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USE OF RECYCLED FIBERS FOR PAPER AND BOARD IN FOOD CONTACT

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INTRODUCTION

Considerable quantities of recycled fibers are used in European countries for paper and board intended to come into contact with foodstuffs. This paper should give information on the situation and development in the field of availability and utilisation of recovered papers in 14 European countries. Analyses of packaging products, raw materials, market share, food contact and recovered paper grades are made.

Obviously, there is much perplexity and concern in terms of risk for consumers due to the use of such materials. In many cases, ignorance and a lack of knowledge lead to wrong opinions and positions. Facts are often not known or sometimes deliberately ignored.

There is no European legislation for paper and board intended to come into contact with foodstuffs, as it is existing for plastic materials. Various regulations exist in this field with very different requirements, approaches and tolerances. Only in some countries - Germany, Italy, the Netherlands - more or less clear regulations are available. This paper takes a look at the main current regulations and their applications in other countries, to the practical usefulness and gives an overview on the technical aspects of this problem. An example how Austrian mills check the quality and the safety of recycled fiber board for food contact is given.

FIGURES ON RECOVERY AND RECYCLING

PAPER AND BOARD PRODUCTION, CONSUMPTION AND RECOVERY

- The following figures show the situation and development in the field of availability and utilisation of recovered papers in 14 European countries [1]. Development of Production and Recovery:

Year	Production in 1000 tonnes	Recovery in 1000 tonnes	Utilisation %
1994	72 146	29 121	40,40
1995	72 996	30 493	41,77

Even if there was a big effort to increase recovery in some European countries, the result of 3.3 % increase of utilisation rate was moderate. One reason is the fact that in some countries the utilisation rate has been very high for many years [2] .

For years Austria has had the highest rate of waste paper collection, 1996 it was more than 70 %. The following Figures show the waste paper consumption in Austria and the percentage of collection (% collected of used paper and board) in European countries.

Fig. 1. Waste paper consumption in Austria in 1000 tons

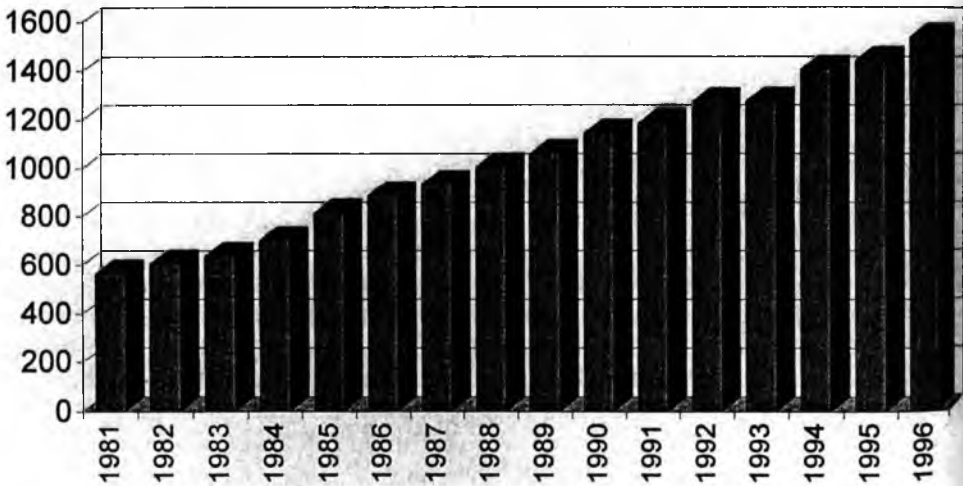
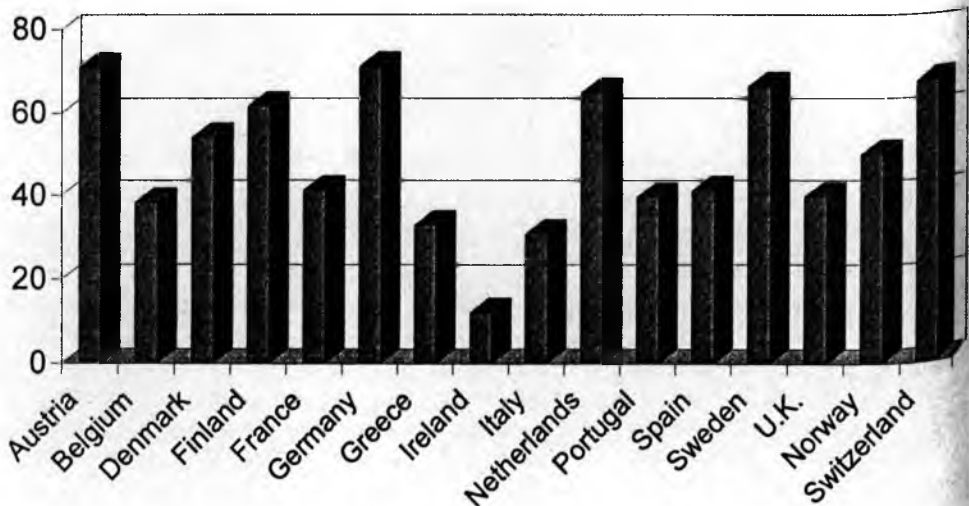


Fig. 2. Waste paper collection in %



Recovered Paper and Board Consumption in Relation to Total Use of Recycled Fibres in Europe

Percentage	Countries	total tonnes	share %
less than 2	5 (B, DK, SF, N, P)	1 771	5,8
3 to 10	5 (A, NL, E, CH, S)	8 150	28,1
11 to 28	4 (I, F, UK, G)	20 150	66,1

That means two third of the whole quantity of recovered papers is used in 4 countries.

- Recovery rates (Recovered Paper and Board as % of Paper and Board Consumption)

29-39%	6 Countries	B, I, F, P, SF, UK
40-47%	3 Countries	DK, E, N
59-66%	5 Countries	A, CH, G, NL, S

In 6 countries the recovery is less than 40 %.

- Utilisation rates (Use of Recovered Paper and Board as % of Total Production of Paper and Board)

less than 5%	1 country	SF
10-31%	4 countries	N, S, B, P
40-60%	4 countries	A, F, I, G
61-73%	4 countries	UK, CH, NL, E

For Denmark no exact figures are available due to moulded products (utilisation rate 100 %)

There are only 5 countries with a utilisation rate of less than 30 %.

