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# Sustainable FIBC Virtual Conference

- Questions and Answers -



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# Q&A Session I

## The Impact of the Circular Economy on Plastic Packaging



[Vladimir Guzmán](#)

Sustainability and CSR Analyst  
EcoVadis

***Please note:** We have received many questions in this sessions related to the reuse and recyclability of FIBCs and the use of rPP in our bags. As these questions were answered in the sessions '**Reuse before Recycling: WorldBag Reconditioning Service**' and '**Design for Recycling and Recycling for Design**', we have moved these questions to the associated sessions.*

### **Are the slides presented available afterwards?**

Yes. You can download all presentations [here](#).

### **I am working for a Chemical Company and we use plastic packaging (FIBCs) to supply our goods to customers. In this scenario, who has the “extended producer liability”? Myself, my FIBC supplier, or my customers? And, who will pay the tax?**

The final responsibility for the FIBC would be on LC Packaging. However, it would be you if it is you who is providing that packaging. To make it easier: the FIBC itself is LC Packaging's responsibility. Whatever is inside the FIBC (your chemical product) is your responsibility. Which in the end makes it a joint responsibility. When it comes to tax: in the case of the UK tax, it is the company that brings the packaging into the UK who is responsible for paying the tax. It doesn't matter if the packaging is filled or unfilled.

**How to deal with bio-based material? Can you also identify this as recycled material?**

Yes, biobased materials would be within the biodegradable material realm. Meaning, alternative materials that are also recommended in a circular economy and very important to be used. However, with biobased materials you have to be very aware of how they are used and what you are pairing them with. Biobased materials can become unrecyclable or non-compostable when mixed with other materials that are not recyclable, or sometimes not even biobased. So with this you have to be very careful. This is also where the concept of design for recycling comes into place. Everything in a packaging product, including biobased materials, should be compostable or recyclable and in case of multiple materials used: easy to disassemble. Of course mono material is preferred.

**Regarding the UK tax; if you have no recycled content, but the packaging has 50% bio-based content, do you have to pay the tax?**

That is a very interesting concept. That is something I have to research, as there is not really a strong mention of biobased materials that focuses on recycled content. Please reach out to me.

**Do regulations make a difference between post-industrial recycled material and post-consumer material? Or is all just considered recycled materials?**

The EU regulation considers everything as recycled material. There is no differentiation between post-industrial and post-consumer.

**Could reuse (sometimes the better way) also cause too “less material” for a closed loop? Does the WorldBag model not compete with the closed loop system?**

This depends very much on the design of the processes and the type of materials we reuse or use in the closed loop. That being said, both methods can coexist. Remember also that the relevance of using loops that retain the highest value, where choosing the method carefully helps retain more value. In addition to that, one of the key recommendations for a circular economy is diversity, both in processes and materials. So, it is always advisable to research on new materials and closed loop processes that can allow for both systems to work side by side and increase the value retained.

**What does the EU plastic tax that might come up mean for the users of the FIBC?**

This is a difficult question, as the EU plastic tax is unclear on how it is going to be applied. It is not a specific tax like the UK tax. It comes together with a bunch of other recovery proposals from the EU and it is aimed directly to the member states, basically saying: this is the money that you have to pay. We don't know how each of the member states are going to implement this tax and whether the tax is passed on to the companies. However, everything does seem to hint towards all member states in their own countries are going to put the pressure on the businesses. It will be mostly be done by putting a tax on not recycled materials. Plastic packaging that doesn't go to recycling, but ends up as waste or landfill.

**Can you explain more on food approval regulations?**

Directive (EU) 2018/852 doesn't provide much detail on food approvals. However, article 5 on reuse is very clear that: "Member States shall take measures to encourage the increase in the share of reusable packaging placed on the market and of systems to reuse packaging in an environmentally sound manner and in conformity with the Treaty, without compromising food hygiene or the safety of consumers." - Meaning that all packaging must have been fully approved for food use, even if reused.

