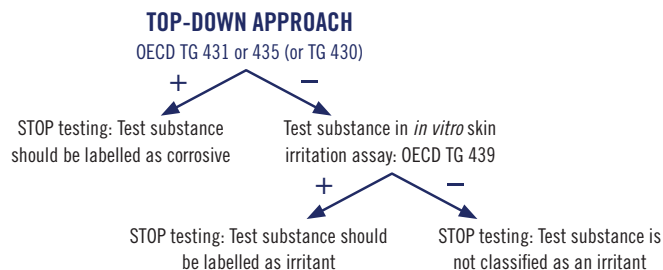
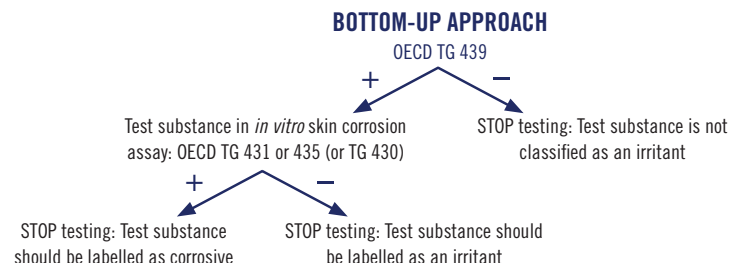


IN VITRO METHODS TO PREDICT SKIN IRRITATION AND CORROSION

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/oecd_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>)

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