

Methodology guidelines to comply with the 5% PET from non-food consumer applications

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1 Introduction

PET Recyclers have an obligation to ensure that the material that they place on the market as food contact material (FCM) does not contain more than 5% of non-FCM PET. PET recyclers may however receive bales that are out of specification from sorting centres and thus contain more than 5% non-FCM PET or may accept bales with a specification that allows for more than 5% non-FCM PET. In such instances, it is up to the recycler to ensure its output does not contain more than 5% of non-FCM PET. In this document several approaches to achieve this legal requirement are specified. Recyclers are welcome to follow this guideline and adapt it to their plants and processes as needed.

2 Definitions

Bale	Compacted waste from sorting of waste.
PET	Polyethylene terephthalate
PVC	Polyvinyl chloride
Food Contact PET	PET produced according to Regulation 10/2011 and used in food contact applications.
Non-food Contact PET	PET produced or not according to Regulation 10/2011 and not used in food contact applications.
Bottles & Flasks	Shape of the items which represent the content of the bales.
Trays	Thermoformed packaging which clearly can be distinguished from bottles & flasks.
Colours	Main colour of the items to classified as clear, transparent colours or opaque colours.
Labels	Identification of the items which helps to clarify the former content of the item.

3 Operating procedure

Several approaches can be used to ensure that the final food contact material placed on the market complies with the 5% limit. Recyclers can employ additional sorting technology to further separate the content of the bale and/or mix material with known non-FCM fractions to reach a compliant output material. The outline of the procedure can be found below (see Figure 1).

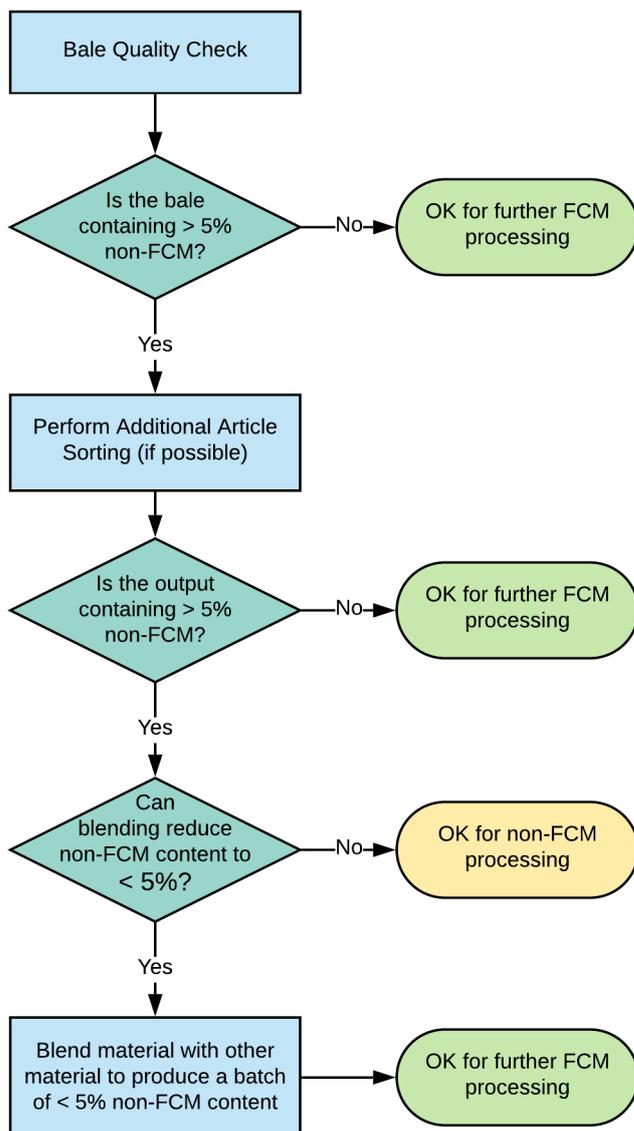


Figure 1 Outline of procedure to ensure the 5% non-FCM limit is achieved.