**We require food grade quality packaging, meaning virgin material. Recycled content means it does not meet this standard. Do you have an answer for this?**

Indeed, more research and innovation is needed in terms of food grade quality recycled materials. However, there is already [some progress](#), and some recycled plastics are already considered as food safe. The European Food Safety Authority has already been publishing some [guidance on the topic](#). Hopefully, with the commitment of some big companies on using recycled materials for food packaging, more options will be available. We can also look at bio-based materials, which are compostable.

**Reuse and recycling: How are food safety risks addressed? Often food industries are only using single use FIBCs?**

Indeed, food safety risks are always a factor that needs to be considered when planning recycling and looping processes. However, there is already some progress, and some recycled plastics are already [considered as food safe](#). The European Food Safety Authority has already been publishing [some guidance](#) on the topic. Hopefully, with the commitment of some big companies on using recycled materials for food packaging, more options will become available.

**Do you know how the UK tax regulations, as an example, will be policed and what tests will be in place?**

For this tax, the UK government is considering that "All packaging within the scope of the tax will be presumed to contain less than 30% recycled plastic unless it can be proved otherwise with sufficient evidence." This means that any plastic packaging producer/importer who produces/imports more than 10 tonnes of plastic packaging in a 12-month period will have to register to the HMRC and pay the taxes or provide evidence of the recycled content in their packaging. You can find more details in [this document](#).

**In our FIBCs, we already have recyclable materials. To avoid the taxes we spoke of: will it be sufficient to show e.g. a certificate? Or will there be systems where companies or suppliers have to count the recyclable part of their goods as proof? E.g. the system "Zentrale Verpackungsregister" in Germany created a lot of work and cost for the companies to give exact numbers of used packing materials in different fields. Will we face similar complicated systems for e.g. FIBCs?**

Yes, the UK government seems open to considering certificates or other documents that account for the recycled content, even from suppliers. As stipulated in [their response](#) to public consultation from May 2020, they state "Documents currently used for this include production specifications, contracts, production certificates, purchase orders and sales invoices. Some businesses already audit their supply chains to national and international standards, and where this is the case, HMRC will recognise these audits as evidence for Plastic Packaging Tax calculations unless errors in the underlying calculations are found".

**Do you believe production methods/locations/processes need to be changed to produce a sustainable FIBC? If yes, how so, what would be your recommendations from EcoVadis' perspective?**

I believe production methods and processes will be changed as more research and innovation is applied to make our systems more circular. There is indeed a need to address those processes that generate waste and implement methods that allow for a better materials looping. It doesn't mean that it will be a sudden change, but I believe that breaking down the different production processes to find the areas of improvement is a good place to start. My best recommendation, as I was mentioning in the presentation, is Cooperation and Partnership. Joint efforts with the whole value chain can help adapt the current processes to make them more circular and ensure a better flow of materials.

**Are there any associations you can share with us that can manage recycling of packaging for us - example believe there is a system in Norway called Green Point?**

In the case of Europe, the best 2 places to start are the [PRO Europe Association](#) and [EPRO](#), which can help in the process and actually cooperate with Green Dot in Norway.

**Could repairing the bags at filling site as well be an option by providing some tool kit? And how would this be counted as R bag with regards tax reduction?**

Certainly providing kits and tools for users to be able to repair their bags on site is an excellent option to allow reuse. This would indeed help with regards to the taxes. The UK tax is imposed on packaging produced or imported that surpasses 10 tonnes per year, and the consultation answers provided by the government by the UK government seem to hint at it ([see page 16 of this document](#)).

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## Q&A Session II

### Reuse before Recycling: WorldBag Reconditioning Service



[Sebastiaan Dalmeijer](#)

Commercial Lead  
WorldBag



[Thorsten Classen](#)

Managing Director  
LC Packaging GmbH

#### **Can the current big bags provided by LC Packaging be reused?**

Yes, if it is a 6:1 bag, it can be reused.

