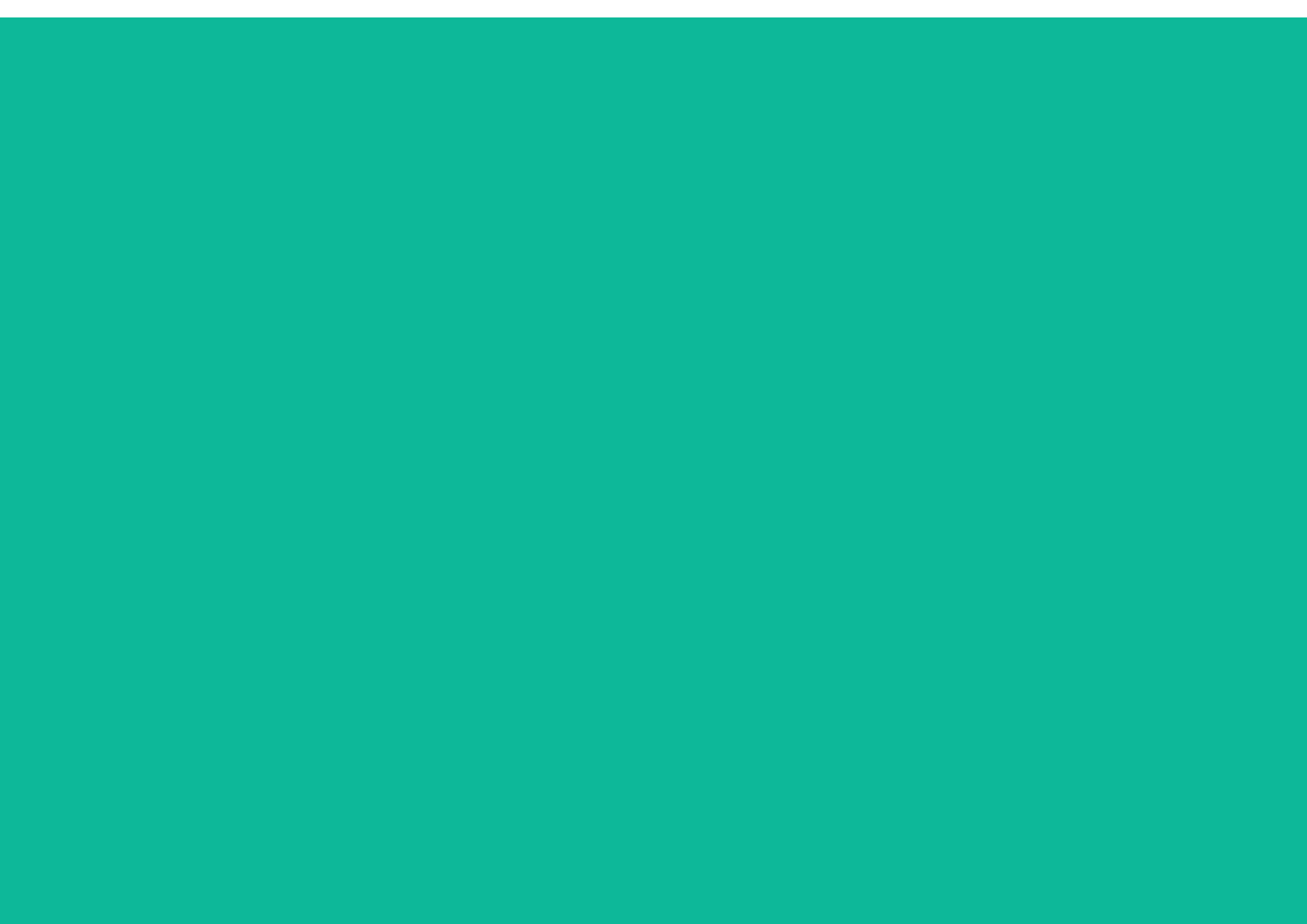


# Port of Antwerp Activity Report 2021

Operation Clean Sweep®

NOVEMBER 2021



# Introduction

**Located in one of the busiest places for the production and handling of polymers, the Antwerp plastics value chain is at the forefront of efforts to eliminate leakage of plastic pellets to the environment.**

The journey towards zero pellet loss in the Port of Antwerp (PoA) started in 2017, when the Antwerp Zero Pellet Loss Platform ('the Platform') was collectively launched by value chain actors: Alfaport Voka, essenscia, Plastics Europe, and the Antwerp Port authority. The aim of this collaboration is to optimise the Operation Clean Sweep® (OCS) programme implementation in the PoA.

