

19 November 2020

Sustainable FIBC Virtual Conference

- Session 3 -





Design for Recycling and Recycling for Design



organising partner

ecovadis

featured companies



dutch-bangla pack®

worldbag®

Today's sessions



The Impact of the Circular Economy on Flexible Packaging

09:00-10:00 hrs CET



Reuse before Recycling: WorldBag Reconditioning Service

10:30-11:30 hrs CET



Design for Recycling and Recycling for Design

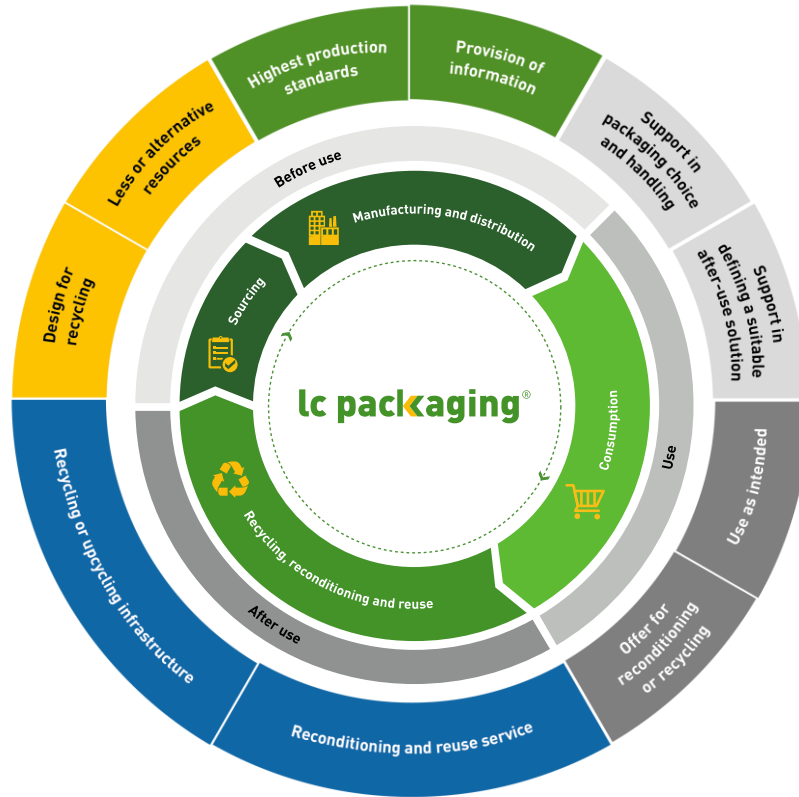
12:00-13:00 hrs CET



The Added Value of the SA8000 Certificate

13:30-14:30 hrs CET





Building blocks of a circular solution

Design for
recycling



Design for
recycling

Less or alternative
resources



rPP initiatives

Highest production
standards



On-site plastic
recycling initiative

Provision of
information



Material passport

Reconditioning and
Reuse service



WorldBag

Recycling or
upcycling
infrastructure



From waste
to resource

A selection of our initiatives

Characteristics of a perfectly recyclable bag

Type A - B FIBC

- ✓ Minimum 98% (r)PP
- ✓ White fabric
- ✓ No print
- ✓ White loops
- ✓ Document pocket and label made out of PP
- ✓ PP Stitching white
- ✓ Easy to disassemble
- ✓ No liner
- ✓ Safety factor 6:1 (reconditionable)
- ✓ Material passport



Equipped with a material passport

A detailed material passport label for LC Packaging FIBC. It includes a QR code, the company logo, and a table with technical specifications. The table has columns for 'Safe Working Load' (kg) and 'Safety Factor'. Below the table are various safety and handling icons, including a warning of falling objects, a prohibition of open flames, and instructions on how to use the bag (e.g., 'Use all four loops!', 'Avoid sharp edges!'). The website 'www.lcpackaging.com' is printed at the bottom.