#### **Does the WorldBag system only apply to 6:1 FIBCs (or up)?**

Indeed, the minimum requirement for reuse is 6:1. Types above 6:1 are also suitable for reuse.

#### **Is it also possible to reuse FIBCs with a safety factor of 5:1?**

Unfortunately not, a 5:1 FIBC is only suitable for single use. However, it could be a feasible solution (economically and environmentally) to switch from a 5:1 bag to a 6:1 bag to be able to reuse.

#### **Is there an option to reuse an FIBC more than 5 times, when you have for example an 8:1 bag?**

8:1 bags could theoretically be reused more than 5 times. Practically we see the average reuse cycle is 3-4 times. Therefore an 8:1 big bag will not create any extra benefits for reuse.

**When is it economically feasible to recondition FIBCs?**

The price balance needs to be reviewed case by case. It depends on volumes, pick-up and delivery locations and the specifications of the big bag.

**What would be the minimum number of bags you would collect from an end user? They are often in remote areas and low volume users.**

If we start a reconditioning project, we will firstly identify the 'quick wins' which are the larger volume end users. After that we will review the smaller ones to research pick-up possibilities (e.g. combined pick-up).

**I missed the part concerning the cleaning of the bags, what is your valid solution to clean these bags? I've seen them really dirty when they spent a while in the warehouses.**

If we notice that the timeframe of the storage of the bags until collection is causing a lot of dust, we are able to provide pallet covers to keep the bags as clean as possible.

**We are really sensitive for contamination. Who takes the guarantee that the bags are really clean and no contamination is in the FIBC?**

WorldBag takes the responsibility that the big bags are contamination free. Of course, there will always remain a minimum residue (10-20 grams) as the big bag is a woven product and/or the product itself is sticky/fine powder. Together we need to understand and identify the exact contamination risk and tackle this challenge. For example: what is the maximum residue to stay behind in order to exclude the contamination?

**After the inspection of the used FIBCs, what is the main reason for rejection?**

Holes/damages on fabric or loops, dirty big bags, big bags chalked-up with markers for example and we also often see cuts in emptying spouts.

**Customers are often unwilling to save the bags for recovery, because of the dust generation when asked to fold and stack them. Do you have any suggestions for this problem?**

We are able to provide pallet covers and other solutions to prevent the dust generation.

**How will you ensure the safety of handling the big bags for the operator?**

When the operator receives a reconditioned pallet from WorldBag, he/she is able to use this as being new. For the operator there will not be any difference in handling. Furthermore, our high quality big bags can be reused safely.

**Can hazardous bags be reconditioned by WorldBag?**

No, we are not able to clean bags which contain hazardous material. The health risk for our workers is too high.

**Can coloured bags be reconditioned or bags filled with for example a black product?**

As shown in one of the business cases, we are able to find solutions for black products, for example black fabric bags, which we are able to clean without issues.

**Can Q-bags filled with food powder be reconditioned?**

Q-bags can be reconditioned. However, at this moment we are not able to clean bags containing food powder, because of contamination risk. We are reviewing the market to see if there is a bigger interest for cleaning food big bags in order to look at a possible investment.

**Can a one loop PP+PE (liner) big bag used for (agricultural) fertilisers and seeds be reused?**

Theoretically these bags can be reused, on the condition that they have at least a 6:1 safety factor. Looking at the value of the new big bag itself might not be feasible.

**Please elaborate on the reuse for food FIBCs and upcoming legislation**

At this moment we can't clean FIBCs for food as we do not have the required clean room. In the current ISO 21898 standards big bags with a minimum of 6:1 can be reused. Food or non-food is not specified. Here we need to look at the contamination risk on a case by case level. For more information on legislation related to food bags, I would like to refer you to the Q&A of Session I: The Impact of the Circular Economy on Plastic Packaging.

**What are the bag requirements for bags to be reconditioned and offered to another customer by WorldBag (Scenario III in presentation)?**

This needs to be reviewed case by case. Also, we need to find a suitable reallocation for the existing big bags.