- Paper products and Recovered Paper and Board Consumption

Product	Tonnes 1000	Utilisation rate %		Use of Recovered Papers		
Newsprint, Graphic Papers	37 347	16,2	16,2	6 064	6 064	19,9
Case materials	19 276	77,4	69,7	14 913	20 146	66,1
Folding boxboard	6 909	55,0		3 800		
Wrapping and Packaging P.	2 717	52,7	1 433			
Tissue	4 384	70,6	63,6	3 097	4 283	14,0
Others	2 363	50,2		1 186		
Total	72 996	41,7		30 493		100

Two third of the recovered paper and board usage in Europe are in the field of packaging materials.

RECOVERED PAPER AND BOARD GRADES AND ITS USE IN PAPER AND BOARD PRODUCTION

The figures given are based on a survey of CEPI Recycling-Committee (Confederation of European Paper Industries). Because of a lack of information about different recovery systems, it was tried to find more details about the usage of recovered papers through general data on paper products. As there is no information on Food Contact Paper and Board available, they analysed in quantity and grades all the packaging materials using recycled fibers. This was the most efficient way to get results (Data not published.)

• Recovered Paper and Board Consumption in Packaging Products

Product	Total Production	Utilisation Rate %	Total Use of R.P&B	Mixed	Corrug.	Deink.	Other higher grades
Case Mat.	19 276	77,4	14 913	3 664	10 506	454	289
Fold Boxb.	6 909	55,0	3 800	1 355	735	1 112	598
Pack. Pap.	2 717	52,7	1 433	612	414	258	149
Total Pack.	28 902	69,7	20 146	5 631	11 655	1 824*	1 036

* 1 824 000 tonnes of deinking grades are used, only 580 000 tonnes are effectively deinked.

• Recovered Paper and Board Consumption in Non-Packaging-Products

Product	Total Production	Utilisation Rate %	Total Use of R.P&B	Mixed	Corrug.	Deink.	Other higher grades
Newsprint	9 694	46,8	4 537	55		4 438	44
Graphic P.	27 653	5,5	1 527	131	22	718	656
Tissue	4 384	70,6	3 097	184	37	2 046	830
Other P.	2 363	50,2	1 186	228	615	296	47
Total Pack.	44 094	23,4	10 347	598	874	7 498	1 577

• Deinking

Year	Total Deinking 1000 tonnes	% of total rec. P & B	Deinking 1000 tonnes in Pack Mat.	% of total rec. P & B	% of total deinking	% of total Pack. Mat.
1994	8 995	30,6	518	1,76	5,76	1,8
1995	10 033*	32,7	581*	1,9	5,79	2,0

* estimated because of new facilities being installed

One third of all recovered papers utilised in Europe is used as deinking grades, but only 5.8 % of the installed deinking-capacity is for the manufacture of packaging products. That means that on average packaging materials contain less than 2 % of all recovered papers and boards in form of deinked pulp.

- Groups of Recovered Paper Grades (according to EN 643 [3])

Mixed Grades (A 0, 1, 2, 3, 7, 9, B 3)	6 586 000 to
Grades for Corrugating (A 4, 5, 6, D 0, 1, 3, 4, 5, 6)	12 167 000 to
Deinking Grades (A 8, 10, 11, B 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, C 1, 2, 3, 5, 6, 7, 10)	9 270 000 to
Others, incl. higher Grades (C 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19)	2 470 000 to
<u>Total Recovery</u>	<u>30 493 000 to</u>

There are unimportant quantities in category "Others" available, which could be addressed as Preconsumer Qualities (Post Industrial Waste, PIW).

- Total Recovery divided up into Recovered Paper Grades and Sectors of Use

Recovery	1000 to	%	Mixed Grades	%	Corrug. Grades	%	Deinking Grades	%	Higher Grades	%
Total	30 493	100	6 586	100	12 167	100	9 270	100	2 470	100
Pack Mat.	20 146	66,1	5 631	85,5	11 655	95,8	1 824	19,7	1 036	41,9
Case Mat.	14 913	74,0	3 664	65,1	10 506	90,1	454	24,8	289	27,9
Grey Board	1 500	7,5	1 100	19,5	300	2,6	100	5,5	0	
Fold. Boxb.	2 300	11,4	255	4,5	435	3,7	1 012	55,6	598	57,7
Pack. Pap.	1 433	7,1	612	10,9	414	3,6	258	14,1	149	14,4

RAW MATERIAL FOR PACKAGING USE

ANALYSES OF PACKAGING PRODUCTS (RAW MATERIALS, MARKET SHARE, FOOD CONTACT USE)

1. Case Materials (all kind of corrugated containers, solid heavy substance boxes, trays etc.)

Virgin Fiber (used as 100 % virgin [Liner and Fluting] or 100 % for single plies as Liner or for blending with

22,6 % = 4 363 000 to

recovered fibers)

Recovered Paper and Board (used as 100 % recovered paper and board [Testliner and Fluting], or 100 % for single plies, as Fluting, for blending with virgin fibers and as fibers for Solid Boards)

77,4 % = 14 913 000 to

Total fiber consumption

19 276 000 to

Food Contact Use

11 565 000 to

About 60 % are in some way in contact with food. Examples for no direct contact are transport containers, multipack units, trays sometimes shrink-wrapped; direct contact, mainly short-time or for products to be washed or peeled like boxes for fruits and vegetables, containers for frozen meat and fish. More detailed figures are not available.

2. Folding Boxboards (all kinds of retail-boxes for non-food articles such as shoes, detergents, hardware, toys, blisterpacking, cigarettes, cosmetics, pharmaceuticals, all kind of food packaging like liquid packaging, frozen food, dry food, pet food)

<u>Total Folding Boxboard 1995</u> 6 910 000 tons			
<u>Virgin fiber based</u> 1 110 000 tons = 45% from it 1 500 000 tons for LPB = 1 610 000 tons		<u>Recycled fiber based</u> 3 800 000 tons = 55% from it 1 500 000 tons Greyboard = 2 300 000 tons	
Non Food Appl.	Food Appl.	Non Food Appl.	Food Appl.
481 000 tons = 30%	1 127 000 tons = 70%	1 150 000 tons = 50%	1 150 000 tons = 50%
Non direct food contact (PE coated, trays, inner layers, bag in box etc.)	902 000 tons = 80%	No direct food contact	977 000 tons = 85%
Direct Food contact	225 000 tons = 20%	Direct food contact	173 000 tons = 15%

Note: The figures for direct contact are established as a result of two surveys with 190 foodpackagings in 9 European countries and another 470 foodpackagings in Germany and Austria (unpublished).

