Changes in Procedures and Approval Criteria for Active Substances in Plant Protection and Biocidal Products in the European Union

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To establish a single market in the European Union (EU), Council Directive 91/414/EEC concerning the placing of plant protection products on the market, and Directive 98/8/EC of the European Parliament and of the Council concerning the placing of biocidal products on the market, were adopted and harmonized Community provisions for pesticides and for biocides were achieved. The above-mentioned Directives were replaced by Regulation (EC) No 1107/2009 of the European Parliament and of the Council concerning placing plant protection products on the market, and 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, respectively. In this article, the changes in the procedures and the approval criteria for active substances which may be used in plant protection products or in biocidal products are summarized.

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Introduction

Since the times when the European Union (EU) was the European Economic Community (EEC), it has been aware that differences in the legal systems of the Member States constitute trade barriers between the Member States. The Single European Act (enforced on July 1, 1987) required the development of a system to establish the Single Market in the Community, and December 31, 1992 was set as the deadline for the establishment of the Single Market.

In the course of establishing the Single Market, a harmonized Community legislation for the products used for agricultural purposes (pesticides) was published as "Directive 91/414/EEC[1)] concerning the placing of plant protection products (PPP) on the market." Thereafter, a harmonized Community legislation for the products used for non-agricultural purposes was also required, and "Directive 98/8/EC[2)] concerning the placing of biocidal products (BP) on the market" was published. Subsequently, various Regulations based on the above Directives were introduced.

Sumika Technoservice Corporation has been investigating the EU regulatory information on active substances in plant protection products and biocidal products for many years and has been supporting the activities in the process of approval and renewal of approval. Based on our accumulated experience in such investigations, this document will give an overview of changes in procedures, approval criteria, etc., for active substances by showing the above Directives for the products used for agricultural purposes or non-agricultural purposes, Regulations replacing these Directives, and Regulations laying down the detailed procedures, etc., as well as the evaluation for the approval of active substances (AS) that was actually carried out under these implementing Regulations, and new procedures and criteria introduced under the Regulations replacing the Directives.

Evaluation for Approval of Active Substances in Plant Protection Products in EU

1. Transition from Directive 91/414/EEC to Regulation 1107/2009[3)] and transitional measures

Directive 91/414/EEC established the provisions for placing plant protection products on the market for

the first time in the EU. This Directive limited the plant protection products to be authorized to those containing the active substances specified at the EU Community level, in principle. For this reason, the EU established procedures for preparing the Community list of authorized active substances and assessing whether or not an active substance can be entered on the list.

Directive 91/414/EEC was to be brought into force within two years from the date of notification to the Member States (July 26, 1991), and the active substances available on the market before July 25, 1993 treated as existing active substances while other active substances treated as new active substances. A programme of work for the gradual examination of these existing active substances was to be commenced.

Regulation 1107/2009 was established to replace Directive 91/414/EEC and applied from June 14, 2011. When the "completeness of the dossier (documents and data package of the application for approval)" was established for a new active substance under Directive 91/414/EEC before June 14, 2011, which was the date of application of Regulation 1107/2009, the provisions of Directive 91/414/EEC continued to be applied as a transitional measure. The provisions on transitional measures were also established for the existing active substances for which the dossier was submitted under the provisions on re-submission of application mentioned later or for the 1st group of active substances in the procedure for the renewal of approval, but the evaluation of most of these active substances had already been completed before June 14, 2011 or the evaluation were at an advanced stage for those still in progress. For this reason, Regulation 1107/2009 was applied mainly to the approval of new active substances to which no transitional measure applied and the renewal of approval of the active substances that had already been approved.

2. Structure of Directive 91/414/EEC and provisions on the evaluation procedure

Directive 91/414/EEC was published in the EU Official Journal on August 19, 1991. **Table 1** shows Annexes to Directive 91/414/EEC. Under Directive 91/414/EEC, the inclusion of an active substance in the active substance list set forth in Annex I meant the approval of such active substance.

The following provisions are included in the Articles of Directive 91/414/EEC:

- For the inclusion of an active substance in Annex I (the active substance list), a dossier which is believed to satisfy the requirements of Annex II (requirements of active substance) is forwarded by the applicants together with a dossier complying with Annex III (requirements of plant protection product) on at least one preparation containing that active substance (Article 6(2));
- An active substance shall be included in Annex I (the active substance list) for an initial period not exceeding 10 years (Article 5(1));
- The inclusion of a substance in Annex I (the active substance list) may be renewed once or more for periods not exceeding 10 years (Article 5(5));
- Where an application has been made for such renewal in sufficient time, and in any case not less than two years before the entry is due to lapse (Article 5(5)); and
- The Commission shall commence a programme of work for the gradual examination of these (existing) active substances (Article 8(2)).

Table 1 Annexes to Directive 91/414/EEC (as of the date of publication)

ANNEX	Title
ANNEX I	Active substances authorized for incorporation in plant protection products
ANNEX II	Requirements for the dossier to be submitted for the inclusion of an active substance in Annex I Introduction Part A: Chemical substances Part B: Micro-organisms and viruses
ANNEX III	Requirements for the dossier to be submitted for the authorization of a plant protection product Introduction Part A: Chemical preparations Part B: Preparations of micro-organisms or viruses
ANNEX IV	Risk phrases
ANNEX V	Safety phrases
ANNEX VI	Uniform principles for the evaluation of plant protection products

However, no detailed evaluation procedure was provided in the Articles of Directive 91/414/EEC and it was stated that a Regulation would set out all the provisions necessary for the implementation of the programme. At the time of publication of Directive 91/414/EEC, the contents of the EU common requirements (Annex II and Annex III) or the uniform principles for the evaluation of plant protection products (Annex VI) had not yet been established.

Table 2 shows the history of the establishment/amendment of the contents of Annexes II through VI to Directive 91/414/EEC.

As shown in the history of establishment/amendment, it took a considerable period to formally establish the EU common requirements (Annex II and Annex III) and the uniform principles for the evaluation of plant protection products (Annex VI) (formal completion was in 1996 for chemical substances, and later for microorganisms or viruses). It was a significant cause of delay in assessments of application for inclusion of a new active substance in Annex I (active substance list) to Directive 91/414/EEC or assessments conducted in the work programme for the gradual examination of existing active substances.