**Do you offer a service to collect used bags from customers, clean and sell back into the market as a pre-used bag to other customers?**

If the big bags are 6:1 there might be an option to sell these bags into the market again. Depending on the volumes and big bag specifications. Of course our main work field is reconditioning.

**We sell construction materials in big bags to many customers. In my opinion, we are not able to check the bags before we send them to WorldBag and we have to give the deposit (German: Pfand) to our customer as soon as we collect the bags. If the bags cannot be reused, we will pay for the cleaning of the bags. How would you deal with this?**

If WorldBag collects 100% of all big bags and there is a rejection rate of 25%, then this 25% will be recycled and the charge for this is in the pricing of the reconditioned big bags. We will not apply extra unforeseen costs in this perspective. As a customer you will receive a full service pricing which includes everything such as pick-up, cleaning, re-delivery and waste management.



**Will WorldBag recondition bags that are not originally supplied by LC Packaging?**

Yes, WorldBag will also recondition big bags that are produced by other manufacturers than LC Packaging.

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# Q&A Session III

## Design for Recycling and Recycling for Design



**Marcel Schouten**

Director FIBC  
LC Packaging



**Gerrit Klein Nagelvoort**

Manager Business Development  
Veolia Polymers



**Andreas Anderl**

Inter Divisional Project Manager  
Starlinger

### **Design for Recycling - One type of material - is there any general approach for all big bag producers?**

That is what we are aiming for. We have a strong lobby towards the suppliers through industry associations such as [EFIBCA](#) and FIBCA. LC Packaging has presented a proposal to set an industry Trade Mark/Standard for an FIBC designed for Recycling (DfR) which applies to approved and agreed standards.

### **Does the recyclability of a big bag alter its technical properties?**

Generally: no. In some cases only a little, which can easily be corrected during the recycling process. However there are exceptions: changing your bag from a Type C conductive to a type B anti-static bag is a huge change in property for example. Health and safety aspects should be leading.

### **What do you mean with tape extrusion? Is this also related to the production of FIBCs or something differently?**

Tape extrusion is indeed related to the production of FIBCs. (r)PP granulate is melted and turned into a film (extrusion). The film is put into tapes and the tapes are wound on bobbins. These bobbins with tapes are placed at weaving looms to weave the fabric. This fabric is then used to make the FIBC. Please watch [this video](#) to get to know more about the FIBC production process at our manufacturing site in Asia. Or this Starlinger [video](#).

**Most of LC Packaging's FIBCs have coloured handles/loops - why not white?**

We are promoting white loops already for a number of years but often the LC colours are also referring to a certain standard at our customers or their customers. We experience many customers still want to hold on to the coloured loops. Eventually this needs to be phased out and turned into 100% white loops.

**Is PET stitching allowed and still recyclable?**

For recycling it is not allowed. PET stitching should be avoided and is not necessary to be used in FIBCs. However, polyester sewing yarn is still used in several FIBC designs and also an impurity during the recycling process. Therefore, in the optimal design for recycling for FIBCs, the use of polyester sewing yarn should be avoided.

**Would there be any difference regarding the grey colour, if you cut out printings? Would it be possible to still have a white rPP big bag?**

It would definitely keep the rPP material more 'white' if you leave out printings on the bag. To increase the brightness additives can be added (extra costs). Also, when you cut out printings, this most likely has to be done manually, which will also add to the costs. Technically anything is possible, but the question is: is the off-white colour really an issue? The first recycled paper was also grey, but we accepted it. Maybe grey is the new 'sustainable' colour (next to green).

**Is deinking in the recycling loop a potential solution for printed FIBCs?**

Starlinger has already been testing deinking for PP fabric we are using in small bags (e.g. cement bags). It works pretty well, but the output is low and this process is causing additional costs. As this is a chemical cleaning process it has also to be considered if this is suitable for an ecological and sustainable solution. Deinking is therefore most likely not an option as it is not beneficial economically.

