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. GLPs 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; U.S. EPA 2003a, 2003b; FDA 2003).

Based on the information available in the publications and from additional information provided (F. Guerriero, personal communication), it appears that Balls et al. (1995), Gettings et al. (1996), and Guerriero et al. (2004) conducted IRE studies in compliance with GLP guidelines. It could not be determined whether the IRE studies in CEC (1991) were conducted in accordance with GLP guidelines.

The *in vivo* reference studies used for Balls et al. (1995) appear to have adhered to GLP guidelines. Balls et al. 1995 used *in vivo* reference data from the ECETOC Eye Irritation Reference Data Bank (ECETOC 1992). These *in vivo* data were generated in studies carried out according to OECD Test Guideline 405 (OECD 1987) and following the principles of GLPs. The *in vivo* reference data from Guerriero et al. (2004) were also performed in accordance with GLP guidelines (F Guerriero, personal communication). Based on the available information, it could not be determined whether the *in vivo* reference data for the remaining test substances reported in Gettings et al. (1996) or CEC (1991) were obtained under GLP guidelines.

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* IRE data included in this BRD or to obtain information about data quality audits from the authors of the IRE study reports. The published data on the IRE assay were limited to Draize (Balls et al. 1995; Gettings et al. 1996) or McDonald Shadduck (Guerriero et al. 2004) scoring of corneal opacity and/or area of involvement. Other measured parameters included scores for fluorescein penetration and description of endothelial integrity. Auditing these reported values would require obtaining the original data for each IRE experiment, which is not readily available.

An informal assessment of the IRE publications revealed limitations that complicate interpretation of the IRE data:

- *Incomplete substance information*: Some IRE 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 purity and supplier of the test substances.
- *Data reporting*: Various scoring methods were utilized in the various reports, which makes it difficult to make comparisons between the studies or for compounds tested in different studies.
- *Methodology*: The methods were presented in varying levels of detail and completeness in the study reports.

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

The impact of deviations from GLP guidelines was not evaluated for the reviewed IRE studies.

8.4 Availability of Laboratory Notebooks or Other Records

As noted in **Section 5.2**, the availability of notebooks or other records containing data from the reviewed IRE studies is unknown. Given the lack of availability of the original records, including the raw data for the studies used to evaluate the accuracy and reliability of the IRE test method in this document, the testing laboratory's summary judgment regarding the outcome of each study cannot be evaluated.

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).