendix C2: Available Data and Information for Metals Tested in the LLNA, Comparative Data: Human, LLNA, Guinea Pig [XLS]. <http://iccvam.niehs.nih.gov/methods/immunotox/llna-panelDocs.htm>
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).