3. Packagings and Wrapping Papers (all kind of papers used for wrappings, bags, sacks)

Virgin fibers

47 % = 1 277 000 to

Recovered fibers

53 % = 1 440 000 to

Food Contact Use (Virgin fiber based papers are used for wrapping of all kinds of food, like bread, fruits, bags for sugar, flour, salt. It might be coated with PE or impregnated and used for wrapping of meatproducts or as functional bag in box etc., estimated ratio food about 60 %

766 000 to

Recovered fiber based papers are also used in contact with dry food, like bread, fruits, vegetables and coated with PE for similar applications as virgin materials estimated ratio food about 35 %)

500 000 to

From the total Packaging Material about 60 % are in some kind in food contact, but only about 10 % in direct contact with food. From the total Recycled Fiber Packaging Materials about 50 % are in the field of Food Packaging, only 7 % of it in direct contact with dry food. The rest is used in non direct contact or short-time-contact as well as with food which is to be washed or peeled.

REGULATORY ISSUE

Various regulations exist in this field, with very different requirements and tolerances. Within the European Community there is no homogeneous legislation for paper and board intended to come in contact with foodstuff. Only some countries have their

own laws on paper and board for food-contact and some have laws and regulations for commodities. The first directive of the European Community on commodities was enforced on 26 of November 1978 (76/893/EEC) and after being changed different times the valid version is 89/109/EEC now [4]. It is stated, that the amount of substances that could migrate must be so negligible that there is

- No endangering of human health
- No influence to the sensoric properties of food
- No unacceptable change in the composition of the food

In the introduction of 89/109/EEC the inertness of a commodity is quoted as a necessary property to fulfill the requirements. In the directive 90/128/EEC [6] for plastic a limit of global migration of 10 mg/dm², is used. It was agreed that the limit of 10 mg/dm², of the commodity or the calculation of the limit to 60 mg/kg food fulfills the requirement of inertness except the substance is toxic or relevant to sensoric properties. In future the framework for directives for food-packaging will be this directive 90/128/EEC, valid only for plastic today. It is clearly stated that this directive is not valid for paper and board. The same refers to all existing amendments [7, 8, 9, 10].

Additional regulations for paper and board intended to come into contact with foodstuffs exist in Germany, Finland, Netherlands, France, Belgium and Italy. Some of them are recommendations and not regulations and others are not very clear and offer the possibility of different interpretations.

Germany

Most of the countries without own or unclear regulations for paper and board in food-contact use the Recommendation XXXVI from Germany [11]. The food contact legislation in Germany is given in the Lebensmittel- und Bedarfsgegenstandesgesetz (LMBG) [law on foodstuff and commodities] which is a very general text [12], but the wellknown and clear statements are in Recommendation XXXVI. The Recommendation XXXVI, as it is, has no legal value, but a very valuable guide for manufacturers, fillers and endusers. It is the result of a consensus between industry, analytical laboratories and authorities. To fulfill the requirements of Recommendation XXXVI makes you sure to fulfill the German law. Many criteria are given, for example limitations for formaldehyde, pentachlorophenole, polychlorinated biphenyles, biocides, heavy metals etc. The same limits are valid for paper and board independent if they are made of virgin or recovered fibers.

One important part of the document is the positiv list. In this list all authorised substances which may be used at any production step are included, some of them with limits of use and/or with limits in the finished product. In this positiv-list also the grades of recovered paper which may be used for the production of paper and board intended to come into contact with foodstuff are detailed. The use of recycled fibers is definitely authorised, but with certain limitations. The recommendation refers to a list of categories of recovered papers which may be used for different applications. For the contact with moist or fatty food only high grades of recovered papers (i.e. very clean, unprinted papers) may be used, for contact with dry food and those which are peeled or washed before consumption also other categories of recovered papers can be used. However unsorted papers and boards from household waste collection and paper and board sorted out from household waste are never permitted in any case.

Italy

Italy has a very complete legislation for paper and board intended to come into contact with foodstuffs, too [13]. Purity criteria and positive lists as well as a classification of foodstuff are provided. Also analytical methods are given, but some of them – especially for migration tests – are identical to the analytical methods for plastic. If so, the decree demands to do a similar method to check paper and board if it is not possible to do the test with the method described. The similar method is up to you and this is a very weak point within this decree. The use of recycled fibers is allowed, provided that there is no bleeding of optical brighteners with distilled water and the purity requirements for polychlorinated biphenyls and lead are fulfilled. That seems to be very stringent, because most recovered papers can contain some amounts of optical brighteners, but there is an amendment that deals with boards of a grammage $> 200 \text{ g/m}^2$ [14]. If so, and the board has at least three layers, the ply in contact with the food is the back layer and has a grammage of more than 35 g/m^2 only this ply has to fulfill the requirements of the ministerial decree of 21 March 1973. That means also that recovered paper which does not fulfill the requirements may be used in inner and outer plies. In this case the board may be in contact only with dry and nonfatty food. Such foods are listed in the decree as for example dry cereals also in the form of meal, pasta such as spaghetti, bakery without fat on the surface, sugar, salt, dry legumes also in the form of meal, fresh legumes that have to be peeled or washed, tea bags etc. Such a back layer is considered as a kind of functional barrier due to its composition and due to the very low absorption properties of the listed food.

France

A more or less unclear legal text exists in France [15]. Though no purity criteria are given, the key idea is inertness, stating that no substances should be transferred from the packaging to the foodstuff in quantities sufficient to modify the composition or organoleptic characteristics or to endanger human health. The French legislation is unclear about the use of recovered fiber. Recycled papers and boards have been used for decades in some applications without conflict with the authorities, but at present there are some interpretations that the use of recovered fibers might not be permitted for the production of food-contact paper and board.

The contact with dry food may be considered as tolerated as can be inferred from recommendations from the enforced authorities [16]. On request the French Administration invites industry to show the absence of risks for the customer, they require a Safety Dossier. This is a very important issue of shared responsibility of material producer and authorities. The safety assessment is carried out and under the responsibility by the producer and then, validating the assessment the authorities accept to endorse a part of the responsibility. To make the situation clearer a Guide for Good Manufacturing Practice was elaborated [17] for all kind of recycled papers except for packaging of dry food.

The Netherlands

The Netherlands have regulated the use of paper and board for food-contact in Warenwet [18]. The use of recovered papers and boards is authorised. It is quite as clear as the German Recommendation XXXVI and contains not only compositional limits but also some migration limits.

