ECHA
EUROPEAN CHEMICALS AGENCY

GUIDANCE

Guidance on applications for technical equivalence

Guidance on Regulation (EU) No 528/2012 concerning the making available on the market and use of biocidal products

Version 1.0
August 2013

Legal note

This document contains guidance on Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products (Biocidal Products Regulation, BPR). This document describes the BPR obligations and how to fulfil them. However, users are reminded that the text of the BPR is the only authentic legal reference and that the information in this document does not constitute legal advice. The European Chemicals Agency does not accept any liability with regard to the contents of this document.

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List of abbreviations

STANDARD TERM / ABBREVIATION	EXPLANATION
ADI	Acceptable daily intake
AEL	Acceptable exposure level
ARfD	Acute reference dose
BPD	Directive 98/8/EC of the European Parliament and of the Council on the placing on the market of biocidal products
BPD TNsG	Technical guidance note under Biocidal Products Directive
BPR	Regulation (EU) No 528/2012 of the European Parliament and of the Council concerning the making available on the market and use of biocidal products
CA	Chemical abstract
CAS	Chemical abstract (service or system)
CLP	Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures
ECHA	European Chemicals Agency
g	Gram(s)
GLP	Good laboratory practice
IR	Infrared spectroscopy
ISO	International Standards Organisation
IUCLID	International Uniform Chemical Information Database
IUPAC	International Union for Pure and Applied Chemistry
kg	Kilogram(s)
MS	Member State
MSCA	Member State competent authority
NMR	Nuclear magnetic resonance spectroscopy
NOAEL	No observed adverse effect level

OECD	Organisation for Economic Co-operation and Development
(Q)SAR	(Quantitative) structure activity relationship
REACH	Regulation (EC No 1907/2006) on Registration, Evaluation, Authorisation and Restriction of Chemicals
R4BP 3	Register for Biocidal Products, version 3, established and maintained by ECHA
SDS	Safety data sheet
TC	Technical material
TE	Technical equivalence
TK	Technical concentrate
UV/VIS	Ultraviolet-visible
UVCB	Undefined or variable composition, complex reaction products or biological material
v/v	Volume per volume ratio
w/w	Weight per weight ratio

Introduction

The Biocidal Products Regulation (EU) No. 528/2012 (BPR) provides a centralised procedure for the assessment of technical equivalence. The legal basis is Article 54 which sets out the procedure for the assessment of technical equivalence applications, under the responsibility of the Agency.

Article 54(8) of the BPR prescribes that the Agency shall provide technical guidance on the provisions on technical equivalence. This guidance document is intended to inform potential applicants about their obligations resulting from the provisions of Article 54: when they need to apply for an assessment of technical equivalence and on the procedural steps in making that application. This is described in Part I: Procedural Guidance. The guidance also informs potential applicants about the assessment conducted by the Agency and the approach used for assessing the technical equivalence of the alternative source of an active substance versus its reference source. This is described in Part II: Scientific Guidance.

Under the Biocidal Products Directive 98/8/EC (BPD), technical equivalence was assessed by the Member State competent authority (MSCA). Guidance on technical equivalence was available under the BPD in the form of a technical note for guidance (TNsG). The assessment of technical equivalence described in this guidance is to a large extent based on this TNsG. Where considered relevant, the guidance is harmonised with the assessment of technical equivalence for plant protection products under Regulation (EC) No. 1107/2009 as described in SANCO/10597/2003-rev.10.1 of 13 July 2012 (DG SANCO, 2012).

The guideline does not address:

- Active substances that are microorganisms;
- Active substances that have poorly-defined chemical compositions, which might be e.g. plant extracts, animal products and their derivates;
- Active substances that are a nanomaterial.

PART I: Procedural Guidance

1. Scope of Article 54

Technical equivalence under Article 54 of the BPR entails the assessment of the equivalence of an alternative source versus a reference source included in the Union list of approved active substances. The general principle behind this assessment is to guarantee that for an active substance the level of hazard for human health and the environment is comparable for different sources of the active substance. Technical equivalence is defined in the BPR in Article 3(1)(w): "*technical equivalence means similarity, as regards the chemical composition and hazard profile, of a substance produced either from a source different to the reference source, or from the reference source but following a change to the manufacturing process and/or manufacturing location, compared to the substance of the reference source in respect of which the initial risk assessment was carried out*" (emphasis added).

The reference source is established based on the source(s) on which the risk assessment was carried out and for which a decision has been taken by the Commission to approve the active substance. This means that applications for technical equivalence are to be submitted after the decision to approve an active substance has been made, when there is a change in source as described in this definition[1]. The technical equivalence must be established before the application for product authorisation is submitted. An applicant for product authorisation shall include the decision of the Agency on the assessment of technical equivalence in its application.

At least two situations are foreseen when an applicant needs to apply for the assessment of technical equivalence, where the biocidal product contains either:

- an active substance from a different manufacturer than the one whose active substance has been assessed for the inclusion in the Union list of approved active substances, or
- an active substance manufactured by the manufacturer whose substance has been assessed for inclusion in the Union list of approved active substances, when there is a change in the manufacturing process (e.g. change in starting materials or the change from pilot-scale to large-scale production) or a different manufacturing location.

In the above mentioned situations, the active substance is considered as a substance from a "source different from the reference source". In the present guidance document the term "alternative source" is used to refer to these situations. In order to assess that the active substance from the alternative source is technically equivalent to the one already placed on the Union list of approved active substances for the same product type, applicants for the authorisation of biocidal products or their suppliers need to request the Agency to establish whether the alternative source is technically equivalent with the reference source.

To do so, the applicant should submit a dossier containing information on the substance identity, analytical data (including five batch analysis) and/or all available information on the (eco)toxicological endpoints that can be relevant for the evaluation. Detailed information requirements are described in section 3.3. The prerequisite to technical equivalence is that both the active substance from the alternative source and the one from the reference source have the same identity.