3. Evaluation for inclusion/renewal of inclusion of active substances under Directive 91/414/EEC

The work programme for the examination of existing

Table 2 Development of Annex II-VI to Directive 91/414/EEC

ANNEX/Part	Amendment Directives/Amendments
ANNEX II Introduction	Directive 93/71/EEC (1993.08.31) replacement Directive 94/79/EC (1994.12.31) partial amendment Directive 95/35/EC (1995.07.22) partial amendment Directive 2001/36/EC (2001.06.20) partial amendment
ANNEX II Part A Chemical substances	Directive 94/37/EEC (1994.07.29) replacement of Section 1-3 (Details inserted) Directive 94/79/EC (1994.12.31) replacement of Section 5(Details inserted) Directive 95/36/EC (1995.07.22) replacement of Section 7 (Details inserted) Directive 96/12/EC (1996.03.15) replacement of Section 8 (Details inserted) Directive 96/46/EC (1996.08.23) replacement of Section 4 (Details inserted) Directive 96/68/EC (1996.10.30) replacement of Section 6 (Details inserted)
ANNEX II Part B Micro-organisms and viruses	Directive 2001/36/EC (2001.06.20) replacement (Details inserted)
ANNEX III Introduction	Directive 93/71/EEC (1993.08.31) replacement Directive 94/79/EC (1994.12.31) partial amendment Directive 95/35/EC (1995.07.22) partial amendment Directive 2001/36/EC (2001.06.20) partial amendment
ANNEX III Part A Chemical preparations	Directive 93/71/EEC (1993.08.31) replacement of Section 6 (Details inserted) Directive 94/37/EEC (1994.07.29) replacement of Section 1-4 (Details inserted) Directive 94/79/EC (1994.12.31) replacement of Section 7 (Details inserted) Directive 95/36/EC (1995.07.22) replacement of Section 9 (Details inserted) Directive 96/12/EC (1996.03.15) replacement of Section 10 (Details inserted) Directive 96/46/EC (1996.08.23) replacement of Section 5 (Details inserted) Directive 96/68/EC (1996.10.30) replacement of Section 8 (Details inserted) and partial amendment of Section 7
ANNEX III Part B Preparations of micro-organisms or viruses	Directive 93/71/EEC (1993.08.31) replacement of Section 6 (Details inserted) Directive 2001/36/EC (2001.06.20) fully replacement(Details inserted) except Section 6
ANNEX IV Risk phrases	Directive 2003/82/EC (2003.09.12) establishment Directive 2004/66/EC (2004.05.01) partial amendment Directive 2006/104/EC (2006.12.20) partial amendment
ANNEX V Safety phrases	Directive 2003/82/EC (2003.09.12) establishment Directive 2004/66/EC (2004.05.01) partial amendment Directive 2006/104/EC (2006.12.20) partial amendment
ANNEX VI Uniform principles	Directive 94/43/EEC (1994.09.01) establishment for chemical PPP Directive 97/57/EEC (1997.09.27) replacement Directive 2005/25/EC (2005.04.08) addition of provisions for micro-organisms PPP existing provisions for Chemical PPP set out in Part I additional provisions for micro-organisms PPP set out in Part II

active substances assessed whether or not an active substance contained in plant protection products that were placed on the market in the Member States should be included in the active substance list, in light of the requirements and criteria specified in Directive 91/414/EEC. Existing active substances were divided into four groups, which were the first to fourth stages, a list of the existing active substances of each stage was prepared, and evaluation was started with the existing active substances in the first stage list. The detailed rules for the implementation of the work programme for the examination were to be laid down by a Regulation. As a result, different Regulations laying down the detailed rules for the implementation of the work programme for each stage were published, and different responses were required. The deadline for submission of notifications containing undertaking to submit dossier in accordance with the prescribed format (including identification data on the notifier, information to facilitate identification of active substances, and undertaking to submit dossier), which had to be prepared before the submission of the dossier, as well as the deadline for submission of dossiers, was also provided for each stage.

Regulation 3600/92[4] laying down the detailed rules and procedures for examination of the existing active substances in the first stage list, was amended several times. The evaluation procedure became roughly settled after the participation of the European Food Safety Authority (EFSA) in the evaluation was introduced by Regulation 1490/2002[6] amending Regulation 451/2000[5] laying down the detailed rules and procedures for examination of existing active substances in the second stage list.

After EFSA began participating in the examinations, the Draft Assessment Report (DAR) prepared by Member States in charge of evaluation of the dossier (Rapporteur Member State: RMS) was made available via EFSA website to collect comments, and it enabled people to know that the evaluation proceeded from the RMS stage to the EFSA stage.

In addition, the publication of the opinion prepared by EFSA, so-called EFSA Conclusion, enabled people to know that the examination proceeded from the EFSA stage to the Standing Committee of the European Commission, executive arm of the EU and initiator of legislative proposals.

The procedure for examining the existing active substances in the third stage list was laid down by Regulation 451/2000 and Regulation 1490/2002, and the procedure for examining the existing active substances in the fourth stage list was laid down by Regulation 1112/2002[7] and Regulation 2229/2004.[8] However, for the examination of existing active substances in the third stage list and the fourth stage list, Regulation 1095/2007[9] introduced new provisions to ensure that the deadlines for evaluation of existing active substances were met. Pursuant to these provisions, inclusion/non-inclusion of an active substance in the active substance list could be decided without evaluation by EFSA, provided that the criteria set out in the Regulation were met. For this reason, for some existing active substances, the EFSA Conclusion was prepared and published after the inclusion thereof in the active substance list.

In addition, provision on the voluntary withdrawal of an existing active substance from the gradual examination program and provision, which introduced by Regulation 33/2008[10], on the re-submission of the dossier for an active substance that was not included in the active substance list as a result of examination made the evaluation procedure more complicated.

On the other hand, the formal adoption of Regulation that would lay down provisions necessary for the implementation of the procedure for the evaluation for approval of new active substances was delayed considerably, and they were finally laid down by Regulation 188/2011[11]. Before the publication as Regulation, the procedure set out for the examination program for existing active substances seemed to have been applied mutatis mutandis, and therefore no evaluation was performed by the EFSA for the new active substances assessed at an early date, as in the case of the existing active substances in the first stage list. Evaluation was performed by the EFSA for new active substances for which the completeness of the dossier was established after June 2002.