**What is the recyclability of a polyethylene inner liner/ Could a PP liner be a solution?**

The recyclability of PE is equally good as the recyclability of PP. It of course depends on the contamination of the liner, but under normal conditions an LDPE liner is perfectly recyclable. However, ideally you do not want to recycle the PE liner together with the PP bag. Recycling them together decreases the value of the recycled content. This rPP is not usable for the production of new FIBCs. It is therefore important to have a good solution to easily disassemble the liner from the bag. Ideally in the post-usage pre-recycling stage. A PP liner could be a solution if we overcome technical properties which makes a PP liner less suitable than a PE liner. Intensive R&D is going on.

**When you have bags with a mix of materials such as e.g. PP bags with an EVOH liner; can these bags currently be recycled? What does it take, and is it reasonable that it will be recycled by 2025?**

Barrier films existing out of multi layers can't be recycled yet. FIBCs and barrier films therefore should be separated from each other. For this, we are putting high efforts into developing easy removable liners after use. At the same time we see that resin producers also work on improving barrier properties on mono materials, such as PE and even PP liners. This will take some years, but will also be an ideal solution. Work in progress, but hopefully we have reached a solutions by 2025!

**If a liner has to be connected to the FIBC, what is the 'best' method to create this connection from a recycling perspective?**

Please find the answer at the previous question. If we have to provide one answer, we would say: sewing with a PP sewing yarn.

**Will barrier coating on the fabric influence the recycling process and what is the maximum thickness / grammage % accepted?**

It depends on the coating used, but in general any other material than PP is an "impurity" which can influence the recycling process. However, the usage of a barrier coating is in general much better for recycling than using a liner which is difficult to disassemble as the thickness and the mass percentage of impurity is much less. At this moment we can't give an exact grammage % as it is also depending on the coating material itself, but Starlinger is more than happy to discuss a possible trial and to determine the recyclability and the final tape/fabric quality.

**My customer / end user destroys the big bags to offload quicklime content. Can you advise on how they can recycle the big bags?**

Please contact your LC Packaging contact person for advice on what FIBC fits best to avoid destroying the bag after one time use.

**As far as I know cardboard packaging is being recycled even with hazardous substances in it, such as mechanic oils for example. Why is plastic packaging more sensitive? Both recycling processes are mechanical.**

In cardboard packaging recycling, the hazardous substances are extracted. In plastic recycling they will be enclosed.

**What would be your advice to start with recyclable FIBCs?**

Contact your LC Packaging contact person and together perform a quick scan on the current FIBC designs and materials used, quantities used and locations where they are available. When designed for recycling, including a material passport, together with a recycling Partner such as Veolia, we can start establishing a recycling infrastructure.

**The 50% rPP bag: is this mostly own waste?**

The trial where we produced a 50% rPP bag was realised by using used LC Packaging bags as input (post-consumer). For our 15% rPP bags, which we are currently able to produce on a large scale, we use our own recycled manufacturing process waste.

**Is a 50% rPP bag more expensive?**

Eventually the cost price should be comparable to a bag with virgin material. However, it does depend on a lot of factors. Firstly, a high volume of rPP has to be available. To realise such a material stream, bags that are designed for recycling have to be collected and recycled and therefore we need an upgrade of the current recycling infrastructure. Then there is also the current historically low price of virgin granulates. It is difficult to compete with this price with rPP.

**To what extent can we, as a customer, decide that we want to go to 100% FIBCs made out of 100% rPP?**

Technically it is not (yet) possible to produce an FIBC out of rPP. A 50% is achievable with special Starlinger machinery in a recycling and tape extrusion process. We are working hard to get such equipment installed in our manufacturing facilities to commercially proceed. Currently, with the existing machinery we produce 15% rPP bags. The rPP is made out of in-house virgin PP process waste and recycled on-site.

**In the long run, will recycled bags be applicable to all type of bags (e.g. Type C)?**

It is technically possible to use rPP to produce all type of FIBCs, including type C bags. However, as the conductive material is woven into the (r)PP material, it is not possible to separate it after-use. Therefore, it will not be recycled, or used in new bags. It is key to look for alternatives for the type C bag, while keeping health and safety in mind.

