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Issues Related to Implementation of the EU Requirements on Plastic Crates and Pallets Containing Heavy Metals in Lithuania

Alis Lebedys[1], Eugenijus Milčius[1], Kostas Bendoraitis[1], Visvaldas Varžinskas[1], and Aistė Karpušenkaitė[2]
[1]*Centre for Packaging Innovations and Research, Kaunas University of Technology, Kaunas, Lithuania*
[2]*Institute of Environmental Engineering, Kaunas University of Technology, Kaunas, Lithuania*

Corresponding author:
Varžinskas, V., Centre for Packaging Innovations and Research, Kaunas University of Technology, Studentų St. 56, Kaunas, Lithuania
E-mail: visvaldas.varzinskas@ktu.lt

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The paper presents an analysis of problems which had to be dealt with by Lithuanian institutions while implementing environmental requirements laid down in Article 11 of European Parliament and Council Directive 94/62/EC on Packaging and Packaging Waste as well as in Decision 2009/292/EC of the European Commission establishing the conditions for derogation of plastic crates and plastic pallets related to heavy metal concentration limits set by Directive 94/62/EC.

While the Directive puts ban on the usage of packaging with the aggregate concentration of 4 heavy metals (lead, cadmium, mercury and hexavalent chromium) exceeding 100 ppm, Decision 2009/292/EC, instead, allows their usage if terms of derogation specified in the Decision are met. The implementation of the Decision means that each crate and/or pallet item circulating in the market with the concentration of the 4 heavy metals above the set level has to be identified, accounted, traced while in service, must at the end of service be delivered into a controlled recycling system and finally recycled in a way specified by the Decision. Therefore, the establishment of such a country-wide system presents a challenging task for the country as EU legislation sets no common requirements for its structure and leaves it to the country's discretion.

This paper systematises and summarises some principles and practices of managing the usage of plastic crates and plastic pallets containing the amount of heavy metals higher than 100 ppm (as set by Directive 94/62/EC) in the EU Member States.

The paper analyses possibilities and offers several scenarios for implementation of Directive 94/62/EC with respect to plastic crates and pallets with high concentration of heavy metals in Lithuania. Both the Directive and the Decision are based on using the data available from bookkeeping conducted by owners of crates and pallets and the EU environmental accounting/control system used in the country. The offered mechanisms are analysed and compared between themselves as well as with analogue systems used in other EU countries. Besides, the problem of unidentified plastic crates and plastic pallets already in use is being discussed. A special decision-making tree was developed to allow splitting the stream of these items into 2 flows with the concentration of heavy metals below and above the 100 ppm limit.

Keywords: *plastic crates, plastic pallets, heavy metals, packaging, decision-making scheme, identification and accounting*.

1 Introduction

The primary document, which states the principles of environmental policy in the packaging sector in the EU and regulates some essential requirements, is European Parliament and Council

Directive on Package and Packaging Waste 94/62/EC (further – EU Packaging Directive). EU directives provide only principles, working directions and guidelines, which Member States must comply with, without providing precise procedures on how to implement them. Therefore, every EU Member State has to evolve its own legislation with specific methods and procedures to be used to guarantee that the requirements of the directives are fully implemented. The success and cost of the implementation of directive requirements depend on the set-up of national legislation and how well it is harmonised with the rest of the legislative system.

Article 11(1) of the EU Packaging Directive forbids, with some exceptions, supplies of packaging with aggregate 4 heavy metal (lead, cadmium, mercury and hexavalent chromium) concentration over 100 ppm to the EU market. The same article authorises the European Commission (further – Commission) to set conditions, according to which the limit of 100 ppm would not be applied to recycled materials and product loops, which are parts of a closed and controlled circuit. By using this authorisation, in 1999 the Commission released Decision 1999/177/EC that postpones this prohibition for 10 years specifically for plastic crates and plastic pallets, thus, giving the industry time to recycle already existing crates and pallets into new ones. This Decision requires that recycled material originates only from other plastic crates or plastic pallets and in which the introduction of external material is just the minimum technically feasible, up to a maximum of 20% by weight.

The analysis of implementation results of the EU Packaging Directive carried out by the European Commission has revealed that a significant amount of plastic crates and plastic pallets with the concentration of heavy metals exceeding 100 ppm was still in use after the expiration of the year 1999 Decision. It was feared that companies would likely choose from 2 replacement scenarios of such crates and pallets: they would either send them to landfills or incinerate them. Both scenarios would cause harm to environment and human health. Mainly because of this, Decision 2009/292/EC (further – Commission Decision) was released by the European Commission in 2009, which set conditions for a termless usage period of plastic pallets and crates with increased heavy metal concentration in their composition. The Member States should take measures, which would encourage manufacturers to search for ways to reduce heavy metal concentration gradually to the permitted level by applying the best available techniques for removal of heavy metals.