Major differences between the evaluation of new active substances and the evaluation of existing active substances were the following two points:

(i) For the evaluation of existing active substances, the notification in accordance with the prescribed format needed to be submitted before the submission of the dossier, and RMS was designated after the submission of such notification; and

(ii) For the evaluation of new active substances, the applicant could choose RMS, to which the applicant would submit the dossier, and when RMS

confirmed the completeness of the dossier, the recognition of the completeness of the submitted dossier was published as a "Decision" in the EU Official Journal.

Although RMS confirmed the completeness of the submitted dossier also for existing active substances, Decision recognizing the completeness of the submitted dossier was published in the EU Official Journal only for new active substances since provisions on provisional authorization of plant protection products containing new active substances was set out in Directive 91/414/EEC, and one of the conditions for such authorization was the completeness of the submitted dossier.

Because the initial period of the inclusion in the active substance list could not exceed 10 years, renewal of inclusion (Annex I Renewal: AIR) was needed for the active substances that were included in the list at an early date. For the first group of active substances, so-called AIR1 (Annex I Renewal 1st group), Regulation 737/2007[12] laying down the procedure for the renewal of inclusion of a first group of the active substances was established and the evaluation was carried out under Directive 91/414/EEC. For the next group of active substances, so-called AIR2 (Annex I Renewal 2nd group), Regulation 1141/2010[13] laying down the procedure for the renewal of inclusion of a second group of the active substances was established. However, the deadline for submission of the dossier of these active substances was later than June 14, 2011, and therefore the evaluation was carried out under Regulation 1107/2009.

4. Evaluation for approval/renewal of approval of active substances under Regulation 1107/2009

(1) Structure of Regulation 1107/2009

On November 24, 2009, Regulation 1107/2009 was published in the EU Official Journal to replace Directive 91/414/EEC on June 14, 2011, which was the date of application of Regulation 1107/2009. Under Regulation 1107/2009, the approval of active substances is referred to as "approval", not "inclusion". The "completeness of the dossier" under Directive 91/414/EEC is referred to as "admissibility of the application" under Regulation 1107/2009. The admissibility of the application for new active substances is not subject to be published in the EU Official Journal, because the provisions for provisional authorizations of plant protection products containing new active substances were changed by Regulation 1107/2009. Furthermore, under the Regulation 1107/2009, the provisions on provisional authorizations were applied until June 14, 2016.

New Regulations, to which the contents of the Annexes to Directive 91/414/EEC were to be transferred, were prepared and adopted, therefore the Annexes to Regulation 1107/2009 contains provisions not set out in Directive 91/414/EEC. **Table 3** shows the Regulations to which the contents of the Annexes to Directive 91/414/EEC were transferred, and **Table 4** shows the Annexes to Regulation 1107/2009.

Annex II to Regulation 1107/2009 contains the criteria for the approval of active substances, including the approval criteria not provided in Directive 91/414/EEC. The approval criteria include so-called "cut-off" criteria. If an active substance falls under any

Table 3 Regulations in which provisions set out in Directive 91/414/EEC are transferred

Provisions in Directive 91/414/EEC	Regulations transferred
Articles	Regulation 1107/2009 Articles
ANNEX I (Active substance list)	Regulation 540/2011 (2011.06.11) Annex
ANNEX II (Data requirement of AS)	Regulation 544/2011 (2011.06.11) Annex Regulation 283/2013 (2013.04.03) Annex (Replacement)
ANNEX III (Data requirement of PPP)	Regulation 545/2011 (2011.06.11) Annex Regulation 284/2013 (2013.04.03) Annex (Replacement)
ANNEX IV (Risk phrases)	Regulation 547/2011 (2011.06.11) Annex II
ANNEX V (Safety phrases)	Regulation 547/2011 (2011.06.11) Annex III
ANNEX VI (Uniform principles)	Regulation 546/2011 (2011.06.11) Annex

Table 4 Annexes to Regulation 1107/2009

ANNEX	Title
ANNEX I	Definition of zones for the authorisation of plant protection products as referred to in Article 3(17)
ANNEX II	Procedure and criteria for the approval of active substances, safeners and synergists pursuant to Chapter II
ANNEX III	List of co-formulants which are not accepted for inclusion in plant protection products as referred to in Article 27
ANNEX IV	Comparative assessment pursuant to Article 50
ANNEX V	Repealed Directives and their successive amendments as referred to in Article 83

specific hazard based criterion# corresponding to the cut-off criteria, such active substance is not approved. Annex II also contains the additional criteria for judging whether or not an active substance shall be approved as low-risk active substances or as candidates for substitution that are mentioned later.

#: Where an active substance falls under any of the hazard based criteria mentioned in the following criteria for the approval of active substances. Derogation provisions can be applied to the approval criteria marked with*, and an active substance may be approved if the prescribed conditions are met.

- Criterion regarding mutagenicity (Annex II 3.6.2)
- Criterion regarding carcinogenicity* (Annex II 3.6.3)
- Criterion regarding reproductive toxicity* (Annex II 3.6.4)
- Criterion regarding endocrine disrupting properties with respect to humans* (Annex II 3.6.5)
- Criterion regarding persistent organic pollutant (POP) (Annex II 3.7.1)
- Criterion regarding persistent, bioaccumulative and toxic (PBT) substances (Annex II 3.7.2)
- Criterion regarding very persistent and very bioaccumulative (vPvB) substances (Annex II 3.7.3)
- Criterion regarding endocrine disrupting properties with respect to non-target organisms* (Annex II 3.8.2)

(2) Approval period

(i) First approval

The approval period shall not exceed 10 years under Directive 91/414/EEC, and first approval shall be for a period not exceeding 10 years under Regulation 1107/2009. However, Regulation 1107/2009 introduced provisions on low-risk active substances (Article 22), basic substances (Article 23), and candidates for substitution (Article 24) and applies the following approval period for the active substances which meet the additional criteria provided in the corresponding Articles:

Low-risk active substances:
Period not exceeding 15 years

Candidates for substitution:
Period not exceeding 7 years

Basic substances: Unlimited period

Regulation 1107/2009 set out derogation provisions (Article 4(7)). Where on the basis of documented evidence included in the application an active substance is necessary to control serious danger to plant health which cannot be contained by other available means, such active substance may be approved for a period not exceeding five years, even if it does not satisfy the approval criteria containing specific cut-off criteria (mentioned in Points 3.6.3, 3.6.4, 3.6.5, or 3.8.2 of Annex II), provided that the use of the active substance is subject to risk mitigation measures to ensure that exposure of humans and the environment is minimized.