3.1 Bale Quality Check

All waste input material needs to be checked according to the PRE methodology specified in the document Methodology guidelines to check the quality of baled PET waste. The approach should result in a documented understanding of the percentage of non-FCM material from different suppliers. Material that complies with the requirement can be processed to produce FCM rPET or in subsequent blending operations specified in 3.3. Material not in compliance with the 5% non-FCM limit needs to be further processed according to this guidance.

3.2 Additional Article Sorting

If additional article sorting equipment is available, material not compliant to the 5% non-FCM limit needs to be further sorted in order to reduce the content of non-FCM material.

Initially, the recycler must obtain a 50 kg sample¹ of randomly selected input and output material from the sorting process and quantify the percentage of different non-FCM material in each sample. The samples should be moved to a specific area and hand sorted into specific fractions into clearly marked containers (see Figure 2 Flowchart for the quality control of the 5% of non-food contact articles). Subsequently the different fractions should be weighted, recorded in a reporting sheet, and overall/specific material sorting efficiencies should be calculated. The excel file accompanying this guidance, or equivalent must be used to perform this task.

Once sufficient data has been collected from multiple suppliers according to the methodology specified above, this data may be used to estimate the general efficiency of the sorting process. Documentation of traceability of this process shall be available. Such a general efficiency can subsequently be used to estimate the output of the sorting process.

In order to ensure that the sorting process does continue to function as predicted based on measurements, the mass balance of the article sorting process must be reviewed at least once every week.

If after measurements or estimation the recycler determines that the output of the sorting process results in a material stream that meets the 5% non-FCM limit value, the material can be further processed as food contact material.

If after measurement or estimation the recycler determines that the output of the sorting process does not result in a material stream that meets the 5% non-FCM limit value, it may decide to process the material as non-FCM rPET and may not place it on the market as FCM rPET. Alternatively, the recycler can decide to blend the material stream with another material stream that enables compliance of the blended stream with the 5% limit according to section 3.3.

¹ Deviation from these values is possible but must be documented and justified by a reasoned analysis.

