

1 | NECESSARY DOCUMENTATION ACCORDING TO THE LAW

According to the Law, your company is obliged to submit monthly reports prepared based on the manufacturing specifications and the monthly sales report.

- **Manufacturing specifications**

Information about the amount of packaging waste generated per product / commodity.

- **Monthly reports**

Information on the total value of released packaging waste on the market in Macedonia from the sale of all products in a given month and spent raw material for which you are the first importer.

In addition, in case of an audit by the Ministry of Environment and Physical Planning, you are responsible for the accuracy of the data submitted to Pakomak. Every manufacturer that annually places more than 30 tons of packaging waste according to art.7 from the Law on packaging and packaging waste management, is obliged to prepare a program for prevention of packaging waste, which should contain targets for prevention and measures to achieve the objectives and mechanisms for quality control of packaging to meet the objectives in accordance with the technical and economic possibilities.

2 | HOW TO FILL IN THE PATTERNS

Manufacturing specifications

The production specification is completed by entering data on the components of packaging per single product, for sales, group and transport packaging. To calculate the group packaging per product, the total weight of the packaging material is divided by the total number of products that were packaged or wrapped in group packaging (package, crate, box, bag). For transport packaging, it is divided by the total number of products that were transported, or wrapped in transport packaging (pallet, box, bag). Here are some examples on how to complete the production specifications.

Sample 1 – water 1.5 L in PET package

No.	Name of packed product	Type of packaging	Description of the packaging components	Type of material packed per weight (kg)					
				Plastic	Card and paper	Metal	Glass	Wooden materials	Composite materials
1	2	3	4	5	6	7	8	9	10
1	Water 1.5 l PET	Sale	Bottle	0.048					
			Cap	0.005					
			Label	0.005					
		Group *	Package made of plastic (for 6 bottles)	0.005					
		Transport **	Card between lines		0.00099206				
			Stretch foil	0.001389					
			Irreversible palette					0.0297619	
		Total				0.064389	0.00099206	0	0

By placing the 6 pack PET water bottles 1.5 liter, in the column for sale packaging we enter the data for released waste per PET bottle, in the column for group packaging - the data for a whole package per bottle, and in the column for transport packaging we enter the data for used packaging during transport, calculated for one bottle.

A PET-water bottle is made of a plastic bottle that weighs 48 grams, a plastic cap of 5 grams and a plastic label of 5 grams. Thus, in column “plastic” we enter these data, converted into kg. For a bottle of 48 g in the column we enter 0.048 kg ($48/1000 = 0.048$). The cap and label of 5 grams are entered as appropriate, converted into kilograms ($5 / 1000 = 0.005$).

In the column for group packing we enter the thermo – foil weight, used for packaging of the bottles of water. If it weighs 30 grams, this value is transferred in kg and we get 0.03. Because this amount is for all 6 bottles, we divide the value by 6 to know how much of the package is used for a bottle. So, $0.03 / 6 = 0.005$ kg and we enter the value in column “plastic.”

If on the market there is one palette of water that contains 84 packets, i.e. 504 bottles of water, we calculate the values per bottle for used cardboard between the lines, stretch-foil and irreversible palette.

If there are 5 cards per palette, each 100 grams, their total weight is $5 \times 0,1 \text{ kg} = 0.5 \text{ kg}$, while weight per bottle is $0.5 / 504 = 0.00099206$. This weight is entered in the column “paper and cardboard.”

If 0.7 kg stretch foil is used per palette, for one bottle the weight is $0.7 / 504 = 0.001389$ and the value is entered in the column “plastic.”

If a pallet weighs 15 kg, this weight is divided per bottle and we get $15 / 504 = 0.0297619$, value entered in the column “wood materials. “

Finally, we add all entered values for plastics, paper and cardboard and wooden materials to obtain the total weight of packaging waste released by the sale of a 1.5l bottle of water.

Sample 2 – Mayonnaise 0.750 kg

No.	Name of packed product	Type of packaging	Description of the packaging components	Type of material packed per weight (kg)						
				Plastic	Card and paper	Metal	Glass	Wooden materials	Composite materials	
1	2	3	4	5	6	7	8	9	10	
1	Mayonnaise 0.750 kg	Sale	Jar				0.25			
			Cap			0.015				
			Label		0.005					
		Group *	Box (10 jars)	0.02						
		Transport **	Card between lines		0.001					
			Stretch foil	0.0014						
			Irreversible palette					0.03		
		Total				0.0014	0.026	0.015	0.25	0.03

Here is an example for calculation of packaging waste generated from sales of mayonnaise jar of 750 kg. Disposable packaging is composed of a glass jar that weighs 250 grams, the metal cap 15 grams and a paper label of 5 grams. Thus, we enter these data in the column “glass”, converted into kg. For a jar of 250 g we enter 0.25 kg ($250 / 1000 = 0.25$). We have the weight of the cap in the same way and it is 0.015 kg, a value entered in the column “metal”. In the column “card and paper” we enter the value of the label ($5 / 1000 = 0.005$).