As shown in **Table 5**, the Annex to original Regulation 540/2011[14] (approved active substance list) contained only the list of active substances approved under Directive 91/414/EEC. Regulations amending the original Regulation made the list contained in separate Parts based on the category of active substances approved so that it became easier to know whether an active substance belongs to the active substances approved under Directive 91/414/EEC (Part A), active substances approved under Regulation 1107/2009 (Part B), basic substances (Part C), low-risk active substances (Part D), or candidates for substitution (Part E). Since no active substance has been approved yet in accordance with the derogation provisions of Article 4(7), it is unclear as of this moment whether any new Part will be added or not.

Table 5 Parts added in the Annex to Regulation 540/2011

Regulations by which new Parts are added	Parts added
Regulation 540/2011 (2011.06.11)	**Part A** (set out in Part A by Regulation 541/2011) Active substances deemed to have been approved under Regulation (EC) No 1107/2009
Regulation 541/2011 (2011.06.11)	**Part B** Active substances approved under Regulation (EC) No 1107/2009
Regulation 462/2014 (2014.05.07)	**Part C** Basic Substances
Regulation 2015/306 (2015.02.27)	**Part D** Low-risk active substances
Regulation 2015/2105 (2015.11.21)	**Part E** Candidates for substitution

(ii) Renewal of approval

Approval period for the active substances renewed is for a period not exceeding 10 years under Directive 91/414/EEC, the renewal of the approval shall be for a period not exceeding 15 years under Regulation 1107/2009. Approval as candidates for substitution may be renewed for periods not exceeding seven years. The renewal of approval of the active substance covered by the derogation provisions of Article 4(7), shall be for a period not exceeding five years.

(3) Evaluation procedure for approval/renewal of approval

Under Directive 91/414/EEC, the procedure for the evaluation for the approval of new active substances was set out by a separate Regulation (Regulation 188/2011), but Regulation 1107/2009 provides such procedure in the Articles (Articles 7 through 13). However, for basic substances, Regulation 1107/2009 provides an evaluation procedure different from the evaluation procedure for the approval of new active substances that is provided in the Article (Article 23) as well as the criteria for judging whether an active substance shall be considered as a basic substance. For renewal of approval, provisions including part of the procedure are set out in the Articles (Articles 14 through 20), but it states that a Regulation shall set out the provisions necessary for implementation the renewal procedure (Article 19). **Fig. 1** shows a simplified scheme for the evaluation for approval/renewal of approval. Differences exist between the evaluation for renewal of approval and the evaluation for approval.

In the evaluation for renewal of approval, RMS, etc. are designated in advance and an application for renewal, including the list of new information intended to be submitted at the time of dossier submission, shall be submitted. However, in the evaluation for approval, the applicant can choose the RMS to which the dossier is to be submitted.

For renewal of approval for AIR2 (Annex I Renewal 2nd group), Regulation 1141/2010 laid down the evaluation procedure under Directive 91/414/EEC, but the evaluation was carried out under Regulation 1107/2009. The evaluation procedure for AIR3 (Annex I Renewal 3rd group) and subsequent renewals was set out by Regulation 844/2012.[15] Regulation 844/2012 is also applied to AIR4 (Annex I Renewal 4th group) and AIR5 (Annex I Renewal 5th group).

(4) Adjustment of the deadlines for application for renewal submission and dossier submission by extension of approval period for the duration of the renewal procedure

Regarding the renewal of approval, there are provisions postponing the expiry of the approval period for a period sufficient to complete the evaluation so that the approval period does not expire before a decision has been taken on renewal (Article 17 of Regulation 1107/2009).

The above-mentioned postponing the expiry of the approval period is also implemented in order to extend the deadline for application for renewal submission or the deadline for dossier submission before the commencement of the evaluation.

For AIR3 and subsequent renewals, the Regulation setting out the provisions necessary for the implementation of the renewal procedure provided that application for renewal shall be submitted no later than three years before the expiry of the approval and dossier shall be submitted no later than 30 months before the expiry of the approval. For this reason, it was no longer necessary to set out the deadline for submission of the dossier by a separate Regulation.

To apply the updated data requirements (applicable to the dossiers submitted on or after January 1, 2014) to AIR3 and subsequent renewals and avoiding having the same submission deadline for the dossiers of many active substances, the active substances in AIR3 were divided further into small groups based on the original expiry dates and adjusted the deadlines for dossier submission to perform evaluation. Regarding AIR3, the deadline for application for renewal submission (three years before the expiry of the approval) had already lapsed for some active substances as of the date of application of Regulation 1107/2009 (June 14, 2011), but expiry dates were postponed as needed to adjust the deadline for application for renewal submission or

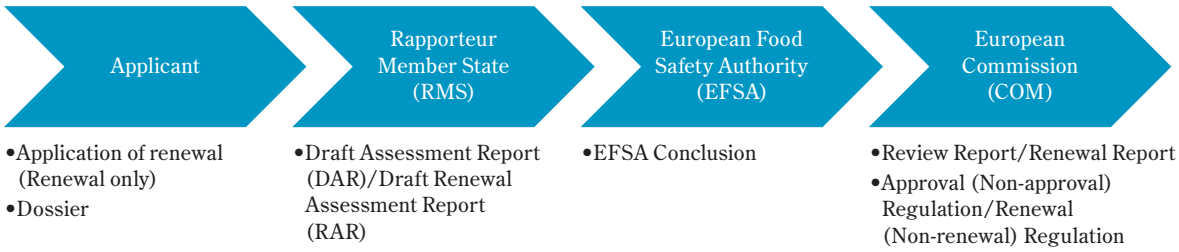

Fig. 1 Scheme of Approval/Approval renewal process of active substances for PPP

the deadline for dossier submission. However, the order of active substances based on the initial expiry date and that based on the deadline for dossier submission remain the same.