Other European countries

Other countries have no very clear regulations. In Belgium [19] the decree of 11 May 1992 is valid for metals, paper and board and glass. In Greece and Austria it is regulated in the Food Codex, no clear regulations are given, the use of recovered fibers is authorised. In Austria there exists a law from 1975 but no clear accomplishment like Recommendation XXXVI of Germany. Sweden recommends not to use recovered papers and boards without showing the possibility and that there is no risk for the user. Finland stated in Decision 143/93 of 29 January 1993 that paper and board made from recovered fibers should only be used for food that will be peeled or washed. More or less all countries accept the German Recommendation XXXVI.

Council of Europe

A Committee of Experts for Materials coming into Contact with Food is also dealing with the Resolution on paper and board intended to come into contact with foodstuffs.

The Resolution has the status of a recommendation for member states, which should be considered in their national laws. The principles, specifications, test conditions, methods of analyses and the inventory list (list of chemical compounds) are included in the appendix of the resolution.

Another appendix will be the "Guidelines on recycled fibres". It has the status of a technical document. Paper and board, partially or 100 % made from recovered paper and intended for food contact, have to comply with the requirements of the resolution and are subject to additional requirements to ensure their safety in use.

A "Guideline for manufacturing practice of paper and board products intended to come into contact with foodstuffs" is going to be prepared as well. This Guideline is also a technical document, covering paper and board products manufactured from virgin fibres as well as recycled fibres.

The GMP will describe and recommend manufacturing steps (processing) and control prints (quality assurance) like a management system.

USA

In the USA exists a very complex legislation. There is no body of laws covering the whole food law and no body of laws that is limited to food. The legislation is task of different ministries. Working basis is the Code of Federal Regulations (CFR), a collection of laws of all ministries. This CFR is split up into 50 parts, in some of them the law for food is included. GRAS (generally recognized as safe) substances of biological nature are listed in part 182, title 21 CFR. Substances used or tolerated before 6.9.1958 and are not explicitly forbidden are "prior sanctioned food ingredients". There are also positive lists: "Prior sanctioned ingredients" are found in part 181, title 21 CFR, others ingredients in parts 174 to 178, title 21 CFR. Permission of new substances depends on migration and specific migration limits.

SAFETY ISSUES

Existing literature about the use of recovered fibers for food contact is mainly a look to specific topics. Only few reviews are available. In Nordic countries you will find some warnings against recovered fibers, very often only looking to the difference in the amount of one or a small number of substances and taking no notice of the fact

that all samples are within the legal limits. Very often there is a comparison of grades with different use ignoring this topic. It is possible to find such papers about heavy metals, about the microbiological contaminations and some organic substances like PCB (polychlorinated biphenyls), PCP (Pentachlorophenole), formaldehyde, dioxins and so on.

Survey studies show that paper and board made from recycled fibers and produced in an adequate way can be used for the direct contact with food without any risk. One of them, made by Krauß and Münnich on behalf of the Ministry of Environment and Traffic of Baden-Württemberg (Germany), gives an overview about the situation on load of chemicals in recovered and recycled papers and boards [20]. They state that inspite of the high amount of use of recovered fibers there is no irresponsible accumulation of harmful substances.

A longtime study on board intended to come into direct food contact was made by ISEGA in Aschaffenburg (Germany). They stated that due to selection of raw materials and adequate cleaning steps within the production-process it is possible to be at least within the limits, very often lower than the detection limit [21]. The determinations were made based on Recommendation XXXVI, Warenwet and DIN EN 71 [22]. Examples for PCP (Pentachlorophenol), PCB (polychlorinated biphenyles), formaldehyde, glyoxal, lead, cadmium, mercury and chromium are shown in the charts below. The average (\square) and the maxima (\blacklozenge) of monthly production are shown. \blacksquare means under the detection limit.

Fig. 3. PCP content in cartonboard in mg/kg, (Limit 0,3 mg/kg)

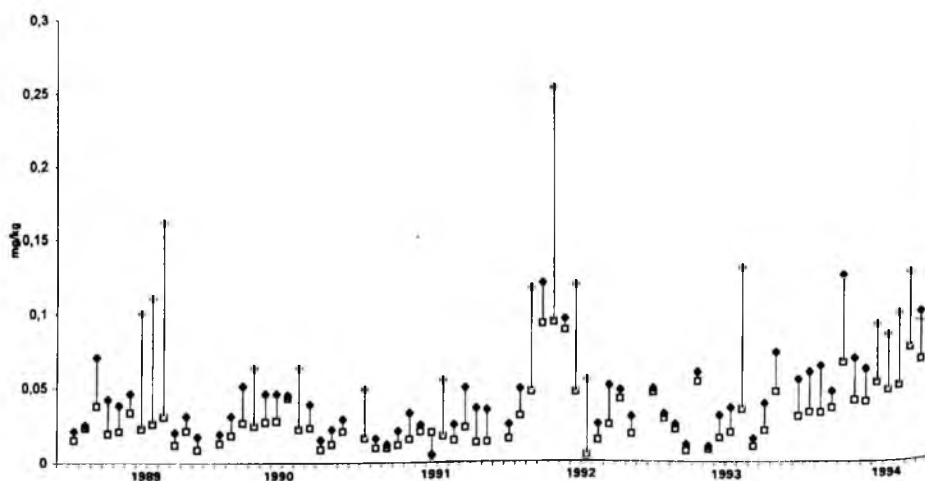


Fig. 4. PCB content in cartonboard in mg/kg, (Limit 2 mg/kg)

