

Wood preservation products on the Polish market

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Abstract: *Wood preservation products on the Polish market.* The paper characterizes the wood protection products on the Polish market that have obtained marketing authorization under national and European registration. Most permits were issued for entities based in Germany (European registration) and Poland (national registration). The range of products is very diverse; however, the most common products on the market are those for protecting wood against *Basidiomycetes*, blue stain and insects, and technical wood pests.

Keywords: biocidal products, regulation commission EU no 528/2012, placing biocidal products on the market

INTRODUCTION

Wood preservatives belong to biocidal products and their placing on the market is governed by the European law. Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 on the making available on the market and use of biocidal products is an overarching document regulating the circulation of biocidal products. The guidelines of this document oblige producers of wood preservatives to release on the market only preparations that show toxicological and ecotoxicological safety and contain active substances allowed for use. The suppliers of these substances are on the list of the manufacturers or importers of active substances published on the website of the European Agency for Chemicals (Betlej and Andres 2019a, Betlej 2017, Betlej and Andres 2019b). Despite the harmonized law in force in the European Union, the method of registration and obtaining permits for trading in biocidal products may take place in each member country, in accordance with their accepted requirements (registration in the national procedure). The so-called national registration, however, applies only to those products that contain active substances for which the evaluation process has not been completed (Betlej et al. 2019).

The process of evaluation of active substances, i.e. their full identification and physicochemical, toxicological and ecotoxicological characteristics, was adopted in the original document regulating the flow of biocidal products on the EU market – Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 – concerning the release of biocidal products on the market. The purpose of the assessment was to eliminate from the market those substances that displayed health hazards for humans and animals and could have a harmful effect on the environment (Dyrektywa 98/8/WE Parlamentu Europejskiego i Rady). Wood preservation products that contain substances assessed in the review process must be registered in accordance with harmonized rules in force in the EU, which brings with it a huge benefit related to the free movement of goods between EU member states (so-called European marketing authorizations are recognized in all EU member states). The aim of this study was to characterize products for wood preservation that are traded in Poland.

When analyzing the biocides market, data such as the number of marketing authorizations issued the type of active substances in the products, the intended use of the products, including the type of target organisms were taken into account. The data contained in the register of biocidal products, published by the Office for Registration of Medicinal Products, Medical Devices and Biocidal Products, were used to develop this characteristic (<http://urpl.gov.pl/pl/produkty-biob%20C3%B3jczy/wykaz-produkt%C3%B3w-biob%C3%B3jczych>).

Taking into account the above data, and in particular the type of active substances approved for use in wood preservatives, it was indicated what changes the wood preservatives market underwent when Poland joined the EU. The presented data is also intended to familiarize the reader with the basic legal provisions related to the placing on the market of biocides and basic information about wood protection products that are available on the market.

MATERIALS AND METHODS

The characteristics of products intended for wood preservation have been developed on the basis of data included in the list of biocidal products for which the so-called national and European marketing authorization. Particular attention was paid to data such as: the responsible entity, i.e. the owner of the marketing authorization for the product, the type of active substance, scope of application, type of product users. The current market status of wood preservation products for which national and European permits were issued was compared. Taking into account the provisions of Community law, including the relevant regulations of the EU Commission on the placing of biocidal products on the market, an analysis was made of the changes in the market of wood protection products in the context of their formulation, based on the composition of active substances and their suppliers.

RESULTS

On 10 January 2020, 319 marketing permits for wood preservatives were identified on the Polish market. 134 products were marketed in accordance with the European procedure, mainly through the mutual recognition procedure. These permits belong to companies based mainly in Germany. 24 permits for trading in products intended for wood protection belong to companies having their headquarters in Poland, but they are not necessarily companies with Polish capital. Biocidal products for wood impregnation are also introduced by companies from the Netherlands, Sweden, Denmark, Belgium, France, Austria, Finland, Ireland, Finland, Spain, the Czech Republic and the United Kingdom (Table 1).