On the other hand, regarding AIR4, the deadline for application for renewal submission was not changed by postponing the expiry of the approval period. However, active substances were divided into small groups, not based on the initial expiry date, but based on presumed characteristics of the active substance. For some groups, the expiry dates were not postponed after the submission of application for renewal. For other groups, the deadlines for submission of the dossier were postponed by postponing the expiry dates with one to three years. For this reason, the order of active substances based on the initial expiry date and that based on the deadline for dossier submission were changed. As a result, for some active substances, the deadlines for dossier submission became later than the deadlines for dossier submission for some active substances belonging to AIR5.

Regarding AIR5, the deadline for application for renewal submission was not planned to be changed by postponing the expiry of the approval period as in the case of AIR4, and active substances were divided into small groups based on their properties. They were divided into either the group for which the deadline for dossier submission was planned to be extended by postponing the expiry of the approval period or the group for which that would not be done. Regarding AIR4, the extended period was the same for all active substances in the group. However, regarding AIR5, the approval period is to be extended for one year for some active substances, but other active substances are to be evaluated at the same time as the active substances sharing similar properties and therefore the approval period for such active substances is to be extended accordingly.

5. Current problems with evaluation for approval/renewal of approval of active substances under Regulation 1107/2009

Both the evaluation for approval and the evaluation for renewal of approval have been delayed. In particular, during the evaluation for renewal of approval, expiry of the approval period has been postponed many times after the submission of the dossier.

Because the cut-off criteria include the specific hazard category of classification and labelling set forth in Regulation 1272/2008[16] on classification, labelling and packaging, when the evaluation on classification and labelling is delayed more than the evaluation for approval/renewal of approval of active substances, a decision on approval/renewal of approval cannot be made. To resolve this problem, a combined template to be used for Draft Assessment Report (DAR)/Renewal Assessment Report (RAR) and Harmonised Classification and Labelling (CLH) report has been prepared so that a CLH report can be prepared at the same time as when a DAR or RAR is prepared.

Regulation 2018/605[17] amending Annex II to Regulation 1107/2009 by setting out scientific criteria for the determination of endocrine disrupting properties was published in the EU Official Journal on April 20, 2018 and applied from November 10, 2018. As a result, it has become necessary to assess endocrine disrupting properties in accordance with those criteria. In addition, in view of the above-mentioned criteria, Regulation 2018/1659[18] that was published in the EU Official Journal on November 8, 2018 set out the procedure for submission of additional data with regard to endocrine disrupting properties during the evaluation for renewal of approval. These provisions will prolong evaluation.

Examination for Approval of Active Substances in Biocidal Products in EU

1. Transition from Directive 98/8/EC to Regulation 528/2012[19] and transitional measures

Directive 98/8/EC established provisions on the placing of biocidal products on the market in the EU for the first time. This Directive limited the biocidal products to be authorized to those containing the active substances approved at the EU Community level, in principle. For this reason, the EU established procedures for preparing the Community list of authorized active substances and assessing whether or not an active substance can be entered on the list.

Directive 98/8/EC was to be brought into force within 24 months from the date of entry into force (May 14, 1998), and the active substances already on the market on May 14, 2000 were treated as existing active substances and other active substances were treated as new active substances. For the existing active substances, a review programme was commenced.

Regulation 528/2012 was established to replace Directive 98/8/EC and applied from September 1, 2013. There were provisions on transitional measures

concerning the active substances evaluated under Directive 98/8/EC. However, unlike active substances contained in plant protection products, there were many active substances being evaluated under the review programme for existing active substances and therefore, not only the evaluation for approval of new active substances or renewal of approval, but also the evaluation of many existing active substances were to be carried out under Regulation 528/2012.

2. Evaluation for inclusion of active substances under Directive 98/8/EC

Directive 98/8/EC was published in the EU Official Journal on April 24, 1998. **Table 6** shows the Annexes to Directive 98/8/EC. Under Directive 98/8/EC, the inclusion of an active substance in the active substance list set forth in Annex I meant the approval of such active substance.

The following provisions are included in the Articles of Directive 98/8/EC:

- For the inclusion of an active substance in the active substance list, the applicant shall submit a dossier for the active substance satisfying the requirements and a dossier for at least one product containing the active substance satisfying the requirements to a Member State (Article 11(1));
- Inclusion of an active substance for an initial period not exceeding 10 years (Article 10(1));
- Inclusion of an active substance may be renewed for periods not exceeding 10 years (Article 10(4)); and
- The Commission shall commence an examination programme of existing active substances (Article 16(2)).

Though part of procedure, such as preparation of an evaluation by the competent authority of the RMS (Article 11(2)) and, on receipt of the evaluation, preparation of a proposal by the European Commission (Article 11(4)), were provided in the Articles, details were not described. A Regulation would provide for provisions necessary for implementation of the review programme of existing active substances. In addition, there were provisions that were not included in Plant Protection Directive 91/414/EEC. Representative examples are as follows:

- Inclusion in the active substance list shall be restricted for use in particular product type (PT) (Article 10(3));
- In the light of current scientific and technical knowledge, an active substance shall be included in Annex I, Annex IA, or Annex IB (Article 10(1)); and
- If a situation arises where, with regard to a particular existing active substance/PT combination, all the participants have withdrawn from the review programme, the role of the participant may be taken over (Article 8(4) of Regulation 2032/2003[20]).

The active substances listed in Annex IA are the active substances contained in the low-risk biocidal products defined in Article 2(1)(b) of Directive 98/8/EC. The active substances listed in Annex IB are the basic substances defined in Article 2(1)(c) of Directive 98/8/EC.

For reference, **Table 7** shows the list of current product types (Annex V to Regulation 528/2012).

The review programme of existing active substances evaluated an active substance contained in biocidal products that were placed on the market in each Member State for use in particular PT in the light of requirements and criteria under Directive 98/8/EC to assess whether or not to include such active substance/PT combination in the active substance list.

