

Transcutaneous Electrical Resistance (TER) Methods: In Vitro Test Methods for Assessing the Dermal Corrosivity Potential of Chemicals,” and proposed test method recommendations from the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM) on the use of these methods. The NICEATM invites public comment on the BRD and ICCVAM recommendations.

#### **Availability of Background Review Document and Proposed ICCVAM Recommendations**

An electronic version of this BRD and proposed ICCVAM test method recommendations may be obtained from the NICEATM/ICCVAM web site at <http://iccvam.niehs.nih.gov>. For a paper copy (a limited number are available), please contact the NICEATM at (919) 541-3398 or via email at [niceatm@niehs.nih.gov](mailto:niceatm@niehs.nih.gov).

#### **Request for Public Comment**

NICEATM invites written public comments on the BRD on in vitro corrosivity methods and the proposed ICCVAM recommendations for these methods. The deadline for submission of comments is November 13, 2001. Comments submitted via email are preferred; the acceptable file formats are MS Word (Office 98 or older), plain text, or PDF. Comments should be sent to Dr. William Stokes, Director, NICEATM, NIEHS, MD EC-17, P.O. Box 12233, Research Triangle Park, NC, 27709; telephone 919-541-3398; fax 919-541-0947; email [niceatm@niehs.nih.gov](mailto:niceatm@niehs.nih.gov). Persons submitting written comments should include their contact information (name, affiliation, address, telephone/fax numbers, and email) and sponsoring organization, if any.

Public comments received in response to this **Federal Register** notice will be posted on the NICEATM/ICCVAM web site <http://iccvam.niehs.nih.gov> and provided to the ICCVAM. ICCVAM will consider all comments prior to finalizing its test recommendations on EpiDerm™, EPISKIN™, and Rat Skin TER. In accordance with Public Law 106-545, ICCVAM test recommendations will be forwarded to appropriate Federal agencies and will be made available to the public on the NICEATM/ICCVAM website.

#### **Background**

ICCVAM and the ICCVAM Corrosivity Working Group (CWG) recently evaluated three in vitro test methods for assessing the dermal corrosivity potential of chemicals and chemical mixtures—EpiDerm™, EPISKIN™, and Rat Skin TER. EpiDerm™ and

EPISKIN™ utilize a three dimensional human skin model comprised of a reconstructed epidermis and a functional stratum corneum. The test chemical is applied to this reconstructed epidermis for a specified time and subsequent cell viability is measured. Rat Skin TER assesses the skin corrosivity of a chemical by applying the test material to the epidermal surface of a rat skin disc for two and 24 hours; subsequently, the transcutaneous electrical resistance (TER) of the skin disc is measured. NICEATM prepared a background review document summarizing the available data and prior reviews for the three test methods, which was then considered by the CWG and ICCVAM. The CWG concluded, based on the information provided and outcomes of the previous reviews, that further evaluation by an independent scientific peer review panel did not appear necessary, and recommended that these methods undergo ICCVAM evaluation using an expedited review process (ICCVAM, 2001). ICCVAM agreed with the CWG recommendation for expedited review. This process involves the development of a draft ICCVAM position (proposed ICCVAM test recommendations) and publishing the position in the **Federal Register** for public comment. Public comments are considered by ICCVAM, and if no major problems are found, ICCVAM then finalizes its test recommendations and forwards to federal agencies for their determination of regulatory acceptability. If major problems are noted, then ICCVAM will determine an appropriate process for further evaluation, such as an independent peer review panel evaluation.

#### *ECVAM Evaluation*

The European Center for the Validation of Alternative Methods (ECVAM) conducted validation studies on these three in vitro methods (Barratt et al., 1998; Fentem et al., 1998; Liebsch et al., 2000). The ECVAM Management Team concluded that EpiDerm™, Rat Skin TER, and EPISKIN™ were scientifically valid for use as replacements for the animal test currently used to distinguish between corrosive and non-corrosive chemicals and for all chemical classes (Fentem et al., 1998; Liebsch et al., 2000).

#### *Other Reviews*

The validation status of these three methods was then evaluated by the ECVAM Scientific Advisory Committee (ESAC). The ESAC also concluded that the Rat Skin TER, EpiDerm™, and the EPISKIN™ tests were scientifically

## **DEPARTMENT OF HEALTH AND HUMAN SERVICES**

### **Public Health Service**

#### **National Institute of Environmental Health Sciences (NIEHS) National Toxicology Program (NTP)**

EPISKIN™, EpiDerm™, and Rat Skin Transcutaneous Electrical Resistance Methods: In Vitro Test Methods Proposed for Assessing the Dermal Corrosivity Potential of Chemicals; Notice of Availability of a Background Review Document and Proposed ICCVAM Test Method Recommendations and Request for Public Comment.

#### **Summary**

The NTP Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM) announces availability of a background review document (BRD) entitled “EPISKIN™, EpiDerm™, and Rat Skin

valid for use as replacements for the animal test and were ready to be considered for regulatory acceptance (Balls and Corcelle, 1998; Balls and Hellsten, 2000). The European Scientific Committee for Cosmetic Products and Non-food Products (SCCNFP) evaluated the EPISKIN™ and Rat Skin TER and concluded that they were applicable for the safety evaluation of cosmetic ingredients or mixtures of ingredients (Anon., 1999). The European Commission subsequently adopted EpiDerm™, EPISKIN™, and Rat Skin TER (Anon., 2000).

#### *Proposed ICCVAM Recommendations*

ICCVAM proposes that these assays can be used to assess the dermal corrosion potential of chemicals in a weight-of-evidence approach in an integrated testing scheme [e.g., OECD Globally Harmonised Classification System (OECD, 1998); OECD Revised Proposals for Updated Test Guidelines 404 and 405: Dermal and Eye Corrosion/Irritation Studies (OECD, 2001a)]. These integrated testing schemes for dermal irritation/corrosion allow for the use of validated and accepted *in vitro* methods. In this approach, positive *in vitro* corrosivity responses do not generally require further testing and can be used for classification and labeling. Negative *in vitro* corrosivity responses shall be followed by *in vivo* dermal corrosion/irritation testing. (Note: The first animal used in the irritation/corrosivity assessment would be expected to identify any chemical corrosives that were false negatives in the *in vitro* test). Furthermore, as is appropriate for any *in vitro* assay, there is the opportunity for confirmatory testing if false positive results are indicated on a weight of evidence evaluation of supplemental information, such as pH, structure activity relationships (SAR), and other chemical and testing information.

#### **Additional Information About ICCVAM and NICEATM**

ICCVAM, with 15 participating Federal agencies, was established in 1997 to coordinate interagency issues on toxicological test method development, validation, regulatory acceptance, and national and international harmonization. The ICCVAM Authorization Act of 2000 (Public Law 106-545) formally authorized and designated ICCVAM as a permanent committee administered by the NIEHS with specific duties that include the technical evaluation of new and alternative testing methods. ICCVAM is charged with developing test recommendations based on those

technical evaluations, and forwarding these to Federal agencies for their consideration. The NICEATM was established in 1998 to coordinate and facilitate ICCVAM activities, to provide peer review for validation activities and to promote communication with stakeholders. The NICEATM is located at the NIEHS, Research Triangle Park, NC. Additional information concerning ICCVAM and NICEATM can be found on the ICCVAM/NICEATM web site at <http://iccvam.niehs.nih.gov>.

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