Since the Commission decided to permanently review the results and outcomes of this Decision and evaluate the progress made by gradually destroying this type of packaging, the Member States were obliged to include this information in their reports, annually presented to the Commission in accordance with Article 11 of the EU Packaging Directive.

As Lithuania joined the EU only in 2004, when both Packaging Directive 94/62/EC and Decision 1999/177/EC were in use in other EU countries for many years, the experience gained by these countries would be extremely helpful for successful development and implementation of such a system in the country.

2 Experience of EU member states in applying the derogations for usage of plastic crates and plastic pallets with excess concentration of heavy metals

Prior to the expiry of Commission Decision 1999/177/EC on derogations, the EU had to decide if derogations would be applicable further and, if so, how to regulate the usage of plastic pallets and crates with increased heavy metal concentration. In order to develop a reasonable decision for the future, the current situation was analysed by involving relevant EU institutions.

The analysis showed that despite the efforts of the industry to recycle and reuse old plastic crates and pallets, there were a lot of pallets and crates with increased heavy metal concentration still circulating. The biggest impact on heavy metal concentration in the product comes from dyes, especially those used during the 1960s–1990s. According to European Plastic Converters and European Plastic Recyclers (EuPC/EuPR), an increased concentration of heavy metals is inherent to boxes used in beverage industry and small agricultural boxes, the life cycle of which can last for decades. In the meantime, reusable transportation packaging in use, which has been mainly produced in the last 15 years, usually contains no heavy metals in the composition. Another important factor is that prices are similar for boxes and pallets containing high concentration of heavy metals and those free of them. Therefore, companies, especially newly established, prefer using the latter ones, especially because the share of heavy metal-free items is permanently increasing.

Nevertheless, it has been estimated that the total amount of still used plastic crates and plastic pallets with excess concentration of heavy metals is not less than 500 million units in the EU. In other words, from the estimated total 4.1 million tons, at least 2.5 million tons still are plastic crates and pallets with excessive concentration of heavy metals. If these crates and pallets were destroyed all at once, it would mean huge economic losses (cost of disposing heavy metals as hazardous waste from plastic scrap, loss of material from recycled plastic and cost of new crates and pallets to substitute them). In Germany only, these losses were evaluated for EUR 1.5 billion plus EUR 1.8 billion related to waste disposal. The above situation in the market of plastic crates and boxes as well as the fact that neither heavy metals while in plastics (dyes that contain heavy metals are locked in product material) nor properly organised recycling processes have a negative effect on human health (heavy metals do not spread in the environment) motivated the release of termless Commission Decision 2009/292/EC, which set conditions for

proper use of plastic crates and pallets with increased heavy metal concentration.

According to provisions of Article 2 of the Commission Decision, the total concentration of heavy metals in plastic crates and plastic pallets can exceed the 100 ppm limit only if this packaging is used in a closed and controllable product circuit; other requirements are also met. The latter requirements are related to manufacture, repair, management, recycling and information documentation of these products. These requirements are usually transferred to national legislation in order to be directly implemented using similar wording, as in the EU documents, without changing their meaning, just making some aspects of requirement implication more specific. For example, in Germany the requirements of the Commission Decision were transferred to Germany's packing provisions (Verpackungsverordnung, n.d.) Section 13 and Annex II. It is important that the specifics of the country are taken into account and the implementation of the Decision is adjusted, especially while forming a rational closed and controllable product cycle and creating an efficient accounting and inventory system.

Most countries where the majority of plastic crates and plastic pallets circulate have efficient deposit systems, which guarantee that the user or client (for example, restaurant) pays for crates at purchase of beverages and later on gets the payment back by returning the packaging to supplier/seller. This system has proven to be efficient because it motivates return of both bottles and crates and, according to information from beverage makers and suppliers, the share of lost products is negligible. The owner of crates or bottles can be the manufacturer of the product (for example, brewery) or the company that specialises in the management of crates and/or pallets. As these products are a part of its assets, the company is strongly motivated to retrieve them. Lately, crates have become an important advertising tool along with transport; therefore, companies are even more motivated to care for them, avoiding leaving them somewhere and allowing them to be used by others.

In Germany, where a lot of crates and pallets with high heavy metal concentration are still in use, some market players (manufacturers and users of plastic crates and plastic pallets) have developed a documentary system to fit the EU Decision. The system ensures the following:

1. Each crate and pallet is marked indicating the type of material and concentration of heavy metals in it.
2. Manufacturers of crates and pallets provide declarations of conformity and annual reports, in which they state the total volume of the flow of crates and pallets with high concentration of heavy metals and the share of reused material expressed in weight units.
3. Inventory and stocks are registered and records are kept to guarantee that return quotas are observed. Every year, associations of beverage manufacturers are checked by independent experts if they are in line with the requirements related to returning quotas.
4. All returned bottle crates and pallets that are no longer in use are redirected for recycling, which is carried out in conformity with the EU provisions. German manufacturers of plastic crates and pallets have formed an association Pro-K, which has created qualification requirements for materials that contain heavy metals in their composition (European Commission DG ENV: A project under the Framework contract G.4/FRA/2007/0067). The participants of the German system have agreed on 3 forms, which are used to follow on the current changes in stock and to declare the compliance with the requirements related to manufacture processes and the usage of packaging in a closed and controlled system of reused packaging. For example, the form called 'Users declaration about the transfer' documents that the user (for example, brewery) transfers products (for example, plastic crates no longer in use) to the manufacturer/plastic recycler and indicates the weight and the number of units transferred. Three copies of the document are prepared, one per each party and the third one is sent to the country's central authority, responsible for country-wide stock accounting.

One of the conditions which allows using crates and pallets with excess heavy metal concentration is an obligation to mark newly made packaging with a visual and abrading mark. The Commission Decision does not specify how this symbol should look like, but it has become common that following the initiative of German manufacturers the majority of EU reusable packaging manufacturing companies have accepted putting a stroke under the currently used packaging material marking sign to indicate that the product is made by using the Commission Decision derogation (European Commission DG ENV: A project under the Framework contract G.4/FRA/2007/0067) and the concentration of heavy metals in the product exceeds 100 ppm. In order to distinguish plastic packaging made from original material, it can be marked with Q instead of a stroke, while plastic material made from recycled raw material with added original material can be marked with R (Recyclat). EuPC/EUPR admit that this labelling system has become widely accepted throughout the whole EU. Plastic crates marked with these signs are found in Lithuania as well. The described marking system is not the only used in the EU. There are companies that recycle only their own packaging circulating in a closed cycle and marked by their own marks.

Another principle is applied in some other countries, for example Denmark. If individuals or legal persons use plastic crates and pallets with excess heavy metal concentration, they are required to declare this and organise the usage of this type of packaging according to national legislation ensuring that the provisions of the Commission Decision are

observed. Thus, all the responsibility for the implementation of the Commission Decision is on the side of those persons and sanctions can be applied in case of non-performance.

Plastic crates and pallets with excess concentration of heavy metals, which are no longer in use, can be recycled only in a legitimate way and the recycling process is under permanent supervision. Contrary to Denmark, where such items can be transferred over to legitimate recycling or incineration systems, no recycling system has been developed in Lithuania so far. Such a situation can cause a number of additional problems, similar to those which Lithuania is currently facing in relation to used tyres, i.e. establishment of long-term storage sites for used tyres and their protection from spreading into the environment.

The analysis carried out suggests that the situation in other EU countries, and first of all in Germany, is quite different; therefore, in order to adjust to the new requirements, Lithuania has to find a way on how to solve an inventory problem as the first step and establish a legitimate recycling and/or incineration system.

3 Background for the implementation of EU provisions in Lithuania regarding plastic crates and plastic pallets with excess concentration of heavy metals

3.1 Relevant regulations in national law

The principal provisions of the EU Decision were transferred to Lithuanian legislation by Order No. D1-347 of 3 May 2010 by the Ministry of Environment. The Order has partially replaced the Packaging and Packaging Waste Management Regulations (Paragraph 8.2.). The supervision of implementation was assigned by the Ministry of Environment (Order No. D1-514 of 16 June 2010) to regional departments of environmental protection (Paragraph 4 of Regulations).

The order on how the presence of harmful substances in packaging shall be checked was set by the Ministry of Economics, Order No. 227 of 27 June 2002. This Order has been in effect since 1 January 2005. The Order states that:

- it is applicable to manufacturers of packaging, manufacturers and importers;
- control of harmful substances is conducted by the State Non-Food Products Inspectorate under the Ministry of Economics.

The main purpose of this control is to ensure that packaging and their components that are supplied to the Lithuanian market do not exceed the permissible limits of harmful substances. These limits are set in the Packaging and Package Waste Management Regulations issued by the Ministry of Environment.

The accounting system specifically targeted at plastic crates and plastic pallets has not been developed and used in Lithuania so far. Currently, all packaging materials are accounted in weight units (tons) and the related data are recorded by using the forms that are approved by the general order issued by the State Tax Inspectorate under the Ministry of Finance as well as by the Ministry of Environment.

Plastic crates and pallets belong to reusable packaging. The task to collect and reuse 80% of these packages (as well as other reusable packaging, except glass packaging) was set for years 2010–2012. This had to be achieved in respect of reusable packaging supplied to the inner market calculated from the total amount expressed in tons.

The tasks related to reuse and recycling of packaging have set that since 2012 the share of reused packaging waste has to be 32%, and 27% of this amount has to be recycled. The base for calculation is the total amount of plastic packaging supplied to the inner market (in tons) as well.