Table 6 Annexes to Directive 98/8/EC

ANNEX	Title
ANNEX I	List of active substances with requirements agreed at Community level for inclusion in biocidal products
ANNEX IA	List of active substances with requirements agreed at Community level for inclusion in low-risk biocidal products
ANNEX IB	List of basic substances with requirements agreed at Community level
ANNEX IIA	Common core data set for active substances - chemical substances
ANNEX IIB	Common core data set for biocidal products - chemical products
ANNEX IIIA	Additional data set for active substances - chemical substances
ANNEX IIIB	Additional data set for biocidal products - chemical products
ANNEX IVA	Data set for active substances - fungi, micro-organisms and viruses
ANNEX IVB	Data set for biocidal products - fungi, micro-organisms and viruses
ANNEX V	Biocidal product-types and their descriptions as referred to in Article 2(1)(a) of this Directive
ANNEX VI	Common principles for the evaluation of dossiers for biocidal products

Table 7 List of the types of biocidal products set out in Annex V to Regulation 528/2012

MAIN GROUP 1: Disinfectants	
PT1	Human hygiene
PT2	Disinfectants and algaecides not intended for direct application to humans or animals
PT3	Veterinary hygiene
PT4	Food and feed area
PT5	Drinking water
MAIN GROUP 2: Preservatives	
PT6	Preservatives for products during storage
PT7	Film preservatives
PT8	Wood preservatives
PT9	Fibre, leather, rubber and polymerised materials preservatives
PT10	Construction material preservatives
PT11	Preservatives for liquid-cooling and processing systems
PT12	Slimicides
PT13	Working or cutting fluid preservatives
MAIN GROUP 3: Pest control	
PT14	Rodenticides
PT15	Avicides
PT16	Molluscicides, vermicides and products to control other invertebrates
PT17	Piscicides
PT18	Insecticides, acaricides and products to control other arthropods
PT19	Repellents and attractants
PT20	Control of other vertebrates
MAIN GROUP 4: Other biocidal products	
PT21	Antifouling products
PT22	Embalming and taxidermist fluids

The provisions necessary for implementation of the review programme for existing active substances were established by Regulation 1896/2000[21] and Regulation 2032/2003. The provisions on the evaluation procedure, the information required to submit for identification of existing active substances, and the deadline for notification of an existing active substance/PT combination to be evaluated for inclusion in the active substance list were common to all active substance/PT combinations, but four different deadlines for dossier submission were set out according to PT. However, there were provisions that if all the participants supporting the same active substance/PT combination withdraw from the review programme and any person indicates an interest in taking over the role in response to the open invitation for taking over the role of the participant for that active substance/PT combination, a new deadline for the submission of dossier shall be set for such successor. For this reason, for some existing active substances/PT combination, the deadline for submission of the dossier was set out subsequently which was later than the deadline specified according to PT in the above Regulations.

Major differences between the evaluation of new active substances and the evaluation of existing active substances were the following two points:

(i) For the evaluation of existing active substances, required information needed to be submitted before the submission of the dossier, such as information for the identification of the existing active substance and the notification on an existing active substance/PT combination to be evaluated for inclusion in the active substance list, and RMS was designated after the submission of such notification; and

(ii) For the evaluation of new active substances, the applicant could choose the RMS, which was the recipient of the dossier.

The European Chemicals Agency (ECHA) participated in the evaluation for approval of active substances after the relevant provisions were introduced by Regulation 528/2012. Under Directive 98/8/EC, the Competent Authority Report (CAR) prepared by the RMS was the only information published between the submission of the dossier and voting at the Standing Committee of the European Commission, executive arm of the EU and initiator of legislative proposals, and therefore it was difficult for persons other than the concerned persons, such as participants, to know the progress of evaluation, compared with the evaluation of active substances contained in plant protection products.

3. Evaluation for approval/renewal of approval under Regulation 528/2012

(1) Structure of Regulation 528/2012

Regulation 528/2012 was published in the EU Official Journal on June 27, 2012 and replaced Directive 98/8/EC on September 1, 2013, which was the date of application of Regulation 528/2012.

Under Directive 98/8/EC, the inclusion of an active substance in the active substance list set forth in Annex I, IA, or IB meant the approval of such active substance. However, Regulation 528/2012 did not have any Annex in which all the active substance lists in Annexes I, IA, and IB would be contained. No particular Regulation, in which those active substance lists

Table 8 Correlation table of the Annexes to Directive 98/8/EC and to Regulation 528/2012

Directive 98/8/EC	Regulation 528/2012
ANNEX I List of active substances	—
ANNEX IA List of active substances in low-risk biocidal products	ANNEX I (Partially adopted but has major changes)
ANNEX IB List of basic substances	—
ANNEX IIA Core data set for chemical active substances	ANNEX II title 1 (Revised)
ANNEX IIB Core data set for chemical biocidal products	ANNEX III title 1 (Revised)
ANNEX IIIA Additional data set for chemical active substances	ANNEX II title 1 (Revised)
ANNEX IIIB Additional data set for chemical biocidal products	ANNEX III title 1(Revised)
ANNEX IVA Data set for active substances - fungi, micro-organisms and viruses	ANNEX II title 2 (Revised)
ANNEX IVB Data set for biocidal products - fungi, micro-organisms and viruses	ANNEX III title 2 (Revised)
ANNEX V Biocidal product-types and their descriptions as referred to in Article 2(1)(a) of this Directive	ANNEX V (Revised)
ANNEX VI Common principles for the evaluation of dossiers for biocidal products	ANNEX VI (Revised)

would be contained, had been adopted, either. Therefore, the European Commission keep the Union list of approved active substances up to date and make it electronically available to the public. As in the case of active substances contained in plant protection products under Regulation 1107/2009, the approval of active substances is referred to as "approval," not "inclusion" under Regulation 528/2012.

Annex I to Regulation 528/2012 established a specific list of active substances contained in the products that could be evaluated under the simplified authorization procedure for biocidal products set forth in Article 25. The active substances included in Annex I are the active substances that do not give rise to concern according to the criteria specified in Article 28(2). The active substances included in Annex IA to Directive 98/8/EC are included in Category 6 of Annex I to Regulation 528/2012.

Article 28 of Regulation 528/2012 has provisions on the amendment of Annex I to Regulation 528/2012. Regulation 88/2014[22] specified a procedure for the amendment of Annex I to Regulation 528/2012, including the provisions necessary for inclusion of active substances in Annex I. Annexes to Directive 98/8/EC other than Annex I, IA, and IB were taken over as Annexes to Regulation 528/2012. **Table 8** shows the comparison of Annexes between Directive 98/8/EC and Regulation 528/2012.