Table 1. Permits for trade in wood protection products issued under the European registration procedure.

Number of permits	Origin of the responsible entity	Number of permits	Origin of the responsible entity	Number of permits	Origin of the responsible entity
55	Germany	4	Sweden	3	Belgium
24	Poland	8	Denmark	9	France
15	Netherlands	2	Austria	4	Finland
5	Czech Republic	3	Ireland	1	Spain
1	Great Britain				

Source: elaborated on the basis of data contained in <http://urpl.gov.pl/pl/produkty-biob%C3%B3jczy/wykaz-produkt%C3%B3w-biob%C3%B3jczych>

Permits issued through the national procedure belong mainly to Polish companies. It should be remembered, however, that the number of these permits will gradually decrease as the work on the assessment of active substances that are part of them is progressing. Currently, out of 185 permits issued for trading in biocidal products, as many as 130 are owned by companies based in Poland. Marketing permits only in Poland were also issued for companies from Germany, the Czech Republic, Austria, Slovenia, the Netherlands, Italy and France (Table 2).

The formulation of products for which a marketing authorization is issued in European procedures is based on active substances for which decisions have been made to include in the EU list of approved active substances. Active substances approved for use in biocidal products, i.e. substances for which a full safety report has been presented, include

propiconazole, boric acid, IPBC, permethrin, tebuconazole, alkyl (C12-16) – dimethylbenzylammonium chloride, DDAC, didecyl dimethylammonium chloride, copper (II) hydroxide copper (II) carbonate (1:1), creosote, cypermethrin, disodium tetraborate, cyclohexylhydroxydiazene-1-oxide potassium salt. Impregnates indicated in the Register for Biocidal Products are usually two-component products, although authorization has also been granted for those which contain 4 or even 5 active substances (Table 3).

Table 2. Permission for trade in wood protection products issued under the registration procedure in the national procedure

Number of permits	Origin of the responsible entity	Number of permits	Origin of the responsible entity	Number of permits	Origin of the responsible entity
34	Germany	2	Italy	2	Slovenia
130	Poland	4	Austria	2	France
5	Netherlands	6	Czech Republic		

Source: elaborated on the basis of the data in <http://urpl.gov.pl/pl/produkty-biob%20C3%B3jczy/wykaz-produkt%C3%B3w-biob%C3%B3jczych>

Table 3. Number of wood preservatives containing different amounts of active substances

Amount of active substances in biocidal products					
1	2	3	4	5	>5
28	84	20	1	1	0

Source: elaborated on the basis of data available at: <http://urpl.gov.pl/pl/produkty-biob%20C3%B3jczy/wykaz-produkt%C3%B3w-biob%C3%B3jczych>

Products intended for the preservation of wood that operate on the market based on the issued national authorization contain in their composition substances for which no report has yet been presented allowing their inclusion in the EU list of active substances authorized for use, or contain two types of substances in their formulation – approved for use and for which no safety report has been submitted. Products containing formulations based on approved and non-approved active substances may be registered in a national procedure until the last non-approved active substance in them has been evaluated and appropriate decisions have been made to add that substance to the EU list of active substances. Unproven active substances include diamine, polymeric betaine and thiacloprid.

The recipients of a biocidal product are strictly defined in Regulation 528/2012. A biocidal product must not be intended for general users if it is toxic, carcinogenic in categories 1 and 2, mutagenic in categories 1 and 2 and toxic for reproduction in categories 1 and 2. The users of biocidal products may be equal to specialized companies (the industrial user) or properly trained employees (the professional user). The main recipients of wood protection products for which a marketing authorization has been issued under the national and European procedure are general users.

The purpose of biocidal products available on the market is mainly protection against fungi causing deep wood decomposition and fungi causing blue stain. Much fewer products are intended for protection against insects and technical wood pests (table 4).