The analysis of the above-mentioned documents, which are relevant to accounting and inventory of plastic packaging and managing of its waste, shows that none of them specifically focuses on plastic crates and pallets. This results in the lack of any specific statistical information about this kind of product. No data on the quantity of items circulating in the market and no data about their status in respect of the content of heavy metals and harmful materials exist. From this point of view, the situation in the country is different, at least compared with some other countries, for example Germany, and makes the implementation of the derogation system in Lithuania really challenging as it requires establishment of a country-wide inventory system, which has not existed until now.

3.2 Requirements for management of plastic crates and plastic pallets with excessive concentration of heavy metals

Plastic crates and plastic pallets with excessive concentration of heavy metals (above 100 ppm), the use of which is justified by derogations specified in the Commission Decision, are mainly used in the reusable packaging system, which is regulated by the harmonised standard LST EN 13429:2007 ‘Packaging. The reuse’ and the technical report LST CEN/TR 14520:2009 ‘Packaging. The reuse. Methods to assess effective systems of reusing’. The standard states that 3 types of reuse systems are possible: closed cycle, open cycle and mixed. A closed cycle system fits best the terms of derogation as the probability for product in focus to leave the cycle before the end of its service is minimal and so is the risk of creating damage to environment and/or human health.

Commission Decision 2009/292/EC requires that packaging with excessive concentration of heavy metals, even if it circulates in the general flow of packaging, has to be managed in a special way: each item has to be identified, marked, accounted and traced in order to guarantee that it is recycled in a proper way and not disposed improperly. An unknown amount of reusable plastic crates and pallets with unknown concentration of heavy metals

has been circulating in Lithuania, because the existing accounting system of plastic packaging has neither distinguished plastic crates and plastic pallets from the general flow of plastic packaging nor split them by concentration of heavy metals in respect of the set 100 ppm limit. Only information about the total weight of the flow of plastic packaging has been available.

National standard LST 1655:2002 'Packaging − Requirements for measuring and verifying the four heavy metals and other dangerous substances present in packaging and their release into the environment − Part 1: Requirements for measuring and verifying the four heavy metals present in packaging', derived from CEN/CR 13695-1:2000, details the requirements of Packaging Directive 94/62/EC and specifies 2 ways to assess heavy metal concentration: tests and calculation. Calculation is defined as one of the rational ways to assess heavy metal concentration in packaging or in their components since it is based on reliable primary information. While applying this method, information is gathered during earlier stages of the life cycle of a product (manufacture of raw material, recycling of secondary raw material and manufacture of inseparable parts). Primary information from suppliers of raw materials and inseparable parts of packaging on heavy metals creates a base for judgment related to the level of concentration of heavy metals, the need of tests and relevant frequency of tests. The need to test packaging components and products manufactured arises when the manufacturer or importer cannot present relevant documents. While setting or modifying inventory procedures, it is a must to take into account the sources of primary and secondary raw materials, features of inseparable packaging parts as well as detailed manufacture procedures of packaging and its components. The above standard also specifies the measurement of 4 heavy metals in packaging material, including sample taking, sample preparation and measurement, and other relevant instructions. It is obvious that straightforward application of the standard would mean significant additional financial cost for companies and a loss of working time for non-productive activities.

The cost of measuring heavy metal concentration in crates and pallets can be similar and sometimes even higher than the price of the packaging itself. Usually, the price of plastic crates and pallets is within the range from several to maximum EUR 15, while the measurement price of 4 heavy metal concentration, for example in the National public health care laboratory of Lithuania, can be as much as EUR 100 per item. The measuring cost by using the X-ray XRF type device, for example Niton XLT3t 700, would be much lower, especially if the concentration of hexavalent chromium was not measured. In this case, the cost would go down to EUR 1 or EUR 2, but would still be significant in comparison with the value of packaging. Furthermore, measurement of unidentified and unmarked packaging should be followed by proper marking, otherwise the measuring itself would have little sense as this information would not be available for all the market players along the life cycle of crates and pallets. Thus, the marking cost would additionally increase the total identification cost of tested items. Taking into account a huge number of unidentified crates and pallets in use, measuring would turn into a significant financial burden for companies, which is clearly undesirable. Therefore, any legitimate inventory and management system which would allow skipping or reducing the volume of measurements would be favourable.

Commission Decision in the old EU Member States came into effect in 2001, while in the new Member States the process started later. Therefore, manufacturing companies of reusable plastic packaging, especially those in the old EU countries, have adjusted technologies in accordance with the EU legislation; thus, their production is either properly marked or does not contain critical amounts of heavy metals. In many cases, information available from the manufacturers is sufficient to judge about the level of heavy metal concentration and there is no need to perform any specific additional measurements. Purchasing products from these manufacturers might solve the problem at least to a certain extent and be an alternative to buying unmarked products, but would not affect items already in use.

An analysis was made in the study in order to justify a set-up of a country-wide inventory system for this type of packaging, which might be rational taking into account real country-specific circumstances.