Table 9 Annexes to Regulation 528/2012

ANNEX	Title
ANNEX I	List of active substances referred to in Article 25(a)
ANNEX II	Information requirements for active substances
TITLE 1	Chemical substances - Core data set and additional data set for active substances
TITLE 2	Micro-organisms - Core data set and additional data set for active substances
ANNEX III	Information requirements for biocidal products
TITLE 1	Chemical products - Core data set and additional data set for chemical products
TITLE 2	Micro-organisms - Core data set and additional data set
ANNEX IV	General rules for the adaptation of the data requirements
ANNEX V	Biocidal product-types and their descriptions as referred to in Article 2(1)
ANNEX VI	Common principles for the evaluation of dossiers for biocidal products
ANNEX VII	Correlation table

Table 9 shows Annexes to Regulation 528/2012. Annex IV to Regulation 528/2012 did not exist under Directive 98/8/EC.

The criteria equivalent to the cut-off criteria under Plant Protection Products Regulation 1107/2009 are introduced as exclusion criteria in Regulation 528/2012 (Article 5). Like the cut-off criteria, if an active substance falls under any specific hazard based criterion*, such active substance is not approved.

*: Where an active substance falls under any of the following hazard based criteria. There are derogation provisions (Article 5(2)) in accordance with which an active substance may be approved even if it meets any of the exclusion criteria.

- Criterion regarding carcinogenicity (Article 5(1)(a))
- Criterion regarding mutagenicity (Article 5(1)(b))
- Criterion regarding reproductive toxicity (Article 5(1)(c))
- Criterion regarding endocrine disrupting properties with respect to humans (Article 5(1)(d))
- Criterion regarding persistent, bioaccumulative and toxic (PBT) substances or very persistent and very bioaccumulative (vPvB) substances (Article 5(1)(e))

Regulation 528/2012 also contains the criteria for judging whether or not an active substance shall be approved as a candidate for substitution, but the conditions are slightly different from those set out in Plant Protection Products Regulation 1107/2009. The provisions on both the exclusion criteria and the candidates for substitution are newly introduced provisions and were not included in Directive 98/8/EC.

(2) Approval period

(i) First approval

Directive 98/8/EC provided that an active substance shall be approved for an initial period not exceeding 10 years, and Regulation 528/2012 also provides that an active substance shall be approved for an initial period not exceeding 10 years. However, for the active substances which are candidates for substitution (Article 10), the following approval period is set out depending on whether the condition provided in (a) or other than (a) of Article 10(1) is met:

Candidates for substitution (when the condition provided in Article 10(1)(a) applies): Period not exceeding five years

Candidates for substitution (when the condition provided in any of Article 10(1) other than (a) is met): Period not exceeding seven years

The approval period for active substances approved as candidates for substitution in accordance with Article 10(1)(a) is shorter than those approved as candidates for substitution in accordance with other conditions, because they meet exclusion criteria but are approved by meeting at least one of the three conditions set forth in Article 5(2) (the risk to humans, animals or environment from exposure to the active substance is negligible; it is shown by evidence that the active substance is essential to prevent serious danger to human health, animal health or the environment; or not approving the active substance would have disproportionate negative impact on the society when compared with the risk arising from the use of the active substances).

(ii) Renewal of approval

Approval may be renewed for periods not exceeding 10 years under Directive 98/8/EC, but the renewal of an approval of an active substance shall be for a period not exceeding 15 years under Regulation 528/2012. Renewal of the approval of an active substance as a candidate for substitution shall be for a period not exceeding seven years.

(3) Evaluation procedure for approval/renewal of approval

The procedure for the evaluation for the approval of new active substances is set out in the Articles (Articles 7 through 9) of Regulation 528/2012, and the procedure for the evaluation for the renewal of approval is set out in the Articles (Articles 13 through 14) of Regulation 528/2012.

For renewal of approval of an active substance/PT combination, an application for renewal of approval shall be submitted at least 550 days before the expiry of the approval (Article 13(1)). As in the case of the renewal of approval of an active substance contained in plant protection products, there are provisions postponing the expiry of the approval period for a period sufficient to complete the evaluation so that the approval period does not expire before a decision has been taken on renewal (Article 14(5)).

Under Regulation 528/2012, ECHA participates in the evaluation for approval and the evaluation for renewal of approval of active substances, which is one of major differences between the evaluation procedure under Directive 98/8/EC and the evaluation procedure under Regulation 528/2012. For the reason above, the provisions on the evaluation procedure have been considerably amended. The Competent Authority Report (CAR) on assessment on the dossier by the Evaluating Competent Authority (eCA) of the Member State is sent to ECHA, and then

ECHA prepares an opinion on the approval of the active substance and submits it to the European Commission. **Fig. 2** shows a simplified scheme of the evaluation for approval/renewal of approval.

Transitional measures (Article 90) are applied to the new active substances being evaluated under Directive 98/8/EC. Transitional measures (Articles 89 through 90) are applied to the existing active substances being evaluated under Directive 98/8/EC.

ECHA also participates in the above evaluation for approval. Regulation 2032/2003 on the review programme of existing active substances was replaced by Regulation 1451/2007[23], which was subsequently replaced by Regulation 1062/2014[24].

With respect to particular active substances/PT combinations that came to be existing active substances contained in biocidal products falling within the scope (Article 2) set out in Regulation 528/2012, but have not been approved or been included in Annex I to Regulation 528/2012, or have not been included in the review programme of existing active substances, if the notification is submitted by the deadline set out in Regulation 1062/2014 and the notification complies with the prescribed requirements, such active substances/PT combinations is to be included to the review programme of existing active substances. In addition, the provisions on an application for inclusion in Annex I to Regulation 528/2012 are also laid down in Regulation 1062/2014.

Though there are some differences, the procedure for evaluation of the existing active substances is almost the same as the procedure laid down in Regulation 88/2014 with regard to the existing active substances applied for inclusion in Annex I to Regulation 528/2012, or almost the same as the evaluation procedure for approval set out in the Articles of Regulation 528/2012 with regard to other existing active substances.

4. Current problems with evaluation for approval/renewal of approval of active substances under Regulation 528/2012

All the problems mentioned here are the same problems that have arisen with regard to plant protection products.