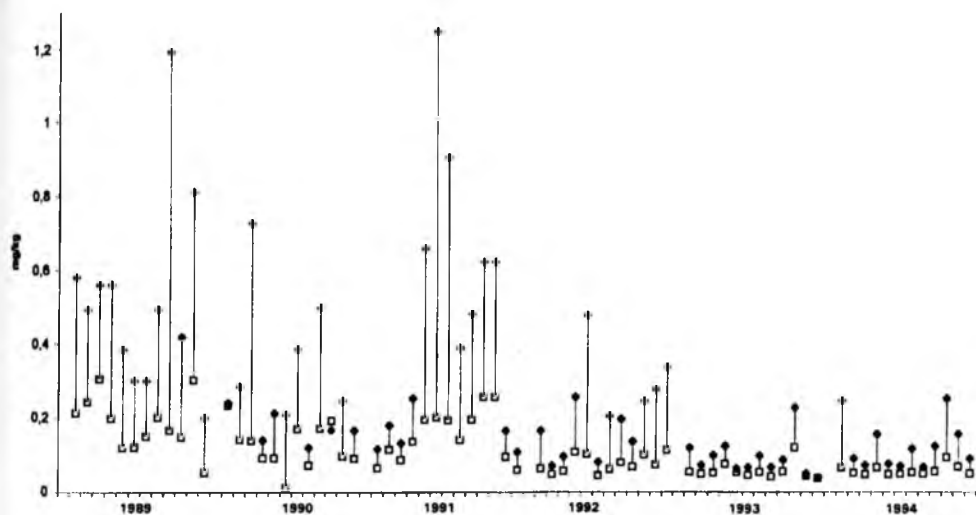
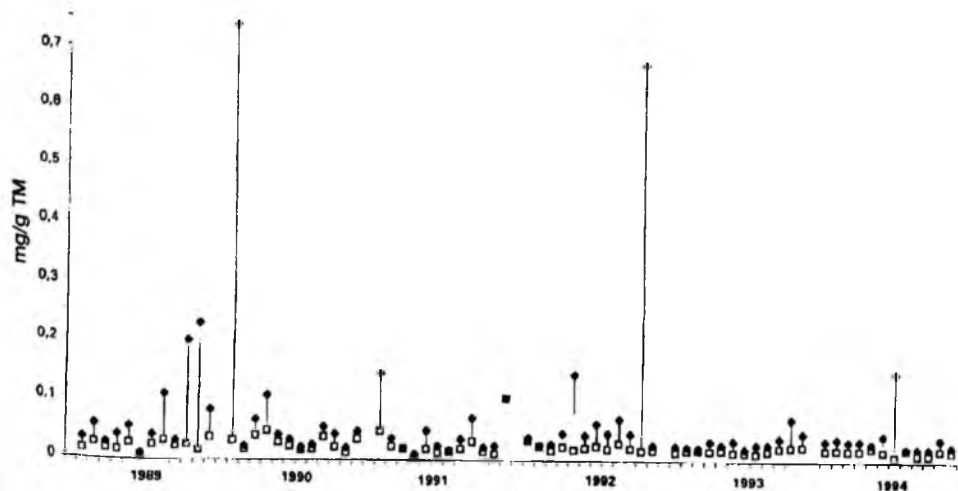
Fig. 5. Formaldehyd, migration to cold water extract in mg/kg, (Limit 1 mg/dm²)

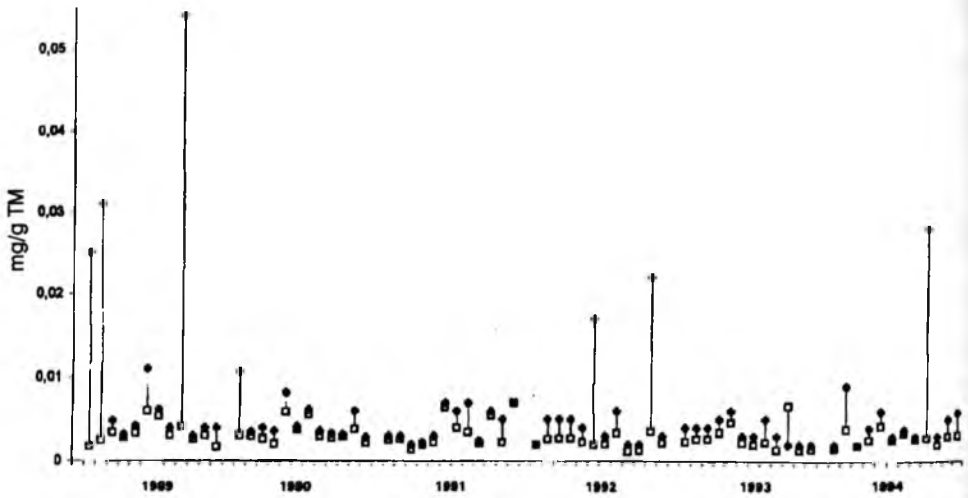
Fig. 6. Glyoxal, migration to cold water extract in mg/kg, (Limit 1,5 mg/dm²)

Fig. 7. Lead, migration to cold water extract in mg/kg, (Limit 3 mg/kg)

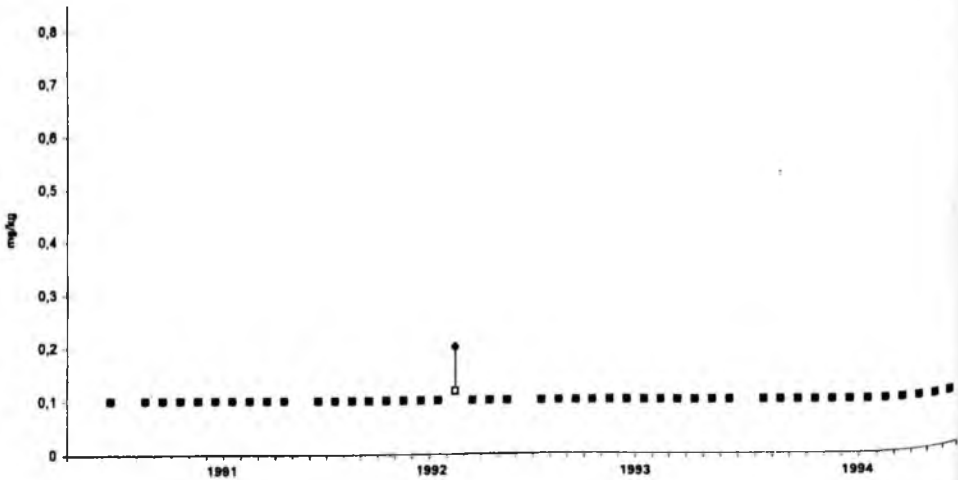
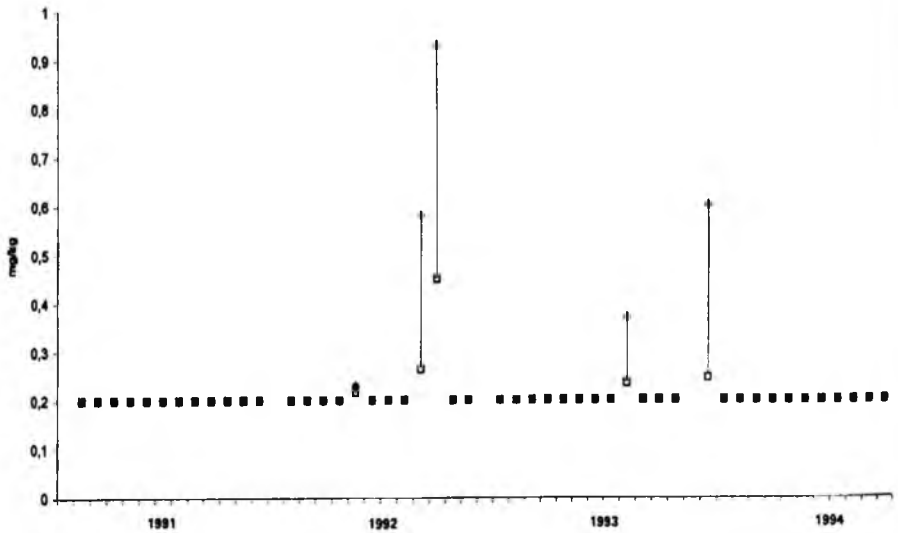


