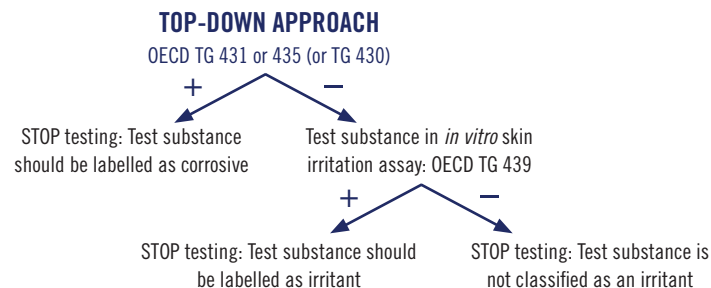
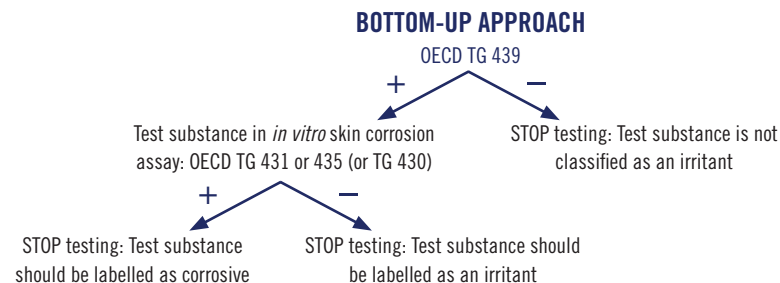


IN VITRO METHODS TO PREDICT SKIN IRRITATION AND CORROSION

START here if you suspect your test substance is corrosive



START here if you suspect your test substance is not corrosive



| METHOD | PRINCIPLE OF THE TEST | RHE MODEL (IF APPLICABLE) | APPLICABILITY DOMAIN | GHS CATEGORISATION |
|--|---|--|---|--|
| OECD TG 439: <i>In Vitro</i> Skin Irritation: Reconstructed Human Epidermis (RhE) Test Method | Test substance is applied to a 3-dimensional reconstructed human epidermis (RhE) model. Following exposure and a post-exposure incubation period, the vital dye MTT is added and cell viability determined. Optional histology may also be conducted to gain further information. | ⇒ EpiSkin™ (L'Oréal, France) ⇒ EpiDerm™ (MatTek, US) ⇒ SkinEthic™ (L'Oréal, France) ⇒ LabCyte EPI-Model (J-TEC, Japan) | Applicable to chemicals (solids, semi-solids, liquids, waxes) and mixtures | Discriminates skin irritants (Cat. 2) from substances not classified for skin irritation (no Cat.); Materials that test positive should be tested for skin corrosion (bottom-up approach). |
| OECD TG 431: <i>In Vitro</i> Skin Corrosion: Reconstructed Human Epidermis (RhE) Test Method | Test substance is applied topically to a 3-dimensional RhE model. Corrosive chemicals are able to penetrate the tissue and are cytotoxic to cells in the underlying layers. Cell viability is measured using the vital dye MTT. | ⇒ EpiSkin™ (L'Oréal, France) ⇒ EpiDerm™ (MatTek, US) ⇒ SkinEthic™ (L'Oréal, France) ⇒ epiCS® (formerly EST-1000; Cell Systems, Germany) | Applicable to chemicals (solids, semi-solids, liquids, waxes) and mixtures | Discriminates sub-category 1A from sub-categories 1B-and-1C from non-corrosives; Materials that test negative should be tested for skin irritation (top-down approach). |
| OECD TG 435: <i>In Vitro</i> Membrane Barrier Test Method for Skin Corrosion | Test substance is applied to the surface of an artificial membrane barrier designed to respond in a manner similar to skin <i>in vivo</i> . The time taken for the test substance to penetrate the barrier predicts corrosivity. | N/A | Applicable to water-soluble or insoluble solids, aqueous or non-aqueous liquids, and emulsions | Discriminates non-corrosives from corrosives and allows full sub-categorisation into sub-categories 1A, 1B, and 1C |
| OECD TG 430: <i>In Vitro</i> Skin Corrosion: Transcutaneous Electrical Resistance (TER) Test Method | Test substance is applied to the surface of excised rat skin discs in a two-compartment test system. Corrosivity is determined by the loss of stratum corneum integrity and barrier function measured as a reduction of transcutaneous electrical resistance. | N/A | Applicable to water-soluble or insoluble solids, aqueous or non-aqueous liquids, semi-solids, and waxes | Discriminates skin corrosives (Cat. 1) from non-corrosives but does not discriminate between corrosive sub-categories 1A, 1B, and 1C <i>Note: Animals are used; therefore, this test should only be used if the substance is outside the applicability domain of the other methods.</i> |

References

- ECHA guidance on skin irritation/corrosion (available at www.echa.europa.eu/documents/10162/21650280/oeed_test_guidelines_skin_irritation_en.pdf)
- OECD guidance on an integrated approach to testing and assessment (IATA) for skin corrosion and irritation (July 2014): Series on testing and assessment, No. 203 (available at www.oecd.org)
- OECD TG 430 training video (available at <http://www.invitrointl.com/products/corrosit.htm>)