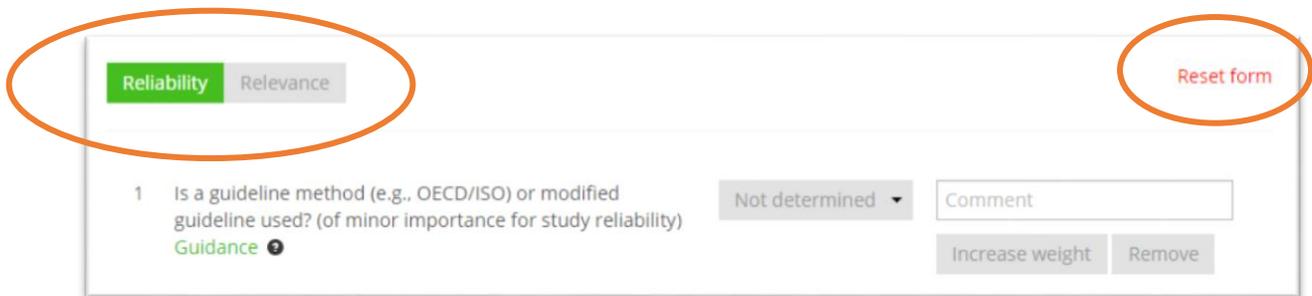


Instructions for reliability and relevance evaluation of **ecotoxicity** studies using the SciRAP tool

At www.scirap.org, go to the tab “Ecotoxicity studies” at the top of the page, click on “Evaluate reliability & relevance” or “Evaluate reliability & relevance - nano”. The reliability/relevance evaluation is conducted in two steps: Evaluating the reliability and relevance of a study (incl. weighing and deselection of criteria), and Assigning the study to reliability and relevance categories (optional).

Evaluate the reliability and relevance

The reliability and relevance criteria can be found under two different tabs.



The screenshot shows the top navigation area of the SciRAP tool. There are two tabs: 'Reliability' (highlighted in green) and 'Relevance' (grey). To the right, there is a red 'Reset form' button. Below the tabs, a criterion is displayed: '1 Is a guideline method (e.g., OECD/ISO) or modified guideline used? (of minor importance for study reliability)'. The current selection is 'Not determined' in a dropdown menu. To the right of the dropdown is a 'Comment' text box. Below the dropdown are 'Increase weight' and 'Remove' buttons. A green 'Guidance' icon with a question mark is located below the criterion text.

Fill out how well each criterion is met by choosing an alternative from the drop-down menu to the right of each criterion. Choose between “Fulfilled”, “Partially fulfilled”, “Not fulfilled”, “Not reported” and “Not determined”. Guidance from Moermond et al. (2016) and Hartmann et al. (2017) (for nanomaterials) is provided by clicking the question mark next to each criterion. Motivations and notes can be added in the comments fields.



The screenshot shows two criteria with their respective dropdown menus open. Criterion 3: '3 If applicable, are validity criteria fulfilled (e.g. control survival, growth)? Guidance'. The dropdown menu is open, showing options: 'Fulfilled' (highlighted in green), 'Not determined', 'Not reported', 'Fulfilled', 'Partially fulfilled', and 'Not fulfilled'. To the right of the dropdown is a text box containing 'Control survival sufficient'. Below the dropdown are 'Increase weight' and 'Remove' buttons. Criterion 4: '4 Are appropriate controls performed (e.g. solvent control, negative and positive control)? Guidance'. The dropdown menu is open, showing options: 'Not reported', 'Fulfilled', 'Partially fulfilled', and 'Not fulfilled'. To the right of the dropdown is a text box containing 'Solvent control used?'. Below the dropdown are 'Increase weight' (highlighted in green) and 'Remove' buttons. An orange arrow points from the text above to the dropdown menu for criterion 3, and another orange arrow points from the text above to the 'Increase weight' button for criterion 4.

The criteria have been given the same default weight, but if certain criteria are considered to be critical for the evaluation this can be adjusted up by clicking “Increase weight”. Criteria that are not applicable for the specific study or question being assessed may be removed from the evaluation by clicking “Remove”. Motivations for weighing and removing criteria can be provided in the comments fields. Note that your selections for the criteria will be saved on the computer until you click "Reset form".

