
**Water quality — Calculation of
biological equivalence (BEQ)
concentrations**



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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological methods*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Water quality — Calculation of biological equivalence (BEQ) concentrations

1 Scope

This document specifies the derivation of biological equivalence (BEQ) concentrations for results of in vitro bioassays which are based on measuring effects on a biological process such as enzyme induction or cellular growth. The concept described here can be used for any biological assay after the proof of its applicability.

To derive BEQ concentrations, the effect on a biological process caused by a sample – i.e. the activity of the sample – is expressed in terms of a concentration of a reference compound which results in an equivalent effect on the process. The term "sample" used in this document addresses environmental samples as well as defined mixtures and pure compounds used as test item in a bioassay. BEQ concentrations can be derived for environmental water samples, extracts of environmental water samples including tap water or solutions of pure chemicals or mixtures of chemicals.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

biological equivalence concentration

BEQ concentration

concentration of a *reference compound* (3.6) that causes the same effect as the effect measured in a sample, a sample dilution or a solution containing one or more chemicals

3.2

concentration-effect relationship

response to a concentration gradient of an environmental sample or a known substance or mixture of substances which is described by pre-determined diagnostic indicators

[SOURCE: ISO 6107:2021, 3.127, modified — the term "environmental sample" added; Note 1 to entry has been deleted.]

3.3

concentration factor

CF

ratio of the actual concentration of the sample compared to the original sample taking all enrichment and dilution steps of the sample into account