Once this prerequisite is confirmed, a tiered approach is followed to assess the technical equivalence of different sources of the active substance: **Tier I** consists of the evaluation of the identity and the impurity

1 When it is necessary to establish the technical equivalence of different sources of an active substance during the approval process (in case there are multiple applicants or task forces consisting of members with different sources), the principles of the technical equivalence assessment are the same, but in this case the MSCA (the Evaluating CA under the BPR or the Rapporteur Member State under the BPD) is responsible for establising technical equivalence.

profile (analytical data). If technical equivalence can be ascertained from these data, the Tier II assessment is not necessary. If technical equivalence cannot be established on the basis of the Tier I data, further consideration is necessary whichrelates to the evaluation of toxicological and ecotoxicological data under **Tier II.**

The process for the assessment of technical equivalence is depicted in Figure 2. Section 5 and 6 will explain the Tier I and II assessment in more detail.

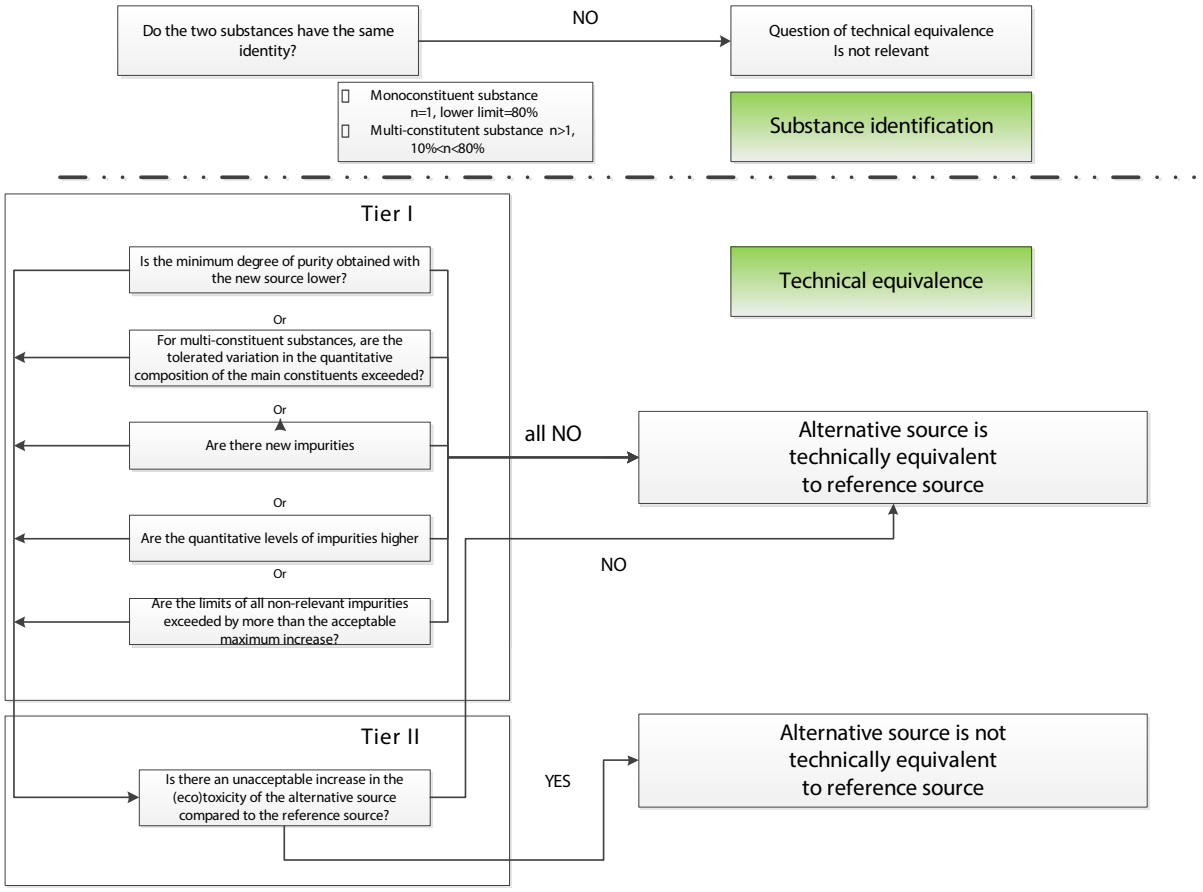

Figure 1: The assessment of technical equivalence.

2. Definitions

Within the biocides framework under the BPR, the definition of 'substance', and the convention for the identification and naming of substances from the REACH Regulation (EC) No 1907/2006 are applied. Consequently, certain definitions relevant for the assessment of technical equivalence are taken from REACH and the guidance document "Guidance for identification and naming of substances under REACH and CLP" (ECHA, 2012). Below it is indicated if the definition originates from the BPR, REACH, FAO or this guidance document. The definitions of significant and relevant impurity originate from the BPR guidance document "Guidance on information requirements" (ECHA. 2013).

Technical equivalence (BPR)
Similarity, as regards the chemical composition and hazard profile, of a substance produced either from

a source different to the reference source[2], or from the reference source but following a change to the manufacturing process and/or manufacturing location, compared to the substance of the reference source in respect of which the initial risk assessment was carried out, as established in Article 54 of the BPR (Article 3(1)(w) of the BPR).

Substance (REACH)
A chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Active substance (BPR)
A substance or microorganism that has an action on or against harmful organisms (Article 3(1)(c) of the BPR).

Technical material (TC) (FAO manual)
In accordance with the FAO manual (FAO, 2010), technical material is usually the final product from preparation of the active substance prior to being formulated into an end-use product. This may contain a stabiliser and/or anti-caking or anti-static agents (if required) but no other additives.

