COLLECTION - SORTING - REPROCESING - LEGISLATION - EXTENDED PRODUCER RESPONSIBILITY - DEPOSIT SYSTEMS - FUTURE TECHNOLOGIES

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RECYCLING DISASTERS

en hoe het beter kan....

VNV webinar – 10 maart 2021

suez circpack® EXPERTISE & CERTIFICATION

Wat is ‘RECYCLEBAAR’?

1. INZAMELING

2. SORTERING

3. HERVERWERKING

4. TOEPASSING

= RECYCLEBAAR

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2 INZAMELING van verpakkingen

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Het begint bij INZAMELING

Biodegradeerbare plastics zijn niet toegestaan in PMD

NIET toegestaan:

WEL toegestaan:

Het begint bij INZAMELING

De combinatie van karton & plastic (anders dan drankenkarton) is in Nederland niet toegestaan bij oud papier of PMD.

NIET toegestaan:

WEL toegestaan:

Het begint bij INZAMELING

Verpakking met een aluminium laag

NIET toegestaan:

Koffiebonenzak:
Combi van
- PP
- PE
- Alu

WEL toegestaan:

Koffiebonenzak:
PE

Het begint bij INZAMELING

Vervuiling van karton met voesdelresten

NIET toegestaan:

WEL toegestaan:

Het begint bij INZAMELING

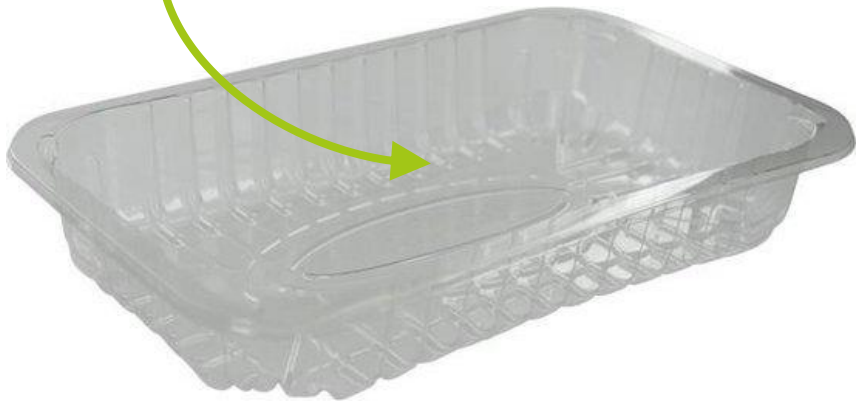
Materiaal van EPS (geschuimd PS)

NIET toegestaan:

Schuimschaal van PS

WEL toegestaan:

PET-schaaltje



Het begint bij INZAMELING

Belangrijkste ontwikkelingen in INZAMELING

1. NL - Uitbreiding statiegeld kleine PET-flesjes en blikjes (waters en frisdranken).
2. EU - toename statiegeld systemen
3. EU - Toename inzameling flexibele verpakkingen