Safe Working Load	kg	Safety Factor	
LC Packaging article No. :			
LC Packaging order No. :			
Customer article No. :			
Customer order No. :			
Test Certificate No. :			
Test Certificate Date :			
Test House :			
Test Standard :		ISO 21898 : 2004	
FIBC Class :			
Production Date :			

Use all four loops! Avoid sharp edges!

www.lcpackaging.com

Design for recycling



Gerrit Klein Nagelvoort
Manager Business
Development



Andreas Anderl
Interdivisional Project
Manager



**Webinar LC Packaging
November 19, 2020**

November, 2020



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our 3 businesses

Veolia in the
Netherlands

from recycling
company to feedstock
producer

a large clients
network

plastic recycling
by Veolia

Polymers
sector & types

working with
closed loops

a major
European actor

current status on
cooperation

our 3 businesses

Veolia designs
and deploys
solutions for
waste, water and
energy
management,
participating in the
sustainable
development of
cities and
industries.



| WATER

Management of the global water cycle, from production and distribution of drinking water to the collection, treatment and recycling of wastewater.



| WASTE

Liquid and solid non-hazardous and hazardous waste management. Our expertise covers the entire waste life cycle from collection to recycling, leading to the final recovery of waste as materials or energy.



| ENERGY

Energy efficiency, efficient management of heating and cooling networks, green energy production.

Veolia in the Netherlands

Veolia Nederland BV



Nederland B.V.

Separate BU's



Circular Economy



Paper Recycling Nederland B.V.

Plastics Nederland B.V.

Polymers B.V.



Energy Transition



Gebouwenbeheer B.V.

Industriediensten B.V.

Energienetwerken B.V.



OVERVIEW OF THE SERVICES OF VEOLIA IN THE NETHERLANDS (1)

Veolia Gebouwenbeheer

develops solutions for its customers to make buildings more efficient, environmentally friendly and sustainable.

Veolia Industriediensten

supplies industrial markets within the Netherlands with process water and cooling.

Veolia Energienetwerken

manages heat and cold networks. The networks are designed to provide heating and cooling to, for example, school buildings, care institutions, office buildings and residential areas.

Veolia Energienetwerken

manages heat and cold networks. The networks are designed to provide heating and cooling to, for example, school buildings, care institutions, office buildings and residential areas.

OVERVIEW OF THE SERVICES OF VEOLIA IN THE NETHERLANDS (2)

Veolia Paper Recycling Nederland

recycles paper and cardboard and brings the material back into the circular economy

Veolia Polymers

markets PP recyclates of superior quality under the Vision PP brand. These Vision PP Compounds are produced from industrial waste streams, consumer waste streams and combinations of the two.

Aufderhaar Kunststof Recycling

focuses on the purchase of PP - and HDPE sorted bales from consumer packaging waste and on PP sorted bales from agriculture and horticulture.

Flethic

creates customized flexible packaging solutions and follows a complete production process including extrusion blow moulding and injection moulding.

Veolia Plastics Recycling Nederland

is an expert in the field of directing a variety of waste streams and organizes and directs the entire process: from collecting materials to recycling in order to recover new, valuable raw materials.

Eurobottle

has been the founder of the biobased plastic water bottle since 2014, which is 100% recyclable.

focus on Veolia Polymers from recycling company to feedstock producer



With more than 50 years of experience, Veolia Polymers is an European recognized reference for the production of high grades recycled polymers.



Veolia in Europe
a large clients network

lc packaging®



DANONE



ALPLA



**Reckitt
Benckiser**



JARDIN®



plastic recycling by Veolia

How it can help you to become circular?