Technical material is usually →900 g/kg with solvent(s) removed during synthesis, with only residual amounts remaining (usually ←10%) and no solvent added subsequently.

Technical concentrate (TK) (FAO manual)
In accordance with the FAO manual (FAO, 2010), a technical concentrate may also be the final product from preparation of the active substance but it may contain additives (not formulants) in addition to a stabiliser, for example as safety agents. Technical concentrates may also contain solvent(s) (including water), either deliberately added to a technical material or not removed during preparation.

Explanatory note on Technical material (TC) and Technical concentrate (TK) in relation to the definition of substance.

As described above 'substance' is defined as a chemical element and its compounds in the natural state or obtained by any manufacturing process, including any additive necessary to preserve its stability and any impurity deriving from the process used, but excluding any solvent which may be separated without affecting the stability of the substance or changing its composition.

Hence there are two situations:

Solvent(s) cannot be removed / separated from the substance without affecting the stability or changing its composition.	This situation refers to Technical concentrate (TK).
Solvent(s) can be removed / separated from the substance without affecting the stability or changing its composition.	This situation refers to Technical material (TC).

For substance identity purposes additives other than stabilisers to the substance should be removed / separated from the substance. Hence, processing agents, colorants, denaturation agents etc. are not part of a substance.

2 Source refers to the specific manufacturing location of a substance. Hence, it does not refer to a specific applicant or a manufacturer. It refers to a specific manufacturing plant for which the manufacturing process has been outlined and the specifications of the starting materials are provided.

Constituent (REACH guidance document)
Any single species present in a substance that can be characterised by its unique chemical identity.

Main constituent (REACH guidance document)
A constituent, not being an additive or impurity, in a substance that makes a significant part of that substance and is therefore used in substance naming and detailed substance identification.

Mono-constituent substance (REACH guidance document)
As a general rule, a substance, defined by its composition, in which one main constituent is present to at least 80% (w/w).

Multi-constituent substance (REACH guidance document)
As a general rule, a substance, defined by its composition, in which more than one main constituent is present in a concentration >10% (w/w) and <80% (w/w).

UVCB substance (REACH guidance document)
Substances of unknown or variable composition, complex reaction products or biological materials, also called UVCBs are substances that cannot be sufficiently identified by their chemical composition, because:

- The number of constituents is relatively large and/or
- The composition is, to a significant part, unknown and/or
- The variability of composition is relatively large or poorly predictable.

Polymer (REACH)
A substance consisting of molecules characterised by the sequence of one or more types of monomer units. Such molecules must be distributed over a range of molecular weights wherein differences in the molecular weight are primarily attributable to differences in the number of monomer units. A polymer comprises the following:

a. a simple weight majority of molecules containing at least three monomer units which are covalently bound to at least one other monomer unit or other reactant;
b. less than a simple weight majority of molecules of the same molecular weight.

In the context of this definition, a "monomer unit" means the reacted form of a monomer substance in a polymer.

Impurity (REACH guidance document)
An unintended constituent present in a substance as manufactured. It may originate from the starting materials or be the result of secondary or incomplete reactions during the production process. While it is present in the final substance it was not intentionally added.

Significant impurity (BPR guidance on information requirements)
An impurity is regarded as significant if it occurs or potentially occurs in a quantity ≥ 1 g/kg in the substance as manufactured. The limit of 1g/kg applies to the dry technical material (TC) and therefore for technical concentrates (TK) the limit will apply to theoretical dry material and hence impurities below this limit if they are ≥ 1 g/kg on a dry weight basis, must also be determined. The impurity should be identified and quantified if technically possible and included in the substance specification, with stated maximum concentration.
A significant impurity may be considered relevant or non-relevant depending, in particular, on its known toxicological and eco-toxicological properties.

Relevant impurity/additive (BPR guidance on information requirements)
An impurity/additive considered being of toxicological and/or ecotoxicological relevance. An impurity may be relevant even if it occurs in a quantity <1g/kg (e.g. very toxic substances like dioxin). The relevant impurity should be identified and quantified if technically possible and included in the substance specification, with stated maximum concentration.

Relevant impurities may be defined as (#DG SANCO, 2012) substances including, but not limited to, meeting the criteria to be classified as hazardous in accordance with CLP Regulation (EC) No. 1272/2008, or the available information (e.g. from (Q)SARs) indicates that the impurity has an (eco)toxicological hazard. Relevant impurities have the inherent capacity to cause harmful/unacceptable effects within the meaning of Article 19(1)(b) of the BPR. Compared to the active substance, relevant impurities show additional (comparable or more severe) toxic properties (in the sense of the definition above).

Additive (REACH guidance document)
A substance that has been intentionally added to stabilise the substance, so other substances with other functions, e.g. pH-regulators or colouring agents are not considered as additives.

3. Application for the assessment of technical equivalence

3.1 When and who should apply for technical equivalence assessment?

As stated, technical equivalence shall be assessed where relevant, after the date of the Commission's decision to approve an active substance (i.e. when the reference source has been established). Since an applicant for product authorisation must provide evidence that the active substance to be used in the biocidal product has either been approved or is technically equivalent to an active substance included on the Union list of approved substances, applications for technical equivalence shall be submitted to the Agency before product authorisation (both national or Union). Examples of situations and scenarios where the assessment of technical equivalence is required are listed in Table 1 and are described in detail below.

In the **first scenario**, the applicant can be:

- the participant in the Review Programme who supported the active substance, or
- the applicant who submitted the application for the active substance under Article 11 of Directive 98/8/EC (BPD) (new active substance), or
- the applicant who submitted the application for the active substance under Article 7 of the BPR.

