8.0 BCOP 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, as well as information about the test protocol, to ensure the integrity, reliability, and accountability of a study (OECD 1998; EPA 2003a, 2003b; FDA 2003).

Based on the available information, it appears that Swanson et al. (1995), Gettings et al. (1996), Southee (1998), Swanson and Harbell (2000), and Bailey et al. (2004) conducted the BCOP studies according to GLP guidelines.

The *in vivo* reference studies used for Gautheron et al. (1994), Balls et al. (1995), Southee (1998), and Bailey et al. (2004) appear to have adhered to GLP guidelines. Two of these studies (Balls et al. 1995; Southee1998) used *in vivo* reference data from the ECETOC Eye Irritation Reference Data Bank (ECETOC 1992). These *in vivo* data were generated in GLP-compliant studies conducted according to OECD TG 405 (OECD 1987). In Gautheron et al. (1994), the *in vivo* studies were performed according to European Economic Community (EEC) (1984 and 1991) guidelines, which presumably required adherence to GLP guidelines. Additionally, 48 of the test substances evaluated by Casterton et al. (1996) were included in the ECETOC (1992) publication; thus, the *in vivo* data for these substances were generated according to GLP guidelines. For Bailey et al. (2004), the *in vivo* study reports contained signed statements attesting that the studies were conducting according to 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* BCOP data included in this BRD, or to obtain information about data quality audits from the authors of the BCOP study reports. The published data on the BCOP assay were limited to calculated *In Vitro* Irritancy Scores and, to a lesser extent, opacity and OD_{490} values. Auditing these reported values would require obtaining the original data for each BCOP experiment, which was not possible within the timeframe of this review.

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

- *Incomplete substance information*: Some BCOP 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 test substance purity and suppliers.

- *Data reporting*: A majority of the BCOP studies reported only the mean *In Vitro* Irritancy score with no accompanying standard deviation to indicate the variability of the data.
- *Criteria for an acceptable test*: Acceptance criteria were reported in Balls et al. (1995) and Southee (1998). These reports stated that a test was accepted if the positive control produced an *In Vitro* Irritancy score within two standard deviations of the current historical mean. Although not reported, these same criteria were used in Gettings et al. (1996), Swanson et al. (1995), Swanson and Harbell (2000), and Bailey et al. (2004). However, acceptance criteria were not found for Gautheron et al. (1994) and Casterton et al. (1996).
- *Methodology*: The methods were presented in varying levels of detail and completeness in the study reports. The space limitation of many scientific journals is likely a contributing factor to some of the shorter methodology sections.

Since the published data were not verified for their accuracy against the original experimental data, 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 BCOP studies.

8.4 Availability of Laboratory Notebooks or Other Records

Study notebooks and other supporting records are known to be available, upon request, for an external audit, for the following studies: Swanson et al. (1995), Gettings et al. (1996), Swanson and Harbell (2000), and Bailey et al. (2004). The availability of laboratory notebooks or other records for the other studies considered for the accuracy (**Section 6.0**) and reliability (**Section 7.0**) analyses was not determined.

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).