Fig. 10. Total Chromium, migration to cold water extract in mg/kg, (Limit 3mg/kg)
(Note: Hexavalent chromium is not detectable in all samples)



They checked also the bleeding of optical brighteners if there is a contact with fatty foods and the bleeding of biocides. Since 1993 they determined also primary and secondary aliphatic amines and if found, far below the limit of Warenwet or Recommendation XXXVI.

Table I. Migration of germs from packaging to food

	CFU/g Bacteria	CFU/100cm ² Bacteria	CFU/g Yeast	CFU/g Moulds	CFU/100cm ² Yeast and Moulds
1 Paper, virgin	2,7.10 ² - 1,6.10 ⁶	16 - 96	< 100 - 2,8.10 ⁵	< 100	0 - 19
2 Paper, recycled	1,1.10 ⁴ - 6,7.10 ⁶	18 - 24, edge	< 100 - 1.10 ⁵	< 100 - 1.10 ²	0 - 137
Pizza in paperboard	1,5.10 ⁴ - 1,1.10 ⁵	0 - 68, edge	< 100 - 1,8.10 ³	< 100 - 1.10 ²	0 - 24
B Pizza original	1,5.10 ² - 2,4.10 ⁴	0 - 8	< 100	< 100	0
A Pizza Autoclaved	< 100	0			0
Transfer 1 → B		0 - 2 (0,4)			0
Transfer 1 → A		0 - 4 (1)			0 - 1 (0,06)
Transfer 2 → B		0 - 4 (1,2)			0 - 1 (0,06)
Transfer 2 → A		0 - 3 (1)			0

A survey of the contamination of paperboard with germs and their migration is given by TEGEWA [23, 24]. They state that there is also no microbiological risk in the use of recovered fibers. An example for packaging of pizza is given in Table I. Mayr-Melnhof has a close cooperation with the Hygienic-Institute of the University in Graz. In a longtime study board was determined to pathogenic germs. *E. coli*, *Coliforms*, *Streptococcus*, pathogenic *Clostridia* and *Listeria* could never be detected (paper in preparation).

No pathogenic germs were found.

Differentiation of migrating germs: Coagulase negative micrococci
Streptomyceae
gram positive, oxidase negative rods

Remarks: From 4 recycled fiber boards the board with the highest germination number was chosen. The tests were made in 3 different independent labs. Every lab did it 5 times.

MAFF (Ministry of Agriculture, Fisheries and Food) in UK studies on the migration from paper and board food packing materials. You will find examinations about phthalates [25], amine monomer from wet strength agents [26], curing agents [27], fluorescent whitening agents [28] and grease proofing agents [29] and more global overview about migration from paper and board [30] where it is stated, that the levels in the paper and board and consequently maximum potential levels of transfer to packed foods were generally found to be low and the need for migration test is doubtful. In an other survey made on pentachlorophenol (PCP) in paper and board packages used for retail food [31] MAFF detected PCP in same samples, though no PCP was found in packed food at a detection limit of 10 $\mu\text{g}/\text{kg}$.

TRACER TRIAL AT A BOARD MILL

In a trial it was simulated what happens when harmful substances are added into the pulper. The simulated accidental and unintentional input of 200 kg of a chemical substance is far of any reality.

At board machine III in Frohnleiten, Austria, there was a white lined chipboard produced for a detergent packaging, grammage 310 gsm, mean production 27 t/h. In a continuous running pulper for the middle ply (70 m³ filled with approx. 2 t dry weight of fibers) an input of 200 kg LiCl = 32.7 kg Li⁺ within 5 minutes (Dirac impact) was given. Samples were taken from every role, mainly from the middle position of the web, but also for checking the distribution from operating and drive side.

After approximately 100 minutes the maximum concentration of lithium in the board was obtained. According to the water circle of this mill, the amount of lithium in board decreased after a sharp maximum in a moderate way.

The maximum amount of the added lithium in the board was about 0.46 mg lithium per 6 dm². Assuming that all the lithium is able to migrate into the foodstuff, the maximum increase would have been 0.46 mg per kg foodstuff. The overall migration limit of a verified non toxic substance is fixed within the EC (directive 90/128/EEC) with 60 mg per 6 dm².

If we consider, that a substance of 2 kg, which has similar properties like the used tracer, might pass accidentally the control of recovered paper input into the production system, an increase up to 0.0046 mg lithium per 6 dm² would be expected.

The tracer compound lithiumchloride is an inorganic salt, it cannot be degraded in biological water treatment systems. The amount of organic substances would decrease because of biological degradation effects.

So, what we can learn out of this test is that even an accidentally added substance will not increase the amount of this substance in board to a critical concentration level.

PRACTICE EXAMPLE

I will give you an example how board for contact with food is produced in an Austrian mill based on GMP and how a regulary control by independent institutes is done.