The applicant changes location of the manufacturing plant without changing the manufacturing process or the starting materials. In this case, the applicant has detailed knowledge on the composition of the reference source and submits a Tier I application for technical equivalence. The information requirements for Tier I are described in section 3.3. In some cases a Tier II application may be necessary, for example when a change to new equipment leads to a change in the impurity profile. Assuming the decision of the Agency is that technical equivalence has been demonstrated, this decision can then be used by the applicant (if they are also a holder of an authorisation or will apply for product authorisation) or their downstream users (being formulators holding an authorisation or applying for product authorisation) in the authorisation applications. This can either be a first authorisation or a change to an already existing authorisation through an application for an administrative change under Implementing Regulation (EU) No 354/2013 (see item 5 of Section 1 of Title 1 of the Annex).

The **second scenario** is similar to the first one, except that here the manufacturing process (e.g. process or quality of starting materials) is changed. In this case, the applicant has detailed knowledge on the composition of the reference source. However, he needs to decide whether to submit a Tier I or a Tier II application for technical equivalence. Not all changes in the manufacturing process may trigger an application for technical equivalence, for example minor changes in the operational conditions. A special case is when the specifications of the starting materials are different, where for minor changes no establishment of technical equivalence according to Article 54 may be necessary. An example is a change in the specifications of a solvent (when used during the production process and potentially forming residues in the technical grade active substance) if there is a change of supplier. It may not be necessary in such cases to assess the technical equivalence, for example if the purity of the solvent is not lowered. Relevant is the assessment of the possible effect on the end product, being the active substance. This has to be assessed by the applicant before sending in an application, where the applicant may consult with the Agency before submitting an application.

The **third scenario** entails the introduction of an alternative source where the substance manufacturer is different from the manufacturer whose substance was evaluated for the purpose of substance approval. The applicant would normally be a manufacturer of the 'alternative' active substance. The applicant could also be a formulator who wants to obtain a first biocidal product authorisation for a biocidal product containing the 'alternative' active substance where the supplier does not have a technical equivalence decision. Hence, the

applicant has no detailed knowledge on the composition of the reference source apart from the minimum purity and the relevant impurities (if present). In such cases, it is recommended to submit a Tier I application first and if the Agency cannot conclude on that basis that the alternative source is technically equivalent, submit a Tier II application.

In the **fourth scenario** the applicant is a formulator of a biocidal product who wants to change supplier of the active substance(s) in the biocidal product he places on the market, or his supplier changes the manufacturing process (including a change of the starting materials) or location. In this case, the formulator will need to apply for an administrative change under Implementing Regulation (EU) No 354/2013 to his authorisation and that application shall contain the decision of the Agency on technical equivalence. The process for obtaining this decision is described in the scenarios above.

The last and **fifth scenario** for which an application is required is the change from pilot-scale to large-scale production.

It can occur that more than one reference source (with different levels of purity of the active substance and/or different identities and concentration ranges of relevant impurities) are included in the Union list of approved active substances. This is for example the case when there are several applicants for the same active substance or when the applicant is (representing) a consortium or task force in the approval process. In such a case the alternative source will be compared by the Agency to each reference source and needs to be technically equivalent to at least one of them.

NUMBER OF SCENARIO	APPLICANT / SITUATION FOR TECHNICAL EQUIVALENCE ASSESSMENT	SCENARIO	DETAIL OF SCENARIO	INFORMATION REQUIREMENTS FOR TECHNICAL EQUIVALENCE ASSESSMENT
1	Reference source included in the submission which led to approval	Change or addition of a new manufacturing location	Same manufacturing process, same starting materials	Provide information as required according to the tiered approach of the technical equivalence assessment
2	A reference source included in the submission which led to approval	Change of manufacturing process or addition of alternative manufacturing process	New/modified process, or new starting material(s) introduced or changes in specifications of starting materials*	
3	New source not included in the submission which led to approval of the active substance	Introduction of new manufacturing location and/or process	Manufacturing location and process different from reference source	
4	Formulator or its supplier	Existing formulated product with an alternative source different from the reference source included in the submission which lead to approval	Formulator wishes to change source	
5	Reference source included in the submission which led to approval	Change from pilot-scale to large-scale production	Information must be resubmitted once the industrial scale production plant enters into operation and production has stabilised.	

Table 1: List of possible scenarios when a technical equivalence needs to be assessed

* It has to be decided on a case-by-case which changes trigger the need for new data and technical equivalence assessment

3.2 How to apply for technical equivalence assessment?

The applicant shall use IUCLID to prepare a technical equivalence dossier. A dossier must contain:

- information on the substance identity;
- study summaries containing a detailed and full description of the studies conducted or referred to and of the methods used for the required endpoints (analytical, toxicological and ecotoxicological data) depending on whether the application is submitted for Tier I or Tier II;
- the original test reports underlying the study summaries (to be submitted as attachments in the

IUCLID file) or letters of access to such reports for Tier II applications concerning information covering human health and environmental hazards;
- a summary providing a self-assessment of technical equivalence for Tier II: a template for this summary is presented in Annex I of this guidance document. The summary should be included as an attachment in the IUCLID file.

Once the dossier is generated, the applicant shall submit it to the Agency using the Register for Biocidal Products (R4BP 3) and shall indicate one of the three possible types of application. More detailed information on the compilation of the technical dossier in IUCLID as well as information on the R4BP 3 can be found in a separate manual that will be available on the Agency website.

3.3 Information requirements for technical equivalence assessment

The information requirements of Tier I and Tier II are described below. An applicant applying for a Tier II assessment (without applying first for a Tier I assessment), is required to also include the information required for a Tier I assessment in the application.