Polymers sectors & types

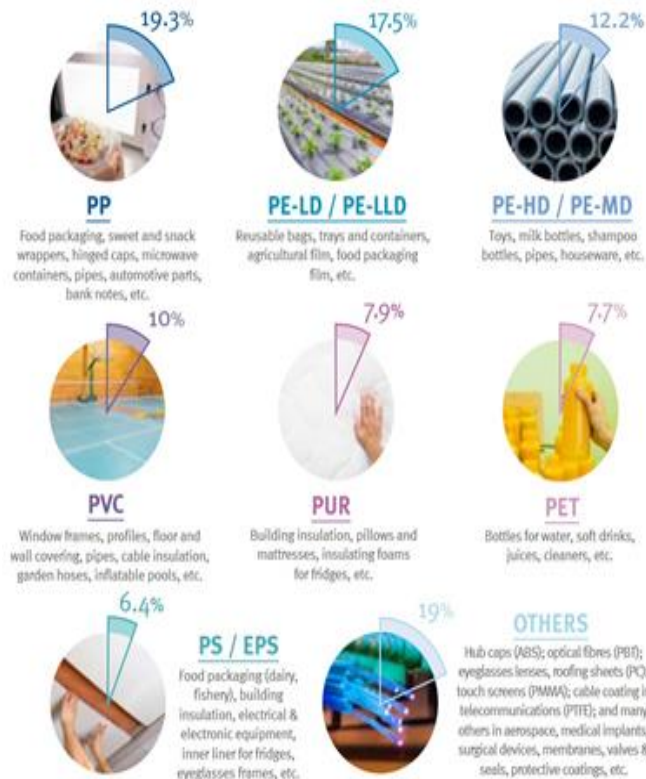


51.2 M t
Total European plastics
converters demand

lc packaging*

FIBCs

- >350 million p. year
- >98,5% recyclable



Polymer recycling working with closed loops



PET



rPET



HDPE



rHDPE



PP



rPP

lc packaging®

VEOLIA



Focus on Veolia Polymers a major European actor



Horticulture

Civil engineering

Automotiv

Electronics

Pipes

Leisure | furniture

45 000 T

Of recycled PP
produced annually

25

Different grades
and keeps
creating new
ones

Receives washed
flakes

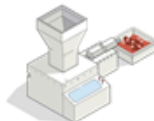
Compounding to
match expectations

Extrusions -
granulation

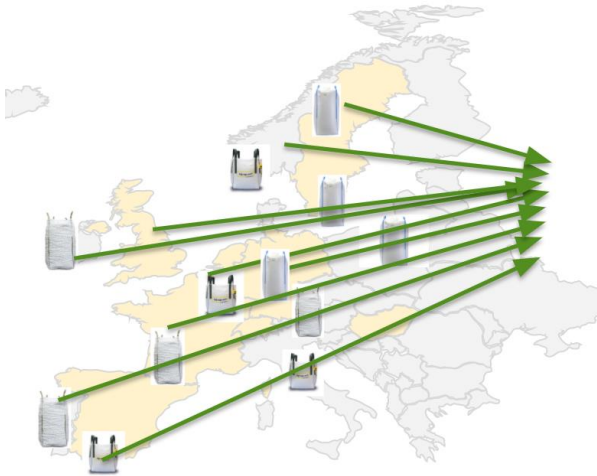
PP recycles,
ready for new life

Careful laboratory
analysis

Recyclates sent to
your plant



Current status on cooperation LC Packaging | Veolia



collection of used FIBCs (with “passport”)

- + huge quantities PP
- + monomaterial (>98%)
- logistics
- contamination



processing: grinding/washing

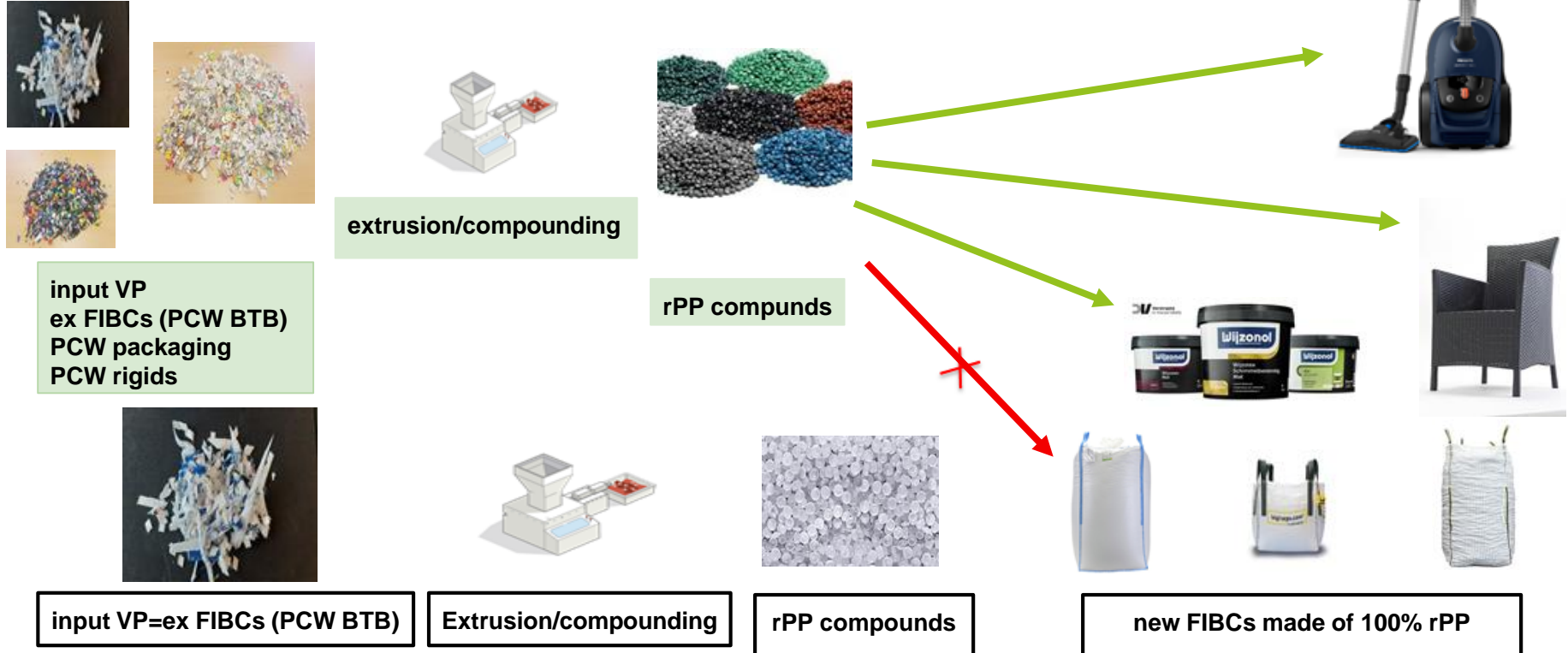
- + higher purity
- + homogenized
- presorting
- labor intensive