Splitting of the general flow of plastic packaging and separation of items with excessive concentration of heavy metals could be arranged by applying the scheme, which was developed and displayed in Figure 1.

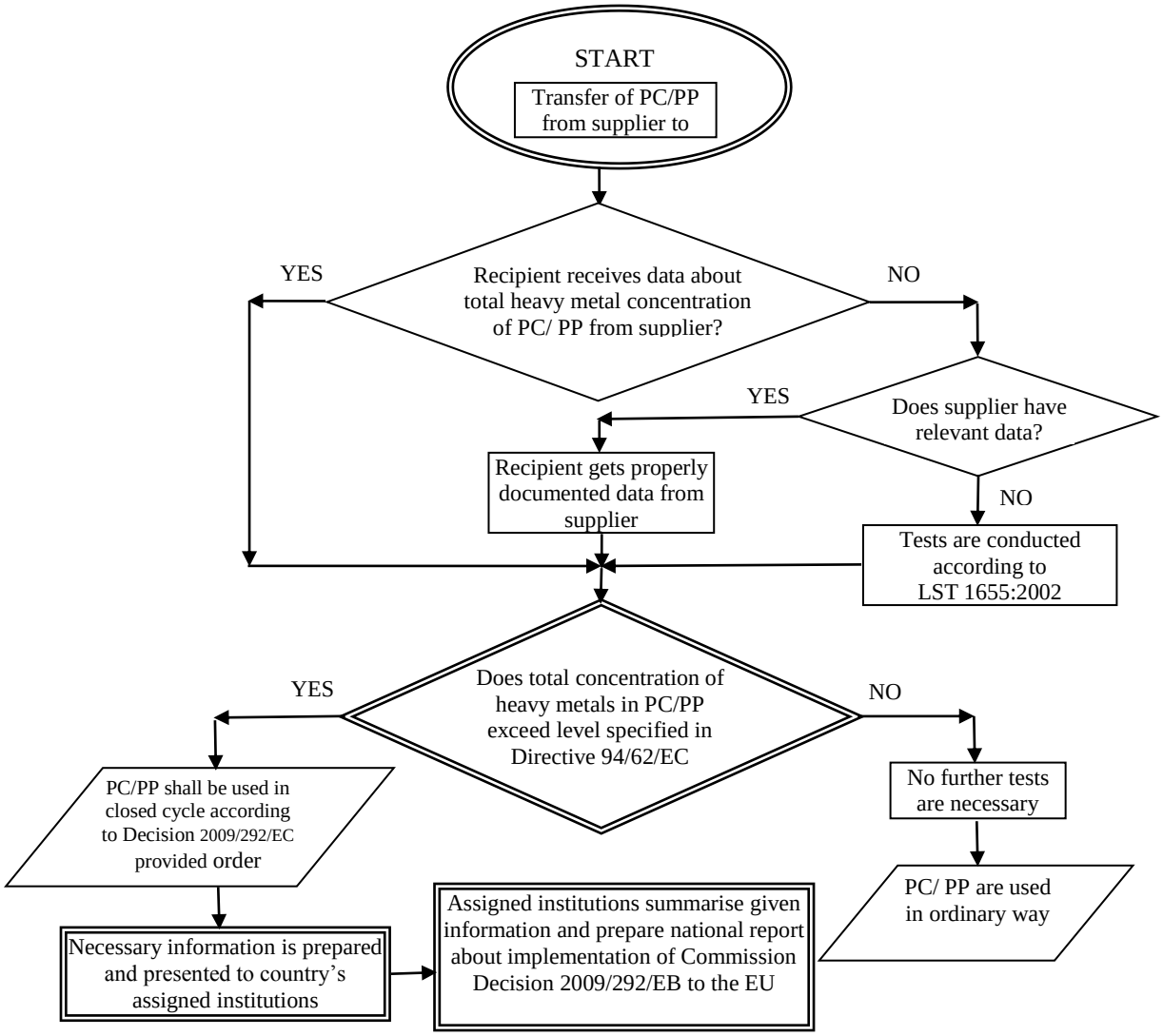

Figure 1. Decision-making diagram (decision tree) to be used for inventory of plastic packaging and separation of the flow of plastic crates and pallets with excessive concentration of heavy metals (PC/PP – plastic crates and plastic pallets).

The scheme is composed so that it can be used as a filter to prevent uncontrollable circulation of plastic crates and pallets with unknown concentration of heavy metals. Furthermore, it would guarantee that items with concentration exceeding 100 ppm, contrary to those below that level, would be exploited in a closed cycle, preventing their spread outside that cycle. By performing actions as shown in the decision-making tree step by step, the packaging recipient (owner) could ensure that verification procedure is properly conducted, which in its turn would guarantee that the supplier does not supply unidentified and unmarked crates or pallets with excessive (more than 100 ppm) heavy metal concentration, unless it is done intentionally.