Information requirements – Tier I
To assess technical equivalence, the following information is required to be submitted for the alternative source of the active substance:

- Applicant (name, address and contact person) (chapter II sections 1.1 and 1.2[3]);
- Manufacturer of the active substance (name, address, head office and location of manufacturing plant(s)), if different from the applicant;
- Common name proposed or accepted by ISO and synonyms (usual name, trade name, abbreviation) (chapter II section 2.1);
- Chemical name (IUPAC and CA nomenclature or other international chemical name(s)) (chapter II section 2.2);
- CAS number, EC, INDEX and CIPAC numbers (if allocated) (chapter II section 2.4);
- Molecular and structural formula (including SMILES notation, if available and appropriate) (chapter II section 2.5);
- Information on optical activity and full details of any isomeric composition (if applicable and appropriate) (chapter II section 2.6);
- Molar mass (chapter II section 2.7);
- Method of manufacture (synthesis pathway) of the active substance including information on starting materials and solvents including the specifications (chapter II section 2.8);
- Specification of active substance purity as manufactured in g/kg, g/l or %w/w (%v/v) as appropriate, including the upper and lower limit (chapter II section 2.9);
- The identity of any impurities and additives including by-products of synthesis, optical isomers, unreacted and end-groups of polymers and unreacted starting materials of UVCB substances (chapter II section 2.10);
- Analytical profile of at least five representative batches (g/kg active substance as manufactured) including information on content of the impurities;
- Analytical method used in the five batch analysis. The analytical method needs to be a validated method (chapter II, section 5.1). Quality control data can be submitted (for example, to modify the minimum purity or the maximum limit of some impurities from what is shown in the five batch analysis data) also, however it shall be noted that such data cannot replace the five batch analysis. Where the active substance is manufactured as technical concentrate (TK) then as well as a specification for

3 In brackets the relevant chapter and section of the Guidance on Information Requirements.

the active substance as manufactured, a dry weight specification must be provided. The dry weight specification can be determined by calculation (chapter II section 2.11);
- Absorption spectra data (UV/VIS, IR, NMR) and a mass spectrum, molar extinction coefficient at relevant wavelengths, where relevant for the purified active substance of stated specification (chapter II, section 3.6).

Full description of each endpoint can be found in the Guidance document on Information Requirements (chapter II dossier requirements active substance), available on the Agency website.

Information requirements - Tier II
Additional information requirements for a Tier II application depend on the individual case and applicants are invited to consider the Guidance document on information requirements. The information submitted should cover human health and environmental hazards, including the potential for bioaccumulation and persistence. The applicant should submit all available information. Concerning animal testing, the applicant can consult chapter I, section 1.2 (8) in the Guidance document on Information Requirements. The assessment of eco-toxicity or environmental fate properties like octanol-water partition coefficient, hydrolysis and biodegradation should be based on any available information, including previously conducted studies or at least valid (Q)SAR information.

4. Assessment of the technical equivalence application

4.1 Processing of the applications by the Agency

Figure 2 depicts the processing of an application for technical equivalence by the Agency:

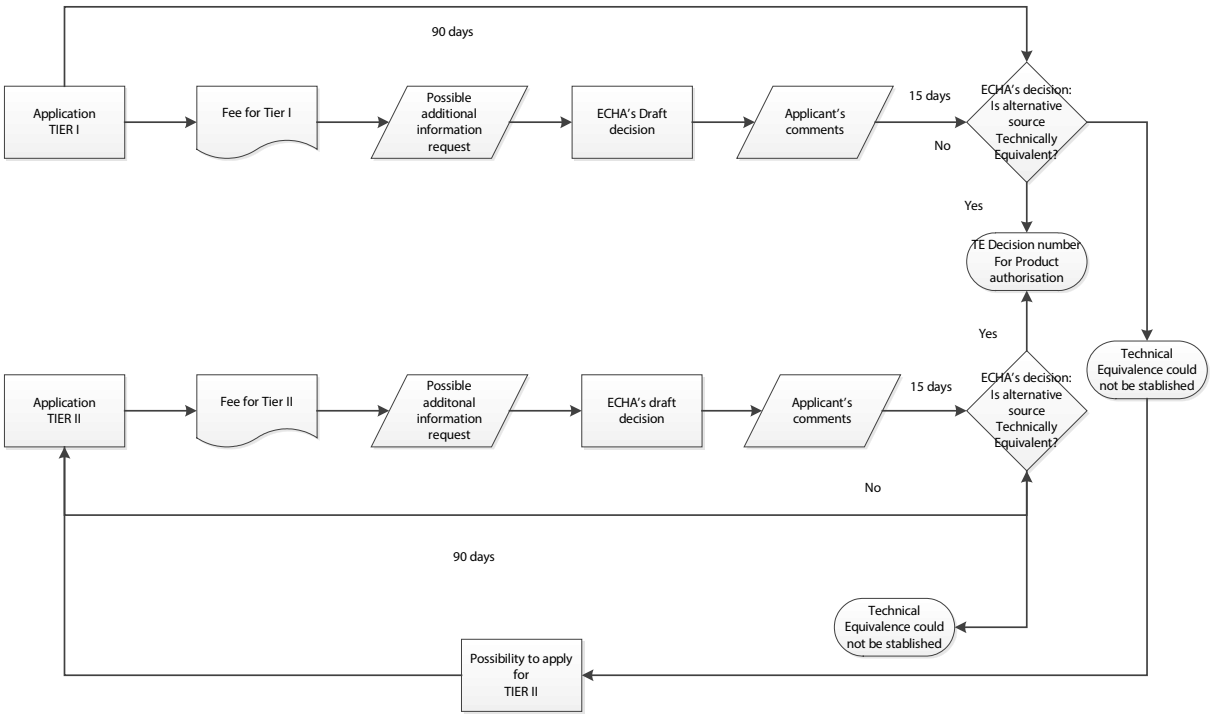

Figure 2. Processing of the application for the assessment of technical equivalence.