**Can (50%) recycled content bags continue within the recycling chain - e.g. they also remain recyclable?**

Yes. With every recycling process PP is increasing its MFI value as the molecular chains are breaking and getting smaller. There is a limit on how often a certain molecule can be recycled but with adding virgin material or 'younger' rPP material this effect can be equalised.

**Can FIBCs with recycled material be used for Food or UN products (hazardous)? Does ADR allow the use of recycled material in the UN approved FIBCs?**

rPP is not (yet) allowed for food contact as primary packaging material. In combination with for example a virgin liner it might be. As there is no information about possible contamination available at this moment (material passport), rPP in food packaging is considered too much of a risk. UN regulations are currently not allowing rPP to be added to UN certified packaging products. However, technically and safety wise it is absolutely possible. Therefore this message has been addressed to the UN committee by the EFIBCA (industry organisation) with the request to change this in their UN regulation.

**Do the fabric and coating have the same rules regarding food contact materials? E.g. could you use a virgin PP coating and rPP fabric and still comply with food safety laws?**

Good question: currently that is not possible. However, if migration results are compliant with the standards and coating will be accepted (like a liner) as primary contact packaging material and fabric as secondary contact packaging material it may comply in future. We need trials to demonstrate if this is possible.

**Because of the low density of shredded FIBCs, what is the output achievable (Starlinger)?**

We recommend to re-palletise the shredded and washed big bags right after the washing process to avoid an expensive transport of this material. We have standard machines for re-palletising with a capacity of 300 / 500 / 700 kg/h or even more.

**How do you ensure the quality and origin of recycled materials? What about the risk of contaminated material?**

rPP is produced under [EuCertplast](#) and gets a Reach declaration. Next to that, to avoid cross contaminations, it is becoming more and more important to know the material stream and the 'background' and 'journey' of the FIBC. This information can be recorded in a so-called 'material passport'.

**There are many PP resins (homo, co, ter) , how do you achieve good quality output with a variety of resins coming in?**

Indeed, for FIBCs it is all raffia grade and the main difference in property is the MFI (Melt Flow Index). Luckily, all PP types are compatible, so you can play around with their different mechanical properties in blending and can create your desired MFI again.

**How do you handle quality, especially looking at applications as paint buckets?**

Veolia is testing the input, production and end-product. Only materials which perform within the necessary specifications are cleared for transport to the customer.

**Do you consider potential migration of contaminants from the PCR in the bucket into the paint (Veolia)?**

Not at all. Most of the input comes from packaging waste, which has no hazardous substances in it. There is no migration from rPP compounds known.

**What are the possibilities/examples you see to find defined loops to ensure collection of FIBCs that can be recycled?**

The circular packaging concept to start with. This is important to create a certain material volume. Therefore companies with a high FIBC demand are preferred to start to research and define the perfect loop. When the system is established, it is much easier to collect smaller amounts as well.

**How does LC Packaging manage the pick-up of used big bags at their customer for recycling?**

In 2019, together we have launched a pilot project where recycling Partners such as Veolia use their network to pick-up used bags on location. However we do face challenges. For example the way the bags are offered for pick-up (baled or not) and the quantity of the bags. To minimise costs we need to make sure there is a joint approach from the FIBC manufacturer/distributor, the FIBC customer and the end user.

Collecting used bags is a cost at the start of this process, but we strive to achieve a cost neutral solution with high level recyclable FIBCs, large volumes and used bags that are offered for collection in bales.

**What about the value chain in such a scheme? Are the incomes coming from the sales of granules or fabrics or from the waste collection?**

The value of the rPP (sales price) should cover all costs and a decent mark up for the parties involved. Preparing for collection, collection itself, washing and shredding and eventually recycling should be covered with a normal and decent mark up for the collection, transport, washing and recycling company. The higher the value of the rPP, the more cost effective it becomes. The quality of input determines the output.

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