The procedure described in Figure 1 would guarantee the compatibility with the requirements of the Packaging Directive and the Decision, but its weak point is that it still requires testing of all unidentified and unmarked items, which is expensive and difficult to implement.

As a result of the analysis carried out, including the analysis of experience in other countries in implementing the requirements of Commission Decision 2009/292/EC, several scenarios were developed in the study (see Figure 2), which, if applied in Lithuania, would fit the currently used accounting system and would be in line with the requirements of the Decision.

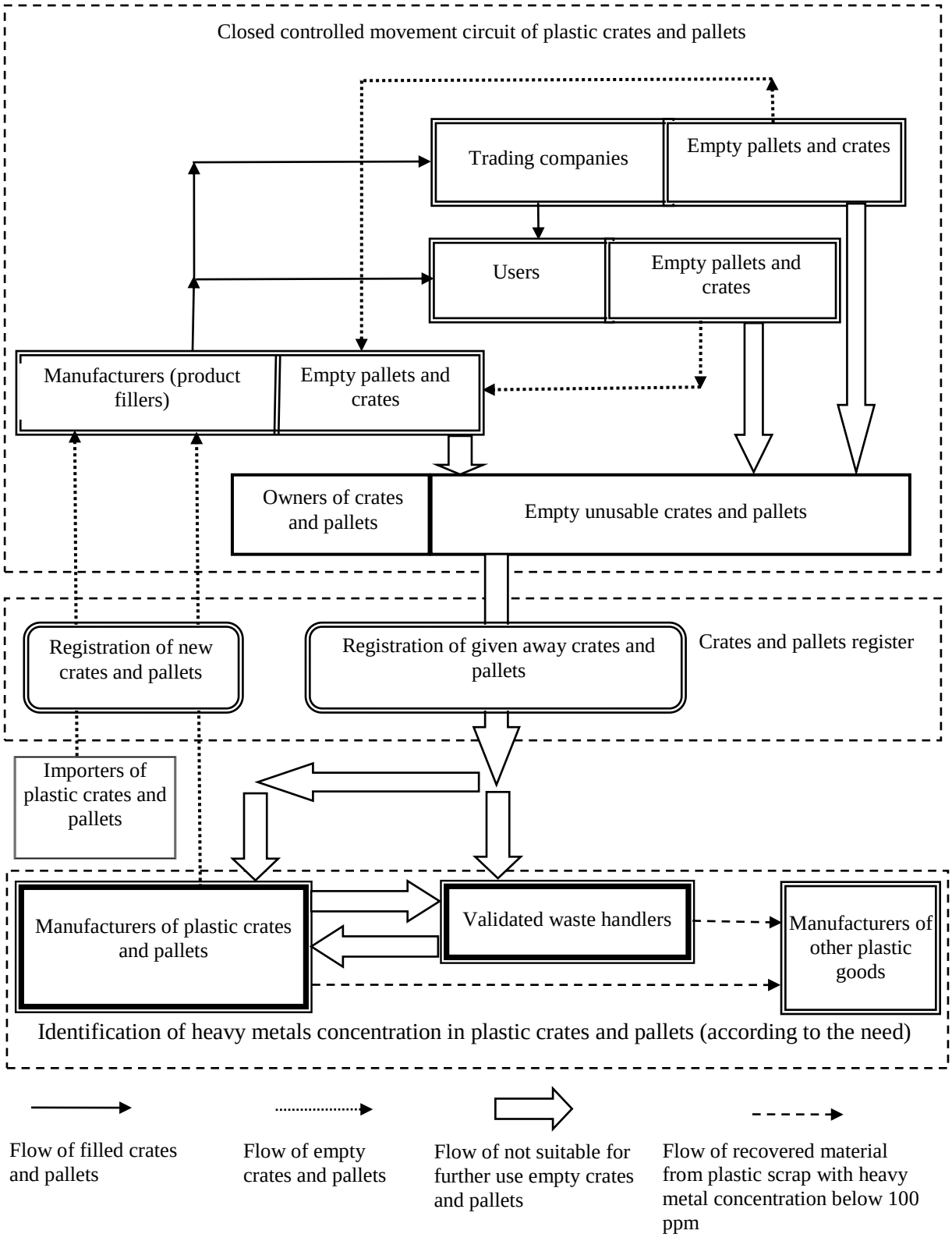

Figure 2. The management scheme of plastic crates and pallets still in use and those not suitable for further use.

The scheme presented in Figure 2 was developed with the focus on the interaction between various operators and market players dealing with crates and pallets throughout their life cycle. It is based on the current classical life cycle understanding of this kind of product, starting from manufacture, packaging, transportation, storage, marketing, usage cycles and ending up with recycling after the usage time is over. The interaction of market players in this case is arranged so that reusable packaging with unknown heavy metal concentration would be further used in a closed cycle together with those exceeding the limits until it would become unsuitable (broken, deformed, etc.). Then these products in the limits of a closed cycle should be returned to the owner, who after additional

accounting and relevant documentation would transfer (sell) them for recycling or repairing either to the manufacturer of plastic crates and pallets or to another properly validated controllable system, specialised in plastic packaging management.