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SORTERING van verpakkingen

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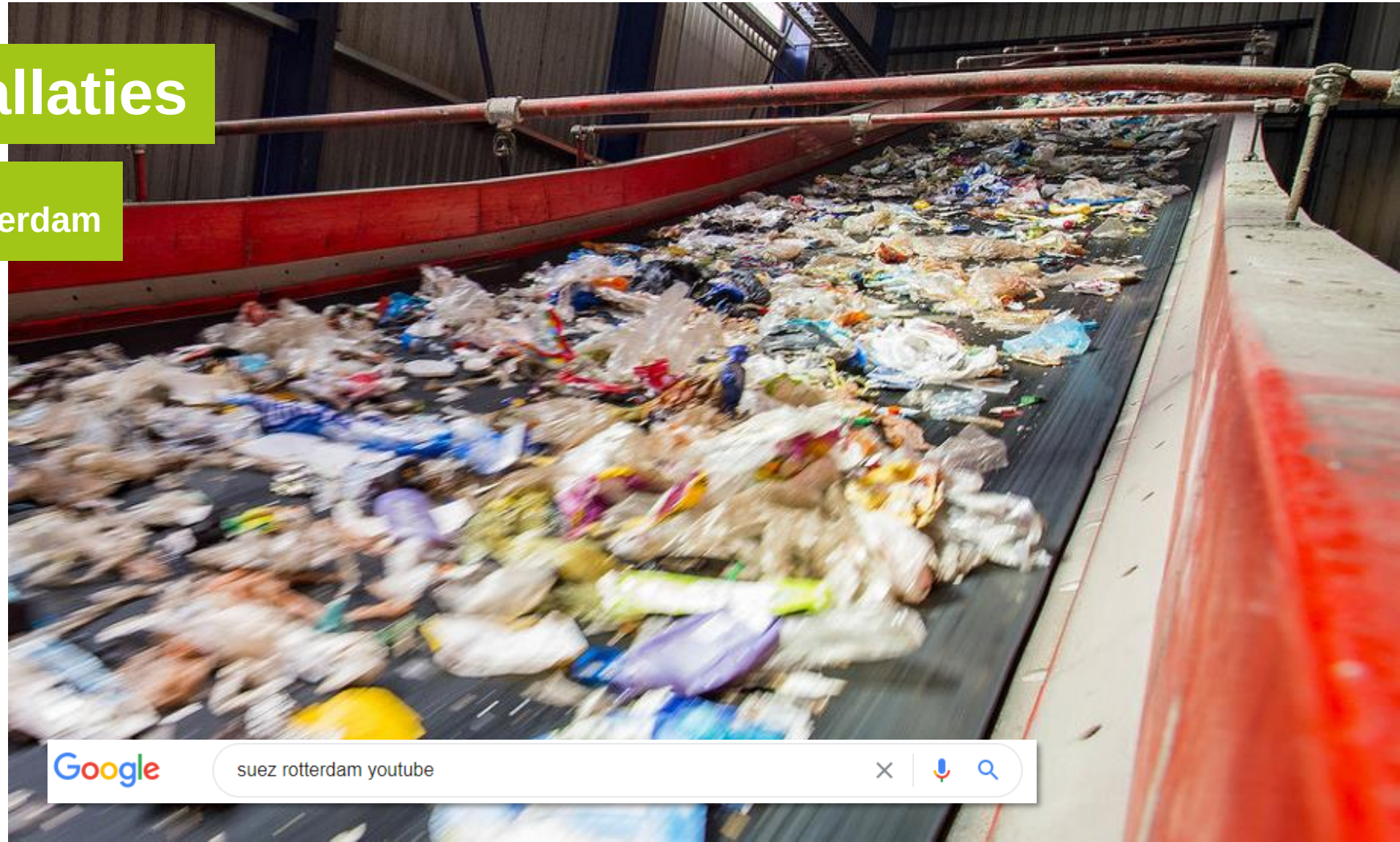
De uitdaging van de SORTERING

Sorteer installaties

Voorbeeld: SUEZ Rotterdam



De uitdaging van de SORTERING

Issue:

Carbon black wordt niet herkend door NIR (Near Infrared)

De uitdaging van de SORTERING

Issue:

Kristallisatie van de **honing** (door vochtigheid)

PET-verpakking is nu **te zwaar** om gesorteerd te worden. In glas overigens geen probleem…

De uitdaging van de SORTERING

Issue:

Productresidue maakt verpakking **te zwaar** om gesorteerd te worden.

Easy-to-empty-coating?

De uitdaging van de SORTERING

Issue:

Lijkt op drankenkarton, maar heeft **geen PE aan de buitenkant.**

Wordt daarom **niet gesorteerd in Nederland.** Sortering is technisch oplosbaar…..

De uitdaging van de SORTERING

Issue:

Verpakkingen met **gaten** laten zich **niet uitblazen door airjets**.

Netjes raken **verstrikt** in draaiende delen. Dit zorgt voor **stilstand** van de **sorteerinstallaties**.

De uitdaging van de SORTERING

Issue:

Full body sleeves

NIR krijgt een gemengd Infrarood spectrum te zien (en dus moeilijk identificeerbaar)

De uitdaging van de SORTERING

Belangrijkste ontwikkelingen in SORTERING

1. Global - Digitale watermerken (Holy Grail)
2. Global - Image recognition & Deep Learning
3. EU - Meer flexibles (en specifiek mono-PE-flexibles)

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HERVERWERKEN van verpakkingen

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Uitdagingen bij HERVERWERKEN

Ontwerp richtlijnen plastic verpakkingen

https://recyclass.eu/recyclass/design-for-recycling-guidelines/

RecyClass Design Guidelines zijn beschikbaar voor:

PET:	
PET bottles	- clear
PET bottles	- coloured
PET thermoformed trays	

PO:
PE & PP pots, tubs & trays
HDPE & PP crates and pallets

PE:	
HDPE containers	- natural
HDPE containers	- coloured
PE flexible film	- natural
PE flexible film	- coloured

PP:	
PP containers	- natural
PP containers	- coloured
PP flexible film	- natural
PP flexible film	- coloured