Once both the reliability and relevance evaluation is completed, name your file and click the green "Export to excel" button. An excel sheet will open up, illustrating the results of your evaluation. This excel sheet can be saved to your computer and shared with others.

20 Are sufficient data available to check the calculation of endpoints and (if applicable) validity criteria (e.g., control data, concentration-response curves)? [Guidance](#)

Not fulfilled

Comment

Increase weight Remove

Relevance

Ågerstrand et al. 2012

Export to excel

The first worksheet in the excel file gives an overall overview of the evaluation in the form of diagrams. This colour profile of the study illustrates where a study's strengths and weaknesses lie, showing green for fulfilled criteria, yellow for partially fulfilled and red for criteria that were not fulfilled. Criteria that were "not determined" will be shown as grey, and criteria that were "not reported" will be dark grey. The bar charts take the weights of criteria into account and do not include criteria that have been removed.

There are also separate worksheets that show the details of the reliability and relevance evaluations. These show lists of the criteria and how each criterion has been evaluated. Any comments made for individual criteria will be listed. The weight of criteria are shown in the first column, and removed criteria are greyed out in the list.

[Assign the study to reliability and relevance categories](#)

The output from the SciRAP evaluation can, in combination with expert judgment and the guidance provided in Moermond et al. (2016) and Hartmann et al. (2017) (for nanomaterials), be used as basis for dividing studies into different categories of reliability and relevance. This step is optional. The following categories are recommended:

a. Reliability categories

- *Reliable without restrictions:* All critical reliability criteria for this study are fulfilled. The study is well designed and performed, and it does not contain flaws that affect the reliability of the study.
- *Reliable with restrictions:* The study is generally well designed and performed, but some minor flaws in the documentation or setup may be present.
- *Not reliable:* Not all critical reliability criteria for this study are fulfilled. The study has clear flaws in study design and/or how it was performed.
- *Not assignable:* Information needed to make an assessment of the study is missing. This concerns studies that do not give sufficient experimental details and that are only listed in abstracts or secondary literature (books, reviews, etc.) or studies of which the documentation is not sufficient for assessment of reliability for one or more vital parameters.

b. Reliability categories - nanomaterials

- *Reliable without restrictions:* All critical and important reliability criteria are fulfilled or partially fulfilled. The study is well designed, performed and documented. Nanomaterial properties and behaviour in the test system is extensively documented. The experiment has been carried out according to methods that are considered scientifically appropriate for ecotoxicity testing of nanomaterials and where the physicochemical properties of the nanomaterial are considered in the test design. If (when) specific nanomaterial guidance or guidelines exist, the use of these may be considered favourable.
- *Reliable with restrictions:* Most critical and important criteria are fulfilled or partially fulfilled. The study is generally well designed, performed and documented, but some minor flaws in the documentation or setup may be present. Nanomaterial properties and behaviour in the test system is well documented. The experimental design and test method are considered scientifically appropriate for ecotoxicity testing of nanomaterials but may contain some minor flaws in documentation or setup.
- *Not reliable:* Not all critical reliability criteria are fulfilled or partially fulfilled. This mainly concerns studies which have clear flaws in study design and study conduction, and/or where the experimental design and test method are considered not to be scientifically appropriate for ecotoxicity testing of nanomaterials.
- *Not assignable:* Information needed to make an assessment of one or more critical and important criteria is missing. This concerns studies or data from the literature which do not give sufficient experimental details, or reports where the documentation is not sufficient for assessment of reliability for one or more critical parameters.

c. Relevance categories – all substances

- *Relevant without restrictions:* The study is relevant for the purpose for which it is evaluated.
- *Relevant with restrictions:* The study has limited relevance for the purpose for which it is evaluated.
- *Not relevant:* The study is not relevant for the purpose for which it is evaluated.
- *Not assignable:* Studies that do not give sufficient details since the result is presented in abstracts or secondary literature (books, reviews, etc.) or studies of which the documentation is not sufficient for assessment of relevance for one or more vital parameters.

Contact:

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References:

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