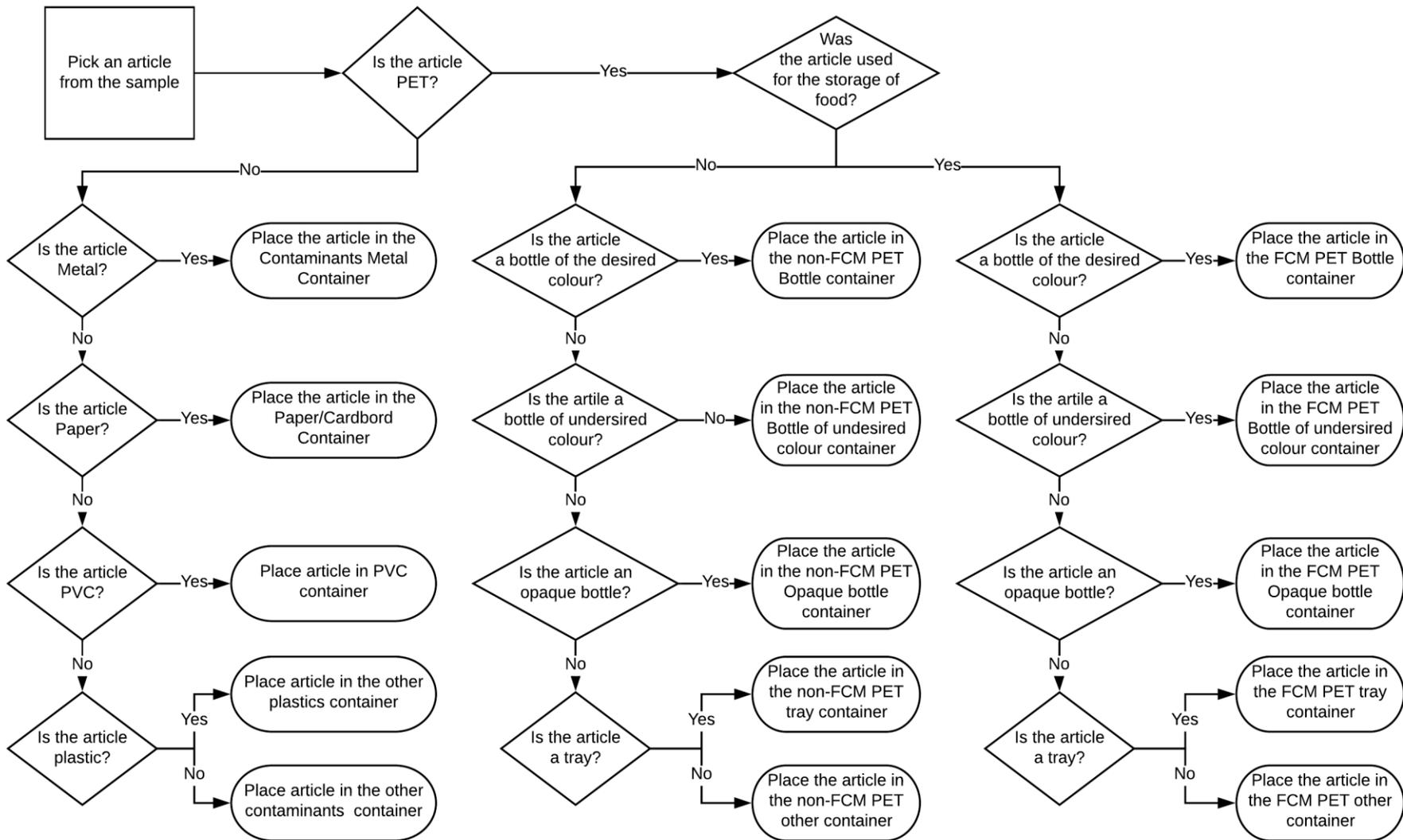


Figure 2 Flowchart for the quality control of the 5% of non-food contact articles

3.3 Blending

It is imperative that prior to blending the concentration of non-FCM material is known. Such concentrations can only be measured while the material is still consisting of whole articles (i.e. before grinding). If flakes are obtained from another supplier for blending it is imperative that a guarantee is obtained on the maximum concentration of non-FCM material contained therein.

Prior to blending of different input streams, it should be determined in which ratio blending should occur in order to achieve compliance to the 5% non-FCM limit value (see Box 1 for example).

Box 1 Example of blending calculation

JazzRecycling LLC. obtains trays from a sorting centre that sorts separately collected household waste plastics and bottles from a deposit collection scheme. It sells exclusively to a tray producer. The trays are delivered to it according to a specification that allows for 10% non-food contact PET and the bottles are provided under a specification of 1% non-food contact PET. The recycler has verified through measurements that both material streams comply with their specification. In order to be able to guarantee that the output of JazzRecycling LLC complies with the 5% limit, it has decided to aim for a maximum non-FCM content of 4.5%. JazzRecycling LLC has no sorting capacity and decides to blend the different input streams.

X = volume of bottles

Y = volume of trays

$$X + Y = 100$$

$$0.01X + 0.1Y = (0.045 * 100)$$

$$X = 100 - Y$$

$$0.01(100 - Y) + 0.1Y = (0.045 * 100)$$

$$1 - 0.01Y + 0.1Y = 4.5$$

$$0.09Y = 3.5$$

$$Y = 38.9$$

$$X = 100 - 38.9 = 61.1$$

Therefore, it has decided to use 38.9% of the trays as input material and 61.1% of the bottles as input material, to ensure the final output material matches the 4.5% target.

4 Other Provisions

Appropriate risk management measures need to be taken to control for risk associated with the procedure and the location in which it takes place. Special attention should be paid to the possibility that misused containers may contain (residues of) substances of unknown toxicity.

5 Traceability

In order to ensure traceability, the plant must operate under full traceability according to the standard EN 15343 Plastics – Recycled Plastics – Plastics recycling traceability and assessment of conformity and recycled content².

6 Communication

The flakes sold on the market should be characterised according to the document Pellets Characterisation Guiding Requirements³ in order to transmit all the necessary information regarding the FCM material.

² Visit <https://www.eucertplast.eu/> to find out how to get certified according to EuCertPlast.

³ Pellets Characterisation Guiding Requirements available at <https://www.plasticsrecyclers.eu/downloads>