The procedure is as follows:

1. Once the application has been submitted, the Agency will check that it fulfils the technical requirements for processing.
2. The Agency validates the application, checks the type of the application (defined by the applicant) and sends out the relevant invoice. The Implementing Regulation (EU) No 564/2013 foresees in Annex III three possible application types with different fees as follows:
    a. *Fee, when difference between the active substance sources is limited to a change in manufacturing location, and application is based solely on analytical data* (Tier I): EUR 5 000;
    b. *Fee, when difference between the active substance sources goes beyond a change in manufacturing location, and application is based solely on analytical data* (Tier I): EUR 20 000.
    c. *Fee when previous conditions are not met* (Tier II): EUR 40 000.

3. When the applicant has paid the fee, the scientific assessment of the application starts and the applicant is informed of this via R4BP 3. If the applicant does not pay the fee within 30 days, the Agency will not process the application and inform the applicant.
4. The Agency has 90 days to take a decision on technical equivalence. During the assessment, the Agency can ask for additional information from the applicant and may ask the applicant to submit the additional information within a specified time limit. This time limit may not exceed 180 days except where justified

by the nature of the data requested or in exceptional circumstances. If the applicant does not submit the additional information within the time limit specified by the Agency, the Agency will reject the application on the grounds that there is insufficient information available to assess technical equivalence. The applicant will receive the request for additional information via R4BP 3 and the additional information will need to be submitted by updating the application (the IUCLID dossier).

5. If necessary, the Agency can consult the competent authority that prepared the evaluation of the active substance. This is foreseen in cases where the Agency needs additional information on the reference source established.
6. The Agency prepares a draft decision and submits this to the applicant via R4BP 3 for comments. The comments need to be provided to the Agency via R4BP 3 within a deadline specified by the Agency.
7. When preparing the final decision, the Agency takes into account comments made by the applicant (if any) and communicates the final decision to the applicant and the MSCAs via R4BP 3.
8. The applicant has the right to submit an appeal to the ECHA Board of Appeal according to Article 77 of the BPR.

4.2 Outcome of the assessment of technical equivalence

The decision by the Agency on technical equivalence can be positive (the alternative source is considered to be technically equivalent to the reference source) or negative (when the sources are not technically equivalent or when there is insufficient information available to assess the technical equivalence) (see Figure 2).

A positive decision on technical equivalence is necessary for product authorisation and should be included in the product authorisation dossier or the dossier for an administrative change to be submitted under Implementing Regulation (EU) No 354/2013. In the case of a negative decision in Tier II, the applicant may adjust for example, the manufacturing process and submit a new application (either Tier I or Tier II) to the Agency.

The best placed to apply for technical equivalence assessment is the manufacturer of the substance produced from the alternative source because of his knowledge of the process and substance. However, a biocidal product authorisation holder or a formulator can also apply, provided that they have the required information available.

If the assessment of technical equivalence is necessary the applicant should inform, when relevant, the downstream actors in the supply chain (e.g. biocidal product authorisation holders, formulators) of the need to apply subsequently on the basis of the technical equivalence assessment for an administrative change under Implementing Regulation (EU) No 354/2013.

PART II: Technical Guidance

5. Assessment of technical equivalence: Substance identity and analytical information (Tier I)

The decision tree for assessing technical equivalence is depicted in Figure 2.

To address similarity of substances with regard to chemical composition and hazard profile, first the identity of the substance is assessed. This assessment is based on the "Guidance for identification and naming of substances under REACH and CLP" (ECHA, 2012).

For the evaluation of technical equivalence of the alternative source versus the reference source, the following criteria will be used in Tier I. If all of the following conditions are met, the alternative source is considered to be technically equivalent to the reference source:

- The minimum degree of purity obtained with the alternative source is equal to or higher than the one obtained with the reference source, and
- For a multi-constituent substance, each main constituent remains in the 10-80% range and the concentration of each main constituent does not deviate by more than 5% absolute or 10% relative, whichever is larger, and
- No new impurity or additive is present, and
- The limit of each relevant impurity or additive is not exceeded, and
- The limits of all significant but not relevant impurities as certified on the basis of a five batch analysis for the reference source are not exceeded by more than the following levels.

Limits of significant but not relevant impurities in the technical specifications of the reference source	Acceptable maximum increase in the alternative source[4]
≤6 g/kg	3 g/kg
>6 g/kg	50% of the certified limit

Table 2: Levels of significant but not relevant impurities

If one of these conditions is not met, the Tier I assessment cannot conclude that the two sources are technically equivalent. In such a case the applicant may submit an application for Tier II assessment.

4 These quantitative criteria are based on the FAO manual (2010)

6. Evaluation of technical equivalence: Tier II

6.1 Toxicity

The objective of the evaluation is to identify whether there is an unacceptable change in toxicity profile for the alternative source as compared to the reference source as a result of:

- The presence of any new impurities or additives in the alternative source compared to the reference source and/or
- Increased levels of relevant impurities or additives that are present in both the alternative and reference sources, and/or
- Increased levels of non-relevant impurities, present in both the alternative and the reference sources, which exceed the limits mentioned in Table 2.

If new relevant impurities or changes in the levels of relevant impurities occur, the applicant must provide a reasoned case to show that the alternative source is not significantly more toxic than the reference source and if necessary data supporting the reasoned case.

If there is evidence that such changes will not have a significant adverse effect on the toxicity of the alternative source (as compared with the reference source), the alternative source is technically equivalent to the reference source. However, if there is evidence that such changes will have a significant adverse effect on the toxicity of the alternative source as compared with the reference source, the alternative source is not considered to be technically equivalent to the reference source.

The upper limits specified for relevant impurities of toxicological concern in the alternative source should not exceed the limits as established for the reference source. If it is proposed that the limits for the reference source should be amended, then the applicant will need to provide a justification to support such a proposal.