In the column for group packing we enter the weight of the cardboard box for 10 jars. The weight of the box is 200 grams or 20 grams per jar. It is 0.02 kg, value entered in the “card and paper” column. The usual transport packing is one pallet with 50 boxes that have 500 jars and then the transport waste between the lines is calculated as follows. If there are 5 cartons between lines per pallet and each weighs 100 grams or 0.1 kg, then their weight per jar is $0.5 / 500 = 0.001$, value that we enter in the category “card and paper.”

If there is 0.7 kg stretch-foil per palette, then its weight per jar equals $0.7 \text{ kg} / 500 \text{ jars} = 0.0014$. This value is entered in the column “plastic”.

If a pallet weighs 15 kg, then the weight is divided per jar and we get $15 \text{ kg} / 500 \text{ jars} = 0.03$, value entered in the column “wooden materials”.

Finally, we add all entered values for plastics, paper and cardboard, metal, glass and wooden materials to get the total weight of released waste per package.



Sample 3 – PET bottle cap

No.	Name of packed product	Type of packaging	Description of the packaging components	Type of material packed per weight (kg)						
				Plastic	Card and paper	Metal	Glass	Wooden materials	Composite materials	
1	2	3	4	5	6	7	8	9	10	
3	PET bottle cap	Sale								
			Group *	Card box		0.00017				
				Bag	0.00007					
		Transport **	Card between lines		0.000008					
			Stretch foil	0.00001						
Irreversible palette						0.00025				
Total				0.00008	0.00018	0	0	0.00025	0	

If the manufacturer directly imports raw materials, he should also report the packaging waste from the raw material. Let's consider a manufacturing specification for one pallet with 50 packs which has a total of 60,000 caps for PET-bottles as raw material, for which we can suppose that are directly imported by the manufacturer.

For the manufactured caps that reach the manufacturers packed in cardboard boxes and are then placed with PET-bottles in direct sales, in the manufacturing specification the field "sales package" will remain empty.

If caps are imported in a box of 500 grams (0.5 kg), which has 3,000 caps, then weight of the box per cap is $0.5 / 3,000 = 0.00017$. This value is put into column "card and paper."

If the box caps are in a bag of 200 grams, then in the column "plastic" we enter the value per cap, ie $0.2 \text{ kg} / 3000 = 0.00007$.

For transport packaging, if a pallet has 5 cartons of 100 grams, the weight per cap is $(5 \times 0.1) / 60,000 = 0.00008$ caps. This value is entered in the column "card and paper."

If 0.7 kg Stretch foil is used per palette, then its weight per cap is $0.7 / 60,000$, or 0.00001. This value is entered under "plastics".

If a pallet weighs 15 kg, then the weight is divided per cap and we get $15 / 60,000 = 0.00025$, value entered in the column "wooden materials."

Finally, we add all input values for plastics, paper and cardboard and wooden materials to obtain the total weight of released packaging waste.



Sample 4 – sugar in a bag

No.	Name of packed product	Type of packaging	Description of the packaging components	Type of material packed per weight (kg)						
				Plastic	Card and paper	Metal	Glass	Wooden materials	Composite materials	
1	2	3	4	5	6	7	8	9	10	
4	Sugar in a bag of 50 kg	Sale	Paper bag		0.200					
		Transport **								
			Stretch foil	0.04667						
			Irreversible palette					1.0		
Total				0.0467	0.02	0	0	1	0	

If we have a 50 kg bag of sugar released on the market, and the paper weighs 200 gr, then in the column “card and paper “ we enter its weight in kilograms ($200/1000 = 0.200$).

If the sugar is transported with irreversible palette on which there are 15 bags of sugar, then to calculate the stretch-foil used for transport, its weight should be divided by the number of bags on the palette. If the stretch-foil weighs 0.7 kg, its weight per bag is $0.7 / 15 = 0.04667$. This value is entered in the field “plastics”.

If a pallet weighs 15 kg, to obtain its weight per bag, we divide with the number of bags, $15 \text{ kg} / 15 \text{ bags} = 0.1 \text{ kg}$, a value entered in the category of “wooden materials”.

ADDITIONAL EXPLANATION / NOTES:

- manufacturers that directly import raw materials (eg. factory for chocolate production imports sugar), should report the packaging waste from the raw materials;
- return packaging is reported as waste at the moment when it is broken / damaged, i.e. when it becomes useless;
- If the importers who import pallets together with the products, cannot prove with documents that the pallets were exported from Macedonia are obliged to register them as wooden waste;
- pallets of domestic production that are made for multiple use are reported as waste when they are damaged, i.e. when they become useless