The efficiency of performance of the mechanisms presented in Figures 1 and 2 is very much dependent on the set-up of ownership of circulating crates and pallets. It is important to make recipients financially tied with these products either through ownership or through a deposit system so that they would be motivated to care for the products as they have real financial value for them.

The system presented in Figure 2 is based on using data available from bookkeeping/contractual accounting conducted by owners and the environmental accounting/control systems administrated by the Ministry of Environment and, from this point of view, is similar to the principles used in other EU countries.

The principles laid down in the schemes were discussed with a number of relevant companies within the beverage and other businesses in Lithuania, which use the majority of reusable packaging. The feedback from them indicates that the demand by the Commission Decision requiring that not less than 90% of plastic crates and pallets with excessive concentration of heavy metals should be returned to the owner is realistic and the volume of lost items can be maintained within the 10% limit. That is why it would be the most appropriate to assign owners to keep records on emptied packages that are unsuitable for further use and provide the required data on them to authorities. On the other hand, manufacturers/importers of plastic crates and pallets would provide data about all items supplied to the inner market with excessive concentration of heavy metals. This information would allow following on changes in statistics of circulating crates and pallets (Article 5, Paragraph 2 of the Decision) and progress in destroying step by step the items that do not meet the requirements of EC Directive 94/62/EC, Article 11 Part 1 (Article 7 of the Decision).

If this scheme is applied in the country, no immediate measurements of heavy metal concentration of all unidentified packages already circulating in the inner market would be necessary to perform in Lithuania as well as no additional administrative structures should be established. Such a system would be safe to environment and favourable for business entities because owners of either unidentified packaging or packaging with excessive concentration of heavy metals, using it within a closed and controllable circuit and maintaining a proper inventory system, would be considered as not performing only if they deliver packaging which is unsuitable for further use to unvalidated manufacturers and waste handlers. Furthermore, an amount of measurements needed to establish the concentration level in unidentified items would be dramatically reduced and a number of business entities involved in measurements would be limited to several manufacturers of plastic crates/pallets and validated waste handlers.

4 Summary and Conclusions

In conclusion, the main findings of the study can be presented as follows:

1. Implementation of requirements set by EU Directive 94/62/EC 'On packaging and packaging waste' and Commission Decision 2009/292/EC, establishing the conditions for derogation, requires that EU Member States which intend to further use plastic crates and plastic pallets with excessive amount of heavy metals shall provide for a system of inventory and record keeping and a method of regulatory and financial accountability that enable compliance with the conditions laid down in this Decision to be documented. Besides, crates and pallets are to be introduced and kept in product loops, which are in a closed and controlled chain, preventing from their spread outside the chain during their service as well as after expiration of service time, including disposal and recycling stages.

2. Implementation of these requirements might be costly and create a significant financial and administrative burden for companies dealing with plastic crates and pallets in the countries like Lithuania, which does not have a proper inventory system and established closed product loops used in closed and controlled chains.

3. The analysis of experience gained in other EU countries, like Germany, Denmark, etc., shows that countries establish their own systems based on existing infrastructure and the set-up of cooperation between related market players. In Germany, where a big number of plastic crates and pallets falling under the regulation of the Directive and the Decision are still in use, the system with stock-taking and audit procedures was established, partly based on a voluntary initiative from the industry side, which covers regional and/or industry branch-based product loops in a closed and controlled chain and a proper recycling infrastructure. Denmark, instead, has transferred all the duties and responsibility over to business entities. Companies must declare if they use crates and pallets with an excessive amount of heavy metals. They must act in accordance with regulations while crates and pallets are in use and dispose/recycle them in a legitimate way by transferring to authorised recyclers/manufacturers at the end of their life cycle.

4. Challenges in developing a management system applicable to Lithuania arise mainly because the inventory system which has been used provides no information on the number and the volume in weight units of crates and pallets in use, or those with excessive amount of heavy metals. Disposal and recycling of crates and pallets at their end of life also present a challenging task as no product loops which are in a closed and controlled chain have been established.

5. In the paper, the decision-making tree applicable to Lithuania (and countries in a similar situation) was developed to be used as a filter preventing uncontrollable circulation of plastic crates and pallets with unknown concentration of heavy metals. Furthermore, it guarantees that items with concentration exceeding 100 ppm, contrary to those below that level, would be exploited in a closed cycle only, preventing their spread outside that chain.