output = new input

- + defined properties PP
- + monomaterial (>99,5%)
- low bulk density
- needs extra processing

Current status and future steps

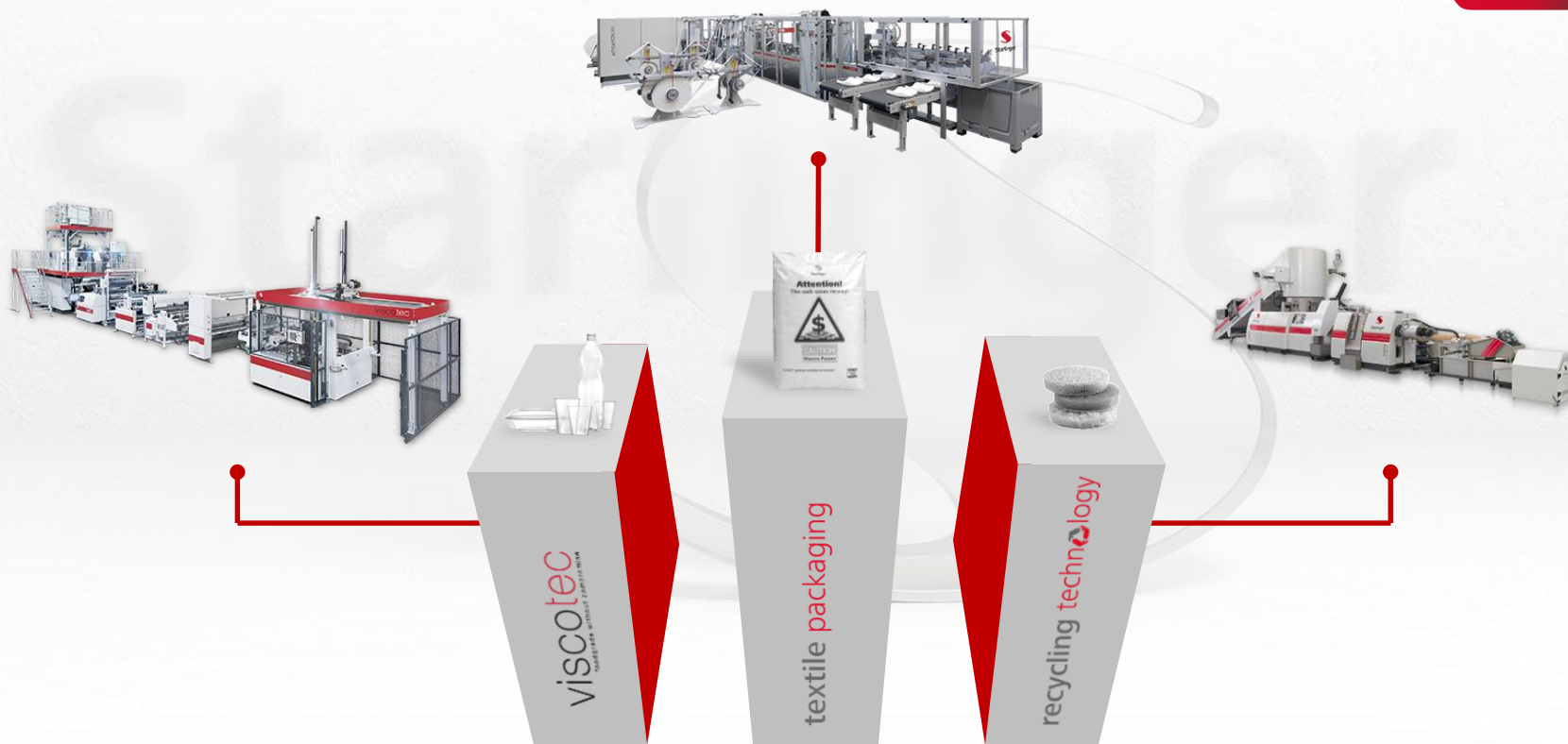
LC Packaging | Veolia



rPP - FIBC BAG2BAG

CIRCULAR PACKAGING

Starlinger Company Structure – 3 Divisions



Starlinger Commitment to Circular Economy



Circular Economy Principle

- Transforming the linear economy
- There is no waste it is a new type of resource
- Saving natural resources
- Reducing CO2 emissions
- Following the UN Agenda 2030 to achieve the Sustainability Development Goals



Circular Packaging – rPP FIBC



Design for Recycling (DfR)

- The circular process starts with the product!
- The product entering the market must follow the DfR rules
 - Mono Material
(no PET/ PA sewing yarns, no Nylon cords)
 - Think of printing and use of colors
 - Think of liner requirements
- DfR is the basis for high quality rPP material

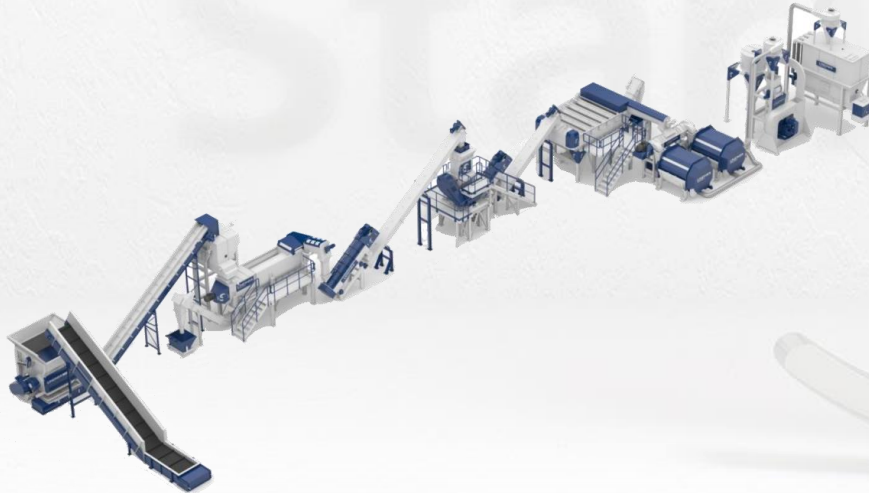
Circular Packaging – rPP FIBC



Post Consumer Collection

- Material instead of Waste Management
- Implementation of collection guidelines
 - DfR FIBC only
 - Use a material passport
 - Compress the material for efficient transport
- Achieving high collection rates is the basis for an constant flow of rPP material

Circular Packaging – Starlinger Commitment



- Providing technical expertise regarding design and requirements for washing plants
- Arranging joint trials in order to simulate circular packaging business cases
- Assisting to set up a post consumer rPP - recycling plant as turn key project