Fig. 11. Incoming Control – Fiber Materials

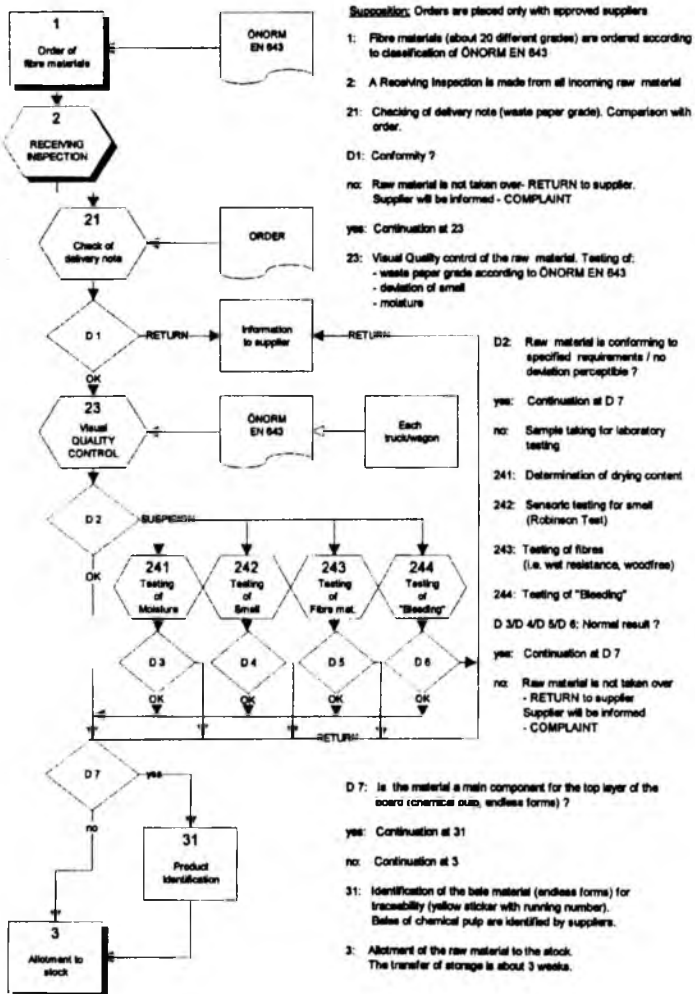


Fig. 12. Quality Control – Cartonboard

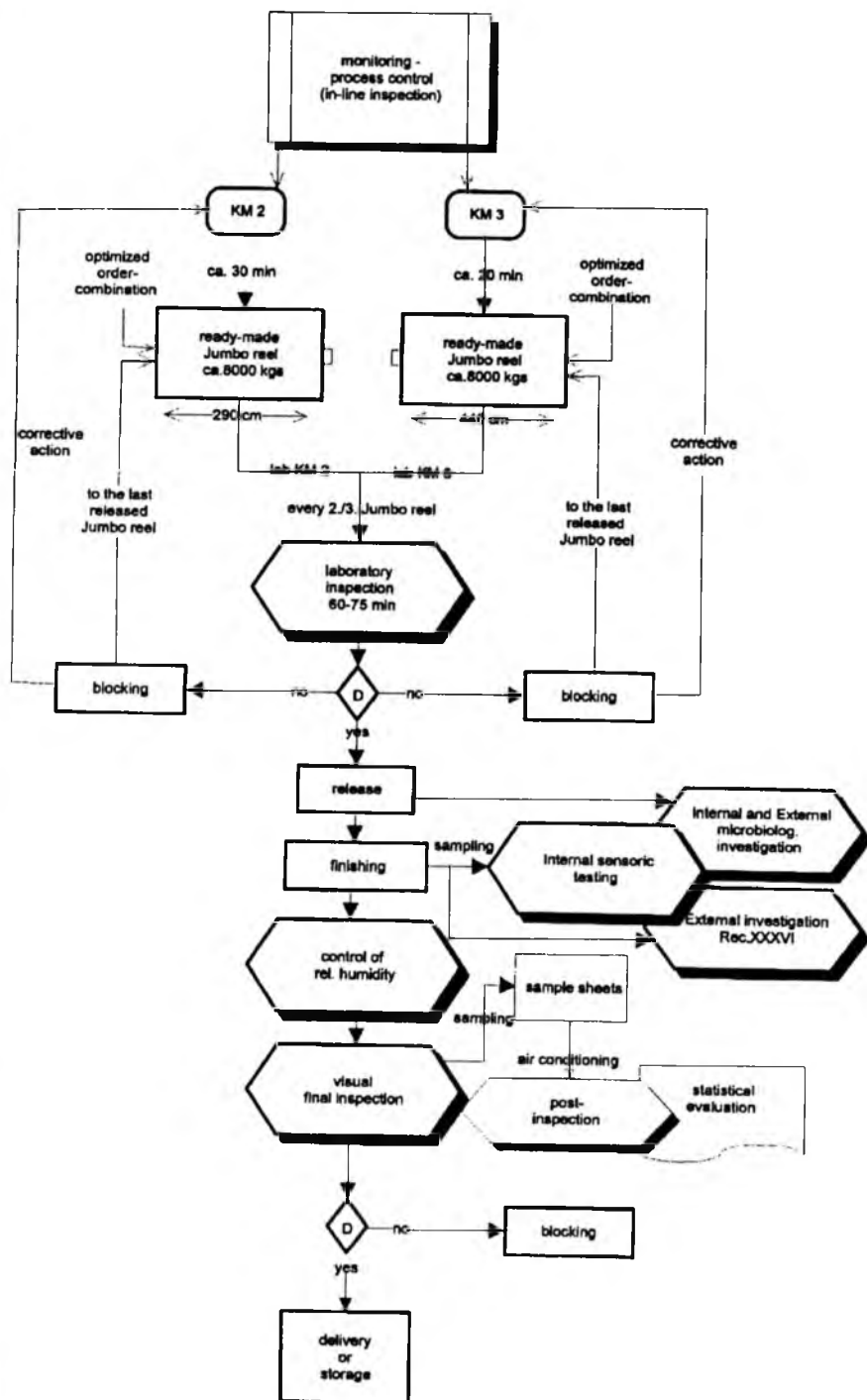
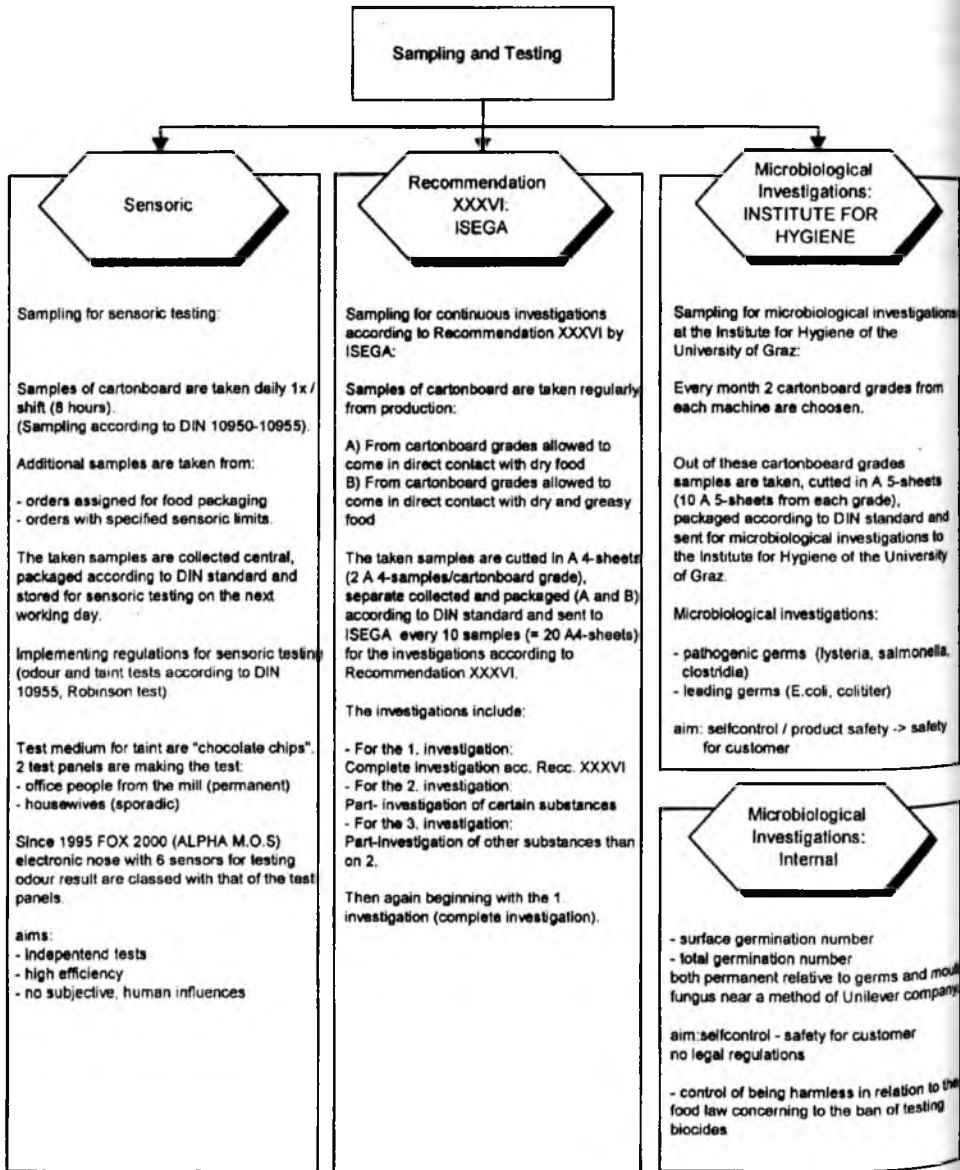