6.1.1 Assessment of the toxicity of the impurity profile

First of all it should be considered if there is any available data for the impurity (as a pure substance or present as an impurity) and whether the impurity is of toxicological concern. Impurities of interest (because they are new or present at increased levels) can be initially divided into the following categories:

- *Impurities of no toxicological concern*: compounds for which the toxicity is known to be low (certain non-critical inert materials, mineral salts, water, etc.). An additional toxicological evaluation would generally not be required, but the applicant would have to submit a justification.
- *Impurities of known toxicological concern*: if one or several such impurities are present in the alternative source but not in the reference source, evidence would be needed to show that they will not result in a significantly increased toxicity compared to the reference source. If sufficient evidence cannot be provided, the alternative source will be regarded as not equivalent to the reference source. If an impurity of toxicological concern has been identified as a relevant impurity in the reference source, it has to be demonstrated that the levels in the alternative source are acceptable.
- *New impurities of unknown toxicological concern (>1 g/kg) or increased levels of significant but non-relevant impurities*: these impurities would elicit a further evaluation. The applicant should demonstrate that the hazard of the alternative source is not significantly increased as compared to the reference source. It should be taken into account that the hazard of the alternative source might be significantly increased by the sum of all new or increased impurities rather than by one impurity alone.

If an impurity of toxicological concern in the alternative source does not exceed an acceptable limit concentration for the relevant impurity as established for the reference source, the applicant may indicate that there is no increased hazard for the alternative source when compared to the reference source. A higher concentration of an impurity of toxicological concern in the alternative source with respect to the reference source may be acceptable if the alternative source has similar or lower toxicity in critical toxicity studies than the reference source.

6.1.2 Decision making

When making a decision the following outcomes are possible:

- The alternative source does not present a greater hazard; and hence the alternative source can be considered as technically equivalent to the reference source.
- It is concluded or it cannot be excluded on the basis of the information available that the alternative source presents a greater hazard than the reference source; hence the alternative source cannot be considered as technically equivalent to the reference source.

For deciding if the toxicological profile will be considered equivalent to that of the reference source, a difference of factor 2 between the toxicological data provided on the active substance (based on acute oral, dermal and inhalation toxicity, skin and eye irritation, skin sensitisation) for the alternative source compared to the reference source (or by a factor greater than that of the appropriate dosage increments, if more than 2; this might apply where an acute NOAEL is determined) will be used as an indicative value where the data for the alternative source do not lead to a more severe hazard classification. The whole data package should be taken into account to conclude whether a difference greater than factor 2 in an individual study could be considered as an indication of a more severe hazard. In addition, there should be no change in the assessment in those studies which produce either positive or negative results unless the alternative source is less hazardous, for example mutagenicity or corrosivity[5].

Additional toxicological data from repeated administration (sub-acute to chronic) and studies such as reproductive and developmental toxicity, genotoxicity, and carcinogenicity will be assessed by these criteria provided that, where appropriate, the organs affected are the same. The "no observable effect levels" (NOELs) or "no observable adverse effect levels" (NOAELs) should not differ by more than the difference in the dose levels used.

In cases where the effect determining a critical NOAEL differs (different effects on the same organs and/or different mechanisms of action) between the two sources, technical equivalence cannot be demonstrated without additional scientific argumentation. ECHA will assess on a case-by-case basis whether effects are truly toxicologically different. A critical NOAEL is one that could have implications for setting reference doses (AEL, ADI or ARfD).

Irrespective of the above three paragraphs, if a more severe hazard classification is necessary for the alternative source compared to the reference source, the two sources cannot be considered technically equivalent.

6.2 Ecotoxicity

Ecotoxicity covers environmental hazards, including the potential for bio-accumulation and persistence into

5 So for example, the alternative source can only be less corrosive.

the environment. The objective is, similar to toxicity, to identify whether there is an unacceptable increase in the environmental hazard profile of the alternative source relative to the reference source as a result of:

- The presence of any new impurities or additives in the alternative source compared to the reference source and /or
- Increased levels of relevant impurities or additives that are present in both the alternative and reference sources and / or
- Increased levels of non-relevant impurities, present in both the alternative and the reference sources, which exceed the limits mentioned in Table 2.

If new relevant impurities or changes in the levels of relevant impurities occur, the applicant must provide a reasoned case to show that the alternative source has not a more hazardous ecotoxicity profile (including a significantly higher bio-accumulation and persistence) than the reference source and if necessary provide data supporting the reasoned case.

If the assessment concludes that such changes will not make the alternative source more hazardous to the environment than the reference source, the alternative source will be considered technically equivalent to the reference source. If it is not the case, the alternative source will not be considered to be technically equivalent to the reference source.

If relevant, the upper limits specified for relevant impurities of ecotoxicological concern established and accepted in the reference source should be taken into account in the hazard assessment. If the applicant proposes that established limits for the reference source are amended, the applicant should provide a justification to support such a proposal.

6.2.1 Assessment of the ecotoxicity of the impurity profile

First of all it should be considered if there is any available data for the impurity (as a pure substance or present as an impurity) and whether the impurity is of ecotoxicological concern. Impurities of interest (because they are new or present at increased levels) can be initially divided into the following categories:

- Impurities of no ecotoxicological concern: compounds for which the ecotoxicity is known to be low (certain non-critical inert materials, mineral salts, water, etc.). An additional ecotoxicological evaluation would generally not be required, but the applicant would have to submit a justification.
- Impurities of known ecotoxicological concern: if one or several of such impurities are present in the alternative source but not in the reference source, evidence would be needed to show that they will not result in a significantly increased ecotoxicity compared to the reference source. If sufficient evidence cannot be provided, the alternative source will be regarded as not equivalent to the reference source. If an impurity of ecotoxicological concern has been identified as a relevant impurity in the reference source, it has to be demonstrated that the levels in the alternative source are acceptable.
- New impurities of unknown ecotoxicological concern or levels of significant but non-relevant impurities increased above the relevant acceptable threshold: these impurities would elicit a further evaluation. The applicant should demonstrate that the hazard to the environment of the alternative source is not significantly increased as compared to the reference source. It should be taken into account that the hazard of the alternative source might be significantly increased by the sum of all new or increased impurities rather than by one impurity alone.

