8.0 TEST METHOD DATA QUALITY

8.1 Adherence to National and International GLP Guidelines

Ideally, all data supporting the validity of a test method should be obtained and reported in accordance with GLP guidelines, which are nationally and internationally recognized rules designed to produce high-quality laboratory records. GLP guidelines provide a standardized approach to report and archive laboratory data and records, and information about the test protocol, to ensure the integrity, reliability, and accountability of a study (OECD 1998; EPA 2003a, 2003b; FDA 2003).

8.1.1 Prinsen and Koëter (1993)

The majority of chemicals used in this study (19 out of 21) were tested *in vivo* in a previous study sponsored by the Commission of the European Communities (Botham et al. 1989). The remaining two chemicals were tested at TNO Toxicology and Nutrition Institute (Prinsen 1991a, 1991b). The extent of compliance of the *in vivo* studies with GLP guidelines is not stated. However, these same chemicals were tested by Prinsen and Koëter (1993) with the ICE test method, which was reportedly conducted in accordance with GLP guidelines as outlined by OECD (1991). As noted in **Section 3.4.1**, no specific coding mechanisms for the chemicals are detailed, and none appear to have been used.

8.1.2 Balls et al. (1995)

Much of the *in vivo* reference data for this study (38 out of 60 test substances) was obtained from the ECETOC Eye Irritation Reference Data Bank (ECETOC 1992). This *in vivo* data was generated in studies carried out according to OECD TG 405 (OECD 1987) and following the principles of GLPs. *In vivo* data for an additional eight test substances was retrieved from other sources of unpublished data that met the ECETOC selection criteria (which includes GLP compliance). Therefore, it is presumed that these studies were conducted according to GLPs. The remaining 14 substances were tested *in vivo* after the ICE test method studies had begun. Again, although not specifically stated in the report, it is presumed that these studies were conducted according to GLPs in order to meet the ECETOC selection criteria.

As noted in **Section 3.4.2**, test substances and participating laboratories were each assigned a numeric code in order for subsequent data analysis to be performed without knowledge of the identities of the test substance or laboratory. The total number of aliquots of each test substance required for the full study was determined. Computer software was then used to generate random codes for the total number of samples, so that a unique number could be assigned to each sample.

8.1.3 Prinsen (1996)

All tests (both *in vivo* and *in vitro*) performed for this evaluation were reportedly conducted according to GLP guidelines as outlined by OECD (1991). As noted in **Section 3.4.3**, no coding mechanisms were employed.

8.1.4 Prinsen (2000)

All tests (both *in vivo* and *in vitro*) performed for this evaluation were reportedly conducted according to GLP guidelines as outlined by OECD (1991). As noted in **Section 3.4.4,** test substances were each assigned a numeric code, although the coding mechanism was not described.

8.1.5 Prinsen (2005)

All tests (both *in vivo* and *in vitro*) performed for this evaluation were reportedly conducted according to GLP guidelines as outlined by OECD (1991). As noted in **Section 3.4.5,** test substances were each assigned a numeric code, although the coding mechanism was not described.

8.2 Data Quality Audits

Formal assessments of data quality, such as a quality assurance (QA) audit, generally involve a systematic and critical comparison of the data provided in a study report to the laboratory records generated for a study. No attempt was made to formally assess the quality of the *in vitro* ICE test method data included in this BRD or to obtain information about data quality audits from the authors of the ICE test method study reports. Auditing the reported endpoint values would require obtaining the original data for each ICE test method experiment, which, in most cases, is not readily available.

An informal assessment of the ICE study reports publications revealed limitations that complicate interpretation of the ICE data:

- *Incomplete substance information:* Some ICE study reports provided limited information about the substances tested. The CASRN, purity, and supplier of the test substances were not consistently reported. Thus, comparisons of data from different studies that evaluated test substances of the same chemical name must be interpreted with caution because of possible differences in substance purity.
- *Data reporting:* A majority of the ICE studies reported only the mean *in vitro* score with no accompanying standard deviation to indicate the variability of the data.
- *Criteria for an acceptable test*: None of the reviewed reports discussed the criteria used to determine whether a test was acceptable. No information on positive control irritancy scores was provided.

Since the published data were not verified for their accuracy against the original experimental data, and the methods and data were presented in varying levels of detail and completeness, caution must be exercised when interpreting the analyses performed in **Sections 6.0** and **7.0**.

8.3 Impact of Deviations from GLP Guidelines

As no reports from data quality audits have been obtained, information on GLP deviations or their impact on the study results is not available.

8.4 Availability of Laboratory Notebooks or Other Records

As noted in **Section 5.2**, original data were used for this evaluation in some cases. However, with the exception of Prinsen (1996), original data for the published studies used for this evaluation were not available for review.

8.5 Need for Data Quality

Data quality is a critical component of the test method validation process. To ensure data quality, ICCVAM recommends that all of the data supporting validation of a test method be available with the detailed protocol under which the data were produced. Original data should be available for examination, as should supporting documentation, such as laboratory notebooks. Ideally, the data should adhere to national or international GLP guidelines (ICCVAM, 1997).

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