Fig. 13. Testing of Cartonboard for Food Packaging



So it is secured the safety of the board for direct food contact through internal and external control in most of the mills producing board intended to come into contact with food.

CONCLUSION

Although existing legislation regarding the use of recovered fibers for the production of paper and board intended for contact with food significantly differ in the European countries, it is reasonable to expect that in some way the use will be authorised by harmonised European legislation.

Processing of recovered paper affects physical, chemical and biological characteristics of recycled fibers to a high degree. However, the characteristics of packagings intended to come in contact with food depends not only on the processing and technology but to an even great extent on the composition and quality of the recovered paper grades. The manufacturer should have harmonised guidelines in the form of specified parameters and their limits. The way in which the manufacturer meets these limits must be his responsibility because of the different possible technologies and the further developments in technology of processing.

In countries with a clear legislation and with clear limits paper and board made from recycled fibers is used for a long time and fulfills the requirements for direct food contact.

By the way it has also to be considered that only a small amount of paper and board used for food packaging is really in direct –physical – contact with the food.

Undoubtedly industry has to base its work on GMP (Good Manufacturing Practice) and to provide dossiers to assess the absence of risks for the consumer health and to show the GMP. The dossiers will have to cover:

- Origin and quality of the used waste paper
- Control of the process
- Control of the finished product.

So the use of recovered fibers for paper and board in food contact can be shown as safe and will be possible in the future as it was in the past.

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ZASTOSOWANIE WŁÓKIEN CELULOZOWYCH POCHODZĄCYCH Z RECYKLINGU DO PRODUKCJI PAPIERU I TEKSTURY PRZEZNACZONYCH DO KONTAKTU Z ŻYWNOŚCIĄ

Streszczenie

Do produkcji papieru i tekstury przeznaczonych do kontaktu z żywnością w krajach europejskich wykorzystuje się znaczne ilości włókien celulozowych pochodzących z recyklingu. W niniejszym artykule omówiono przepisy i rozwój badań w 14 krajach europejskich w zakresie dostępności i wykorzystania papieru pochodzącego z odzysku. Dokonano również analizy obejmującej materiały opakowaniowe, surowce, udział rynku, rodzaje papieru do kontaktu z żywnością oraz stosowanie papieru z odzysku. Jest sprawą zrozumiałą, że zastosowanie materiałów z odzysku do produkcji papieru przeznaczonego do kontaktu z żywnością budzi wątpliwości w odniesieniu do ryzyka dla konsumentów. W rzeczywistości jednak w wielu przypadkach brak wiedzy przyczynia się do wydawania nieprawidłowych opinii i zajmowania niewłaściwego stanowiska. Wiele faktów często nie jest w ogóle znanych lub są one celowo pomijane. Nie istnieją ujednoczone uregulowania prawne Wspólnoty Europejskiej w odniesieniu do papieru i tekstury przeznaczonych do kontaktu z żywnością, tak jak ma to miejsce w przypadku tworzyw sztucznych. W dziedzinie tej mamy do czynienia z różnymi uregulowaniami charakteryzującymi

się zróżnicowanym podejściem i różnymi tolerancjami. Jedynie w niektórych państwach – w Niemczech, Włoszech i Holandii – istnieją mniej lub bardziej jednoznaczne przepisy. W niniejszym artykule dokonano przybliżenia podstawowych aktualnych rozwiązań prawnych i ich zastosowań w innych krajach w odniesieniu do ich użyteczności praktycznej. Omówiono również techniczne aspekty wynikające ze stosowania surowców pochodzących z recyklingu do produkcji papieru i tektury przeznaczonych do kontaktu z żywnością. Podano również, w jaki sposób papiernie w Austrii sprawdzają jakość i bezpieczeństwo kartonu przeznaczonego do kontaktu z żywnością uzyskanego z włókien celulozowych pochodzących z recyklingu.

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