Taking into account the changes that took place after Poland joined the structures of the European Union and the related need to adapt the Polish biocide market to the provisions of EU law, it should be noted that the wood impregnation market has undergone significant modifications in terms of product composition. Undoubtedly, these changes were dictated by certain limitations, as a result of work on the so-called process of reviewing active substances on the market, referred to in Directive 98/8/WE of the European Parliament and of the Council on the placing of biocidal products on the market. The first restrictions on the Polish biocide market were related to the market adjustment to the requirements of the EC Commission Regulation No. 2023/2003 on the second phase of the 10-year work program

specified in Art. 16 sec. 2 of Directive 98/8/WE of the European Parliament and of the Council concerning the placing of biocidal products on the market and amending Regulation EC No. 1896/2000 which indicated which active substances are allowed for use in preparations for impregnating wood (Rozporządzenie Komisji (WE) NR 1896/2000, Rozporządzenie Komisji (WE) NR 2032/2003).

Table 4. The scope of wood preservatives use

Products for which European authorization has been obtained		Products for which national authorization has been obtained	
Scope of application	Number of products on the market	Scope of application	Number of products on the market
Protection against <i>Basidiomycetes</i>	2	Wood impregnation	19
Insect protection	4	Protection against <i>Basidiomycetes</i>	4
Protection against <i>Basidiomycetes</i> and insects	27	Protection against <i>Basidiomycetes</i> , molds and insects	10
Blue stain protection	12	Protection against blue stain and mold fungi	1
Protection against <i>Basidiomycetes</i> and blue stain	44	Protection against <i>Basidiomycetes</i> and insects	56
Protection against <i>Basidiomycetes</i> , blue stain and mold fungi	43	Protection against <i>Basidiomycetes</i> , blue stain and insects	51
Protection against blue stain and mold fungi	1	Protection against <i>Basidiomycetes</i> , molds, blue stain and insects	1
Protection against <i>Basidiomycetes</i> and mold fungi	1	Protection against <i>Basidiomycetes</i> and mold fungi	6
		Protection against <i>Basidiomycetes</i> , mold and blue stain	1
		Protection against mold fungi	1
		Insect protection	21
		Protection against insects and blue stain	5
		Blue stain protection	4

Source: elaborated on the basis of data available at: <http://urpl.gov.pl/pl/produkty-biob%C3%B3jczych-wykaz-produkt%C3%B3w-biob%C3%B3jczych>

This regulation specified the possibility of placing biocidal products based on 43 active substances on the market, however, it was introduced in 2007 the amendment to the law resulted in the reduction of the amount of active substances in wood preservatives to 41 (Rozporządzenie Delegowane Komisji (UE) NR 1062/2014). As part of the subsequent work related to the systematic evaluation of all existing active substances contained in biocidal products, another regulation was introduced in 2014 (EU Commission Delegated Regulation No. 1062/2014), which again reduced the list of active substances permitted for use

(Rozporządzenie Delegowane Komisji (UE) NR 1062/2014). Despite the exclusion from the review program of certain substances used in wood preservation (e.g. cupric salts of naphthalenic acids, cupric oxine, hydrocyanic acid, sorbic acid, thiabendazole, ethyl [2-(4-phenoxyphenoxy) ethyl] carbonate, sulfuryl difluoride, dazomet), regulations the law does not prohibit scientific work on new substances with a view to inclusion in the future on the list of substances approved for use in biocidal products. Restrictions on the use of hazardous active substances in wood preservatives imply research on the effectiveness of new substances, especially those of natural origin (Andres and Betlej 2019, Woźniak et al. 2015). Further restrictions in the marketing of wood preservation products, laid down in Regulation (EU) No. 528/2012 of the European Parliament and of the Council, apply to suppliers of active substances in biocidal products.