Circular Packaging – Starlinger Commitment



- Latest level of recycling technology specially designed for handling of washed post consumer material
- Up-cycling capabilities with recoSTAR dynamic TX machine arrangement
- Material testing and tracing to homogenise rPP properties and achieve a constantly high pellet quality.

Circular Packaging – Starlinger Commitment



- rPP ready extruder configuration and control logic.
- Automatic batch calculation and filter control
- rPP Tape quality comparable with virgin made tapes. rPP Tapes useable on all STARLINGER looms
- Documentation tools to ensure material tracing and quality documentation for tape and fabric
- rPP Fabric bales ready for conversion

LC Packaging & Starlinger – rPP FIBC



Circular Packaging trial

- Joint approach of merchant and manufacturer
- Using post consumer FIBC's
- 50% rPP content achieved
- Efficient production according to industrial requirements
- Same mechanical strength like virgin made
 - Fabric weight 170g/m²
 - SWL 1000kg – Safety Factor 5:1
- **50% natural resources saved!**

Circular Packaging – rPP FIBC



Challenges and Responsibilities

- Commitment of all participants within the lifecycle to the requirements of circular economy
- Establishing an efficient collection and tracing system to increase the material stream
- Establishing local recycling and production capabilities to reduce transport costs and to maximize production efficiency
- The circular chain is only as strong as the weakest link



Let our experience work for you



Starlinger

Questions?



lc packaging®
INTERNATIONAL