6. The management system of plastic crates and pallets, requiring much less measurements of concentration of heavy metals, which is also simpler and less costly, while still maintaining its full compliance with the requirements set by EU Directive 94/62/EC and Commission Decision 2009/292/EC was developed. Several management scenarios were offered, which modify the interaction between various operators and market players dealing with crates and pallets throughout their entire life cycle so that reusable packaging with unknown heavy metal concentration is used further in a closed cycle together with those exceeding the set 100 ppm limit until it becomes unsuitable (broken, deformed, etc.). After that, these products in the limits of a closed cycle should be returned to the owner, who after additional accounting and relevant documentation would transfer (sell) them for recycling or repairing either to the manufacturer of plastic crates and pallets or to another properly validated controllable system, specialised in plastic packaging management. The management system offered guarantees that neither crates and pallets with excessive concentration of heavy metals nor those with unknown concentration are spread outside a closed cycle and cause damage to environment and/or human health.

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ES reikalavimų plastikinėms dėžėms ir padėklams, turintiems sunkiųjų metalų, įgyvendinimo problemos Lietuvoje

Alis Lebedys[1], Eugenijus Milčius[1], Kostas Bendoraitis[1], Visvaldas Varžinskas[1], Aistė Karpušenkaitė[2]

[1]*Pakavimo inovacijų ir tyrimų centras. Kauno technologijos universitetas*
[2]*Aplinkos inžinerijos institutas, Kauno technologijos universitetas*

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Straipsnyje nagrinėjamos plastikinių dėžių ir padėklų naudojimo problemos, iškilusios Lietuvai, įgyvendinant Europos Sąjungos aplinkosauginius reikalavimus, suformuluotus Europos Parlamento ir Tarybos direktyvos 94/62/EC dėl pakuočių ir pakuočių atliekų 11 straipsnyje bei šio straipsnio reikalavimų išlygas detalizuojančiame Europos Komisijos sprendime 2009/292/EC.

Nors Direktyva draudžia naudoti pakuotes, kurių 4 sunkiųjų metalų (švino, kadmio, gyvsidabrio ir šešiavalenčio chromo) koncentracija viršija 100 ppm, Sprendimas 2009/292/EC, priešingai, leidžia jų naudojimą, jeigu laikomasi nukrypimo sąlygų, pateiktų Sprendime. Sprendimo įgyvendinimas reiškia, kad kiekviena dėžė ir (ar) padėklas, esantis rinkoje su 4 sunkiųjų metalų koncentracija didesne nei nustatytas lygis, turi būti identifikuota, apskaityta ir sekma tol, kol ji yra naudojama, o naudojimo pabaigoje turi būti pristatyta į kontroliuojamą perdirbimo sistemą ir galutiniai perdirbta Sprendime nurodytu būdu. Taigi tokios sistemos įgyvendinimas šalies mastu kelia rimtą iššūkį šaliai, kadangi ES teisė nepateikia jokių bendrų reikalavimų tokiai struktūrai ir palieka tai spręsti šaliai.

Straipsnyje aptariami susisteminti ir apibendrinti ES valstybėse narėse taikomi plastikinių dėžių ir padėklų, su padidintu sunkiųjų metalų kiekiu, naudojimo principai, kuriuos žymiu mastu lemia valstybės situacija: nuo detalaus reglamentavimo ir atitinkamų įteisintų institucijų įkūrimo, kas būdinga, pvz., Vokietijai, iki šių pakuočių disponavimo deklaravimo, kurį atitinkamais būdais valstybėje vykdo patys verslo subjektai. Aptarti šių pakuočių naudojimo Lietuvoje ypatumai.

Darbe pasiūlyti ir išanalizuoti keli galimi alternatyvūs direktyvos 94/62/EC reikalavimų įgyvendinimo Lietuvoje scenarijai, kurie lyginami tarpusavyje, o taip pat ir su analogiškomis kitų ES šalių sistemomis. Straipsnyje pateikta galima sprendimų priėmimo principinė schema (sprendimų medis), įgalinanti inventorizuoti ir atskirti plastikinių dėžių ir padėklų, su skirtinga sunkiųjų metalų koncentracija, srautus, bei dvi galimos mūsų šalyje taikyti plastikinių dėžių ir padėklų identifikavimo ir apskaitos sistemos, pagrįstos ES šalyse taikomu savininkų vedamos gaminių srautų buhalterinės (sutartinės) apskaitos suderinimo su aplinkosaugine apskaita (kontrole) principu, leidžiančios reikšmingai sumažinti privalomų sunkiųjų metalų koncentracijos plastikinėse dėžėse ir padėkluose matavimų apimtis ir privalančių tai daryti verslo subjektų skaičių. Siūlomi sprendimai gali būti naudingi ir kitoms ES valstybėms narėms, kuriose plastikinių dėžių ir padėklų apskaitos ir tvarkymo sistemos panašios į aptariamą straipsnyje.

Raktiniai žodžiai: *plastikinės dėžės, plastikiniai padėklai, sunkieji metalai, pakuotė, sprendimų priėmimo schema, identifikavimas ir apskaita.*