In short, the evaluation has been delayed. In particular, the evaluation for approval of existing active substances has been delayed. The deadline for the completion of the review programme for existing active substances has been repeatedly extended, and the current deadline is December 31, 2024. However, the program may not be completed by this deadline either. The approval period is extended for the evaluation for renewal of approval. In addition, the cut-off criteria include a specific hazard category of classification and labelling set forth in Regulation 1272/2008 on classification, labelling, and packaging, and therefore, when the evaluation on classification and labelling is delayed more than the evaluation for approval/renewal of approval of active substances, a decision on approval/renewal of approval cannot be made. To resolve this problem, a combined template to be used for CAR and CLH reports has been prepared so that a CLH report can be prepared at the same time as when the CAR is prepared.

Regulation 2017/2010[25] setting out scientific criteria for the determination of endocrine disrupting properties pursuant to Regulation 528/2012 was published in the EU Official Journal on November 17, 2017 and applied from June 7, 2018. As a result, it has become necessary to assess endocrine disrupting properties in accordance with those criteria, which will prolong evaluation furthermore.

Conclusion

The current EU regulatory system on plant protection products and biocidal products has been formulated by trial and error. For this reason, the system is

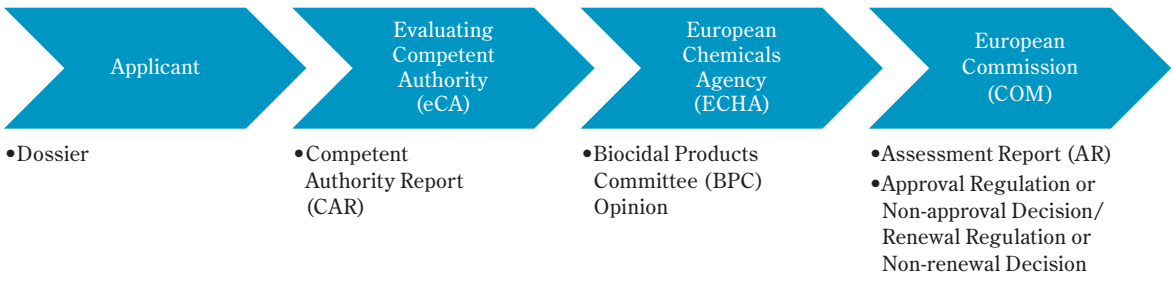

Fig. 2 Scheme of Approval/Approval renewal process of active substances for BP

complicated, and it is necessary to confirm which legislation applies to each active substance and follow necessary procedures for approval or renewal of approval. We will be glad if you find this paper to be of assistance in working on regulatory affairs. In actual operations, guidance documents, in which the detailed procedures and proceedings are described, issued by the European Commission, EFSA, ECHA, etc. need to be used in addition to legislation published in the EU Official Journal. However, we cannot introduce all of those documents due to space limitations. In the section "Reference", the links to text of legislation via EU law database "EUR-Lex" are listed so that you can confirm the matters mentioned in this paper with the contents of the source document. We hope it helps you confirm the details.

References

1) EC, "Directive 91/414/EEC (OJ 1991.08.19)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31991L0414&from=EN (Ref. 2019/4/5).
2) EC, "Directive 98/8/EC (OJ 1998.04.24)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31998L0008&from=EN (Ref. 2019/4/5).
3) EU, "Regulation 1107/2009 (OJ 2009.11.24)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009R1107&from=EN (Ref. 2019/4/5).
4) EC, "Regulation 3600/92 (OJ 1992.12.15)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992R3600&from=EN (Ref. 2019/4/5).
5) EC, "Regulation 451/2000 (OJ 2000.02.29)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32000R0451&from=EN (Ref. 2019/4/5).
6) EC, "Regulation 1490/2002 (OJ 2002.08.21)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002R1490&from=EN (Ref. 2019/4/5).
7) EC, "Regulation 1112/2002 (OJ 2002.06.27)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002R1112&from=EN (Ref. 2019/4/5).
8) EU, "Regulation 2229/2004 (OJ (2004.12.24)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004R2229&from=EN (Ref. 2019/4/5).
9) EU, "Regulation 1095/2007 (OJ 2007.09.21)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R1095&from=EN (Ref. 2019/4/5).
10) EU, "Regulation 33/2008 (OJ 2008.01.18)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R0033&from=EN (Ref. 2019/4/5).
11) EU, "Regulation 188/2011 (OJ 2011.02.26)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0188&from=EN (Ref. 2019/4/5).
12) EU, "Regulation 737/2007 (OJ 2007.06.29)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R0737&from=EN (Ref. 2019/4/5).
13) EU, "Regulation 1141/2010 (OJ 2010.12.08)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010R1141&from=EN (Ref. 2019/4/5).
14) EU, "Regulation 540/2011 (OJ 2011.06.11)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0540&from=EN (Ref. 2019/4/5).
15) EU, "Regulation 844/2012 (OJ 2012.09.19)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R0844&from=EN (Ref. 2019/4/5).
16) EU, "Regulation 1272/2008 (OJ 2008.12.31)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1272&from=EN (Ref. 2019/4/5).
17) EU, "Regulation 2018/605 (OJ 2018.04.20)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0605&from=EN (Ref. 2019/4/5).
18) EU, "Regulation 2018/1659 (OJ 2018.11.08)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1659&from=EN (Ref. 2019/4/5).
19) EU, "Regulation 528/2012 (OJ 2012.06.27)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R0528&from=EN (Ref. 2019/4/5).
20) EU, "Regulation 2032/2003 (OJ 2003.11.24)", https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003R2032&from=EN (Ref. 2019/4/5).

21) EC, “Regulation 1896/2000 (OJ 2000.09.08)”, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32000R1896&from=EN (Ref. 2019/4/5).
22) EU, “Regulation 88/2014 (OJ 2014.02.01)”, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0088&from=EN (Ref. 2019/4/5).
23) EU, “Regulation 1451/2007 (OJ 2007.12.11)”, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R1451&from=EN (Ref. 2019/4/5).
24) EU, “Regulation 1062/2014 (OJ 2014.10.10)”, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R1062&from=EN (Ref. 2019/4/5).
25) EU, “Regulation 2017/2010 (OJ 2017.11.17)”, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017R2100&from=EN (Ref. 2019/4/5).

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