In line with Article 95 of this Regulation, active substances in wood preservation products should only come from suppliers who are included in the list referred to in Article 95 (Rozporządzenie Parlamentu europejskiego i Rady (UE) NR 528/2012). It is not difficult to see that the list includes the largest chemical companies in Europe. Producers from outside the European Union were excluded from this list. The consequence of the adopted legal regulations was the need for numerous companies to change the suppliers of active substances in order to be able to adapt to the applicable requirements. The list of active substance suppliers currently includes the following companies: BASF GmbH, Lanxess, Arysta Lifescience, Bayer SA, FMC Chemical, Thor GmbH, Lonza GmbH, Troy Chemical Company, Sumitomo Chemicals, Stepan Europe, Innosept Performance Chemicals, Etimine SA, Spiess -Urania Chemicals, Protim Limited, Rütgers Organics, Koppers Denmark. The only Polish supplier that is on the indicated list is the company Centrala Obrotu Towarami Masowymi DAW-BYTOM, which is a creosote supplier (<https://echa.europa.eu/pl/information-on-chemicals/active-substance-suppliers>).

Undoubtedly, restrictive legal regulations influenced the market of wood protection products in the context of issued permits. It is not difficult to notice that as the work on the evaluation of active substances progressed, in order to approve them, the need to change the marketing authorizations, from the so-called national authorization to the European authorization, resulted in significant changes from the market point of view to which the authorization of the biocidal product belongs. European permits for trade in wood preservatives were issued mainly to German companies. A much smaller number of permits issued to Polish companies is associated with very high costs of registration procedures. Official costs and costs incurred for the performance of individual tests for products, plus the costs of authorization to use the data for a given active substance, in many cases exceed the amount of PLN 500,000 or even PLN 1,000,000. As a consequence of the necessity to bear high costs, many small and medium-sized enterprises producing wood preservatives withdrew from the biocides market, unfortunately giving way to large chemical concerns.

When analyzing the data contained in the register of biocidal products, it is easy to notice that marketing authorizations issued under the provisions of Regulation (EU) No. 528/2012 of the European Parliament and of the Council are among the few companies with Polish capital. Most of the biocides on the Polish market that are on the market, for which a marketing authorization has been issued in the so-called European procedure belongs to companies such as Kurt Obermeier, BASF, Remmers and Azko Nobel (<http://urpl.gov.pl/pl/produkty-biob%20jczy/wykaz-produkt%20w-biob%20jczych>). Given the small number of active substances that have not yet been assessed, it should be taken into account that a group of wood preservatives still available on the market may be withdrawn from the market. The hope of maintaining effective biocides on the market is the possibility of creating consortia by micro and medium-sized enterprises with companies introducing similar products to the market. The creation of consortia is aimed at ensuring the durability of

companies and their products on the market, by reducing the costs incurred in the registration processes, sharing experience and human resources or even easier registration of biocides, e.g. by submitting marketing permits for the so-called the family of biocidal products, i.e. a number of products with the same frame formulation (Betlej 2017).

CONCLUSION

1. The number of permits issued under the European procedure will gradually increase, which may result in the withdrawal of certain impregnating agents from the market, which will not be re-registered due to high procedural costs.
2. Despite the limitation of the use of certain groups of active substances in biocides, it is possible to replace them with new substances, especially of natural origin.
3. The provisions of the law on biocidal products are to ensure that the used wood protection measures are safe for users and the environment.

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Streszczenie: *Produkty do konserwacji drewna na rynku polskim.* W pracy dokonano charakterystyki środków przeznaczonych do ochrony drewna, znajdujących się na rynku polskim, które uzyskały pozwolenie na obrót w trybie rejestracji narodowej i europejskiej. Najwięcej pozwoleń wydano dla podmiotów, mających swoją siedzibę na terenie Niemiec (rejestracja europejska) oraz Polski (rejestracja narodowa). Zakres działania produktów jest bardzo zróżnicowany, jednakże w obrocie rynkowym najczęściej jest produktów przeznaczonych do ochrony drewna przed podstawczakami, sinizną i owadami, technicznymi szkodnikami drewna.

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