If an impurity of ecotoxicological concern in the alternative source does not exceed an acceptable limit concentration for the relevant impurity as established for the reference source, the applicant may indicate that there is no increased hazard for the alternative source when compared to the reference source. A

concentration of an impurity of ecotoxicological concern in the alternative source than in the reference source may be acceptable if the alternative source has similar or lower ecotoxicity in critical ecotoxicity studies than the reference source.

6.2.2 Decision making

When making a decision the following outcomes are possible:

- The alternative source does not present a greater hazard to the environment; hence the alternative source can be considered as technically equivalent to the reference source.
- It is concluded or it cannot be excluded on the basis of the information available that the alternative source presents a greater hazard to the environment than the reference source; hence the alternative source cannot be considered as technically equivalent to the reference source.

For deciding if the ecotoxicological hazard profile will be considered equivalent to that of the reference source, a difference of a factor 5 between the endpoint of ecotoxicological data provided on the active substance (based on acute toxicity to the same aquatic and terrestrial species) for the alternative source compared to the reference source (or by a factor greater than that of the appropriate dosage increments, if greater than 2) will be used as an indicative value where the data for the alternative source do not lead to a more severe hazard classification for the environment. The whole data package should be taken into account to conclude whether a difference greater than factor 5 in an individual study could be considered as an indication of a more severe hazard. In addition, there should be no change in the assessment in those studies which produce either positive or negative results unless the alternative source is less hazardous, for example tests for ready biodegradability.

Additional ecotoxicological data from long term studies on aquatic or terrestrial organisms tested for the reference substance, bioaccumulation and biodegradation studies in relevant environmental compartment will be assessed by these criteria provided that, where appropriate, the tested species and environmental compartments are the same.

Irrespective of the above three paragraphs, if a more severe hazard classification for the environment is necessary for the alternative source compared to the reference source (e.g. due to differences in biodegradation or bioaccumulation potential), the two sources cannot be considered technically equivalent.

References

DG ENV (2008): Technical Notes for Guidance on the assessment of technical equivalence of substances regulated under Directive 98/8/EC.

DG SANCO (2012): Guidance document on the assessment of the equivalence of technical materials of substances regulated under Regulation (EC) No 1107/2009.

ECHA (2008): Guidance document on information requirements and chemical assessment. Chapter R.6: QSARs and grouping of chemicals.

ECHA (2012): Guidance for identification and naming of substances under REACH and CLP.

ECHA (2013): Guidance on information requirements.

FAO/WHO Joint Meeting on Pesticide Specifications (JMPS) (2010): Manual on Development and Use of FAO and WHO specifications for Pesticides (second revision of the First Edition, Rome).

Annex I: Template Summary of Technical equivalence: Assessment for Tier II

Summary of Technical equivalence

Assessment for Tier II

Based on Regulation (EC) No 528/2012
(BPR), Article 54

Substance Name:

Date:

STATEMENT OF SUBJECT MATTER AND PURPOSE FOR WHICH THE REPORT WAS PREPARED

This report was prepared in accordance with the guidance document "Guidance document on applications for technical equivalence" under Regulation (EC) No 528/2012.

The applicant must indicate in the table below which case has been examined for TIER I:

Technical material from an alternative manufacturer	
Change in the manufacturing process, and/or manufacturing location	
Change from industrial scale production to pilot scale production	

1. APPLICANT

- Applicant

- Manufacturer of the active substance, if different from the applicant

- Common name proposed or accepted by ISO and synonyms

- Chemical name (IUPAC and CA nomenclature or other international chemical name(s))

- CAS number, EC, INDEX and CIPAC numbers

2. EVALUATION OF THE SOURCES OF THE SUBSTANCE (TIER II)

TOXICOLOGY

2.1. 1. ASSESSMENT OF TECHNICAL EQUIVALENCE

Endpoint	Result[6]	
	Alternative source	Reference source[7]
Toxicokinetics		
Acute toxicity - oral		
Acute toxicity - dermal		
Acute toxicity - inhalation		
Skin corrosion / irritation		
Serious eye damage / eye irritation		
Respiratory sensitisation		
Skin sensitisation		
Repeated dose toxicity		
Germ cell mutagenicity		
Carcinogenicity		
Toxicity to reproduction - fertility		
Toxicity to reproduction - development		
Toxicity of metabolites and degradation products		
Neurotoxicity		
Inmunotoxicity		

6 Fill in the results for those endpoints for which data are available.

7 Data for the reference source can be taken from the published Assessment Report for the active substance included on the Union list of approved substances.

2.1.2. CONCLUSIONS

ECOTOXICOLOGY

2.1.3 ASSESSMENT OF TECHNICAL EQUIVALENCE

Endpoint	**Result**[6]	
	Alternative source	**Reference source**[7]
Environmental fate and behaviour		
Abiotic degradation -hydrolisis		
Abiotic degradation - photo		
Biodegradation		
Ecotoxicological studies		
Short term toxicity test - fish		
Short term toxicity test – aquatic invertebrates		
Growth inhibition on algae		
Further toxicity studies on aquatic organisms		
Bioconcentration		
Terrestrial toxicity (for example earthworm and plants)		

2.1.4. CONCLUSIONS

3. OVERALL CONCLUSION FOR TIER II

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