Uitdagingen bij HERVERWERKEN

HDPE

Design for recycling GUIDELINES

PE-HD Natural Containers and Tubes

RecyClass	YES - FULL COMPATIBILITY	CONDITIONAL - LIMITED COMPATIBILITY	NO - LOW COMPATIBILITY
Class ranking*	A-B	B-C	D-E-F
Description (Test Protocol)	Materials that passed the testing protocols with no negative impact OR materials that have not been tested (yet), but are known to be acceptable in HDPE recycling	Materials that passed the testing protocols if certain conditions are met OR materials that have not been tested (yet), but pose a low risk of interfering with HDPE recycling	Materials that failed the testing protocols OR materials that have not been tested (yet), but pose a high risk of interfering with HDPE recycling
Container**	HDPE; Multilayer HDPE with other PE (LLDPE, LDPE, MDPE).		Multilayers HDPE with PLA; PVC; PS; PET; PETG
Material composition	A when PE content is > 95%; B when PE content is > 90%	C when PE content is > 70%	D when PE content is > 50%; E when PE content is > 30%; F when PE content is < 30%
Colours	Natural (clear);	Light colours	Black Inner layer; Black; Carbon Black; Other dark colours
Size		Items compacted < 5 cm	Items compacted < 2 cm
Product residues (Easy to Empty index)	A if the index is < 5%; B if the index is < 10%	C if the index is < 15%;	D if the index is < 20%; E < if the index is 25%; F if the index is > 25%
Barrier	EVOH < 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layers ratio ≤ 2; Enkase (fluorination)	EVOH > 6.0%wt + PE-g-MAH tie layers with MAH > 0.1%wt and EVOH:tie layers ratio ≤ 2; EVOH < 1% with any other tie layers	EVOH > 1% with any other tie layers; PA; PVDC; Aluminium
Additives	Additives that are unavoidable in processing (stabilizers, antioxidants, lubricants, nucleating agents, peroxides) and density remains < 0,97 g/cm³	Mineral fillers ($CaCO_3$, talc) not increasing density more than 0,97 g/cm³	Additives changing the material density > 1 g/cm³ Flame-retardant additives, plasticizers Bio-/oxo-/photodegradable additives
Closure Systems	HDPE; LDPE; LLDPE; MDPE	PP; PET; PETG; PLA; PS (all with a density > 1 g/cm³).	Non-PO and/or foams with density < 1 g/cm³; Aluminium; Metal; PVC
Liners, Seals and Valves	HDPE; LDPE; LLDPE; MDPE TPE-PE	PP; TPE-PP PET, PETG, PLA ; PS (all with a density > 1 g/cm³); Removable aluminium lidding; Removable silicon with a density > 1 g/cm³	Non-PO and/or foams with density < 1 g/cm³; Any other TPE Aluminium; Metal; Foiled paper; PVC
Labels	Labels in HDPE, LDPE, LLDPE, MDPE (all with density < 1 g/cm³)* * with a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer	Labels in PP (with density < 1 g/cm³)*; Labels in PET, PETG, PLA, PS (all with density > 1 g/cm³)*; Labels in Paper without fibreloss*; PO-foamed labels*; * with a size, a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer: - Indication label size on containers > 500 ml: < 70% coverage - Indication label size on containers ≤ 500 ml: < 50% coverage	Labels that hinder the recognition of the PE; Labels in non PO-materials with density < 1 g/cm³ ; Paper labels with fibreloss during recycling process Aluminium Metallised labels; PVC
Sleeves	Sleeves in HDPE, LDPE, LLDPE, MDPE (all with density < 1 g/cm³)* * with a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer	Sleeves in PP (with density < 1 g/cm³)*; Sleeves in PET, PETG, PLA, PS (all with density >1 g/cm³)*; * with a size, a print and/or barrier that does not hinder the recognition of the underlaying PE-polymer: - Indication sleeve size on containers > 500 ml: < 70% coverage - Indication sleeve size on containers ≤ 500 ml: < 50% coverage	Sleeves that hinder the recognition of the PE; Sleeves in non PO-materials with density < 1 g/cm³ ; Aluminium; Metallised sleeves; Heavily inked sleeves; PVC
Adhesives for labels	Water soluble or water releasable adhesive (@ less than 40°C)	Pressure sensitive labels	Non water soluble or non water releasable adhesives
Inks	Non toxic following the EuPIA Guidlines		Inks that bleed; Toxic or hazardous inks.
Direct Printing	Laser marked; Production or best-before date.		Any other direct printing
Other Components	HDPE, LDPE, LLDPE, MDPE	PP; PET; PETG; PLA; PS all with density > 1 g/cm³	Aluminium; PVC; Glass components; Foams with density < 1 g/cm³
Recycled content	No change in the recyclability assessment. A separate 'Recycled Content Traceability Certification' based on a Chain of Custody approach is available with RecyClass		

Last update - January 2021

* Class ranking resulting by the RecyClass assessment. B class is reported two times because of the 90-95% amount of PE in the packaging or because of slight incompatibilities in the design.

** Polymer resin can be either fossil- or bio-based.

Uitdagingen bij HERVERWERKEN

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Dank voor jullie aandacht!

Meer weten over recycling van verpakkingen?