This document aims at giving an overview of the OCS implementation efforts of the Platform members (i.e. polymers producers, logistics and transport companies<sup>1</sup>) in the PoA, and the progress made on the implementation of the [Action Plan for Antwerp](#) ('the Action Plan') launched in 2019. This Action Plan aims at intensifying efforts to prevent pellets from ending up in the environment<sup>2</sup>. The report also highlights the remaining challenges that the Platform would like to tackle further.

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1 – BASF, Bertschi Belgium, Borealis, Bruhn Spedition, Bulkhaul Belgium, Corral, Covestro, De Rese, De Rijke, Eutraco (dormant member), Essers, EVAL Europe, ExxonMobil, Gheys, Ineos, Katoen Natie, Lanxess, Opdorp, SABIC, Salari Op en Overslag, Schmidt Belgium, Solvay, Styrolution, Remitrans, Ravago, TotalEnergies, Van Moer.

2 – The Action Plan goes beyond the six commitments under the OCS pledge and entails of concrete actions with regards to worksite set-up and equipment, procedures, auditing performances and outreach, as well as cleaning actions. Available here: <https://plasticseurope.org/knowledge-hub/operation-clean-sweep-port-of-antwerp-activity-report-2019/>

In the coming years, Platform member companies will increase their preventive measures via upcoming OCS certification. This certification scheme has been developed by the European plastics value chain and will be launched on the 1st of January 2022. It aims at controlling and documenting compliance with requirements to minimise pellet loss across the entire supply chain. All Plastics Europe members have committed to undergoing certification auditing by 2025, including their production sites in the PoA.





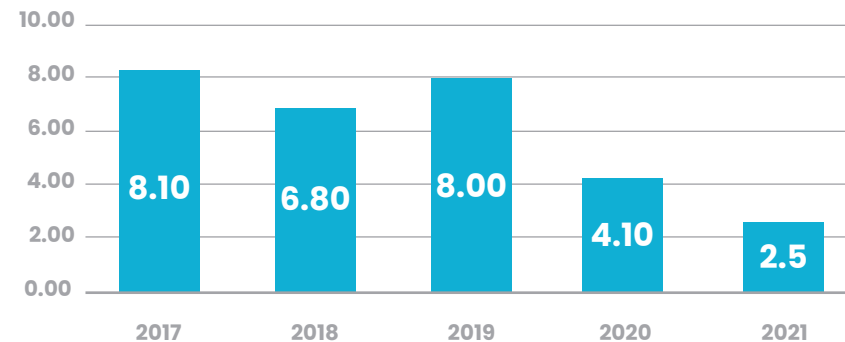
# Pellet loss situation in the Port of Antwerp

In 2017, several locations where pellets accumulate ('hotspots') were identified on the PoA roads and docks. Since then, the Platform's producing and logistics companies have voluntarily been financing the regular clean-up of identified hotspots<sup>3</sup>. The quantity of collected pellets is an indicator to present the pellet loss situation in the Port.

Since the launch of the Antwerp Zero Pellet Loss initiative, the collected quantities dropped significantly, a trend forecast to continue in 2021, according to preliminary estimations. However, the zero pellet loss objective is not yet reached, as 2.5 tonnes of pellets were collected in 2021<sup>4</sup>. The distribution of pellets loss origin (road or site losses vs historical) has yet to be determined and is unknown at the time of publication.

The following graph is an overview of the collected pellets at hotspots in the docks of the PoA, as estimated by the Port authority<sup>5</sup>.

Removed pellets at the PoA (docks) hotspots (in tonnes)



3 – Operated by the Port authority. For the clean-up of the hotspots located in the docks, the pellets are manually removed together with all types of litter, notably thanks to an industrial vacuum cleaner. The evaluation of the quantities of collected pellets takes place afterwards when the pellets are separated from the rest of littered items by means of the waste processing certificate. For the clean-up of the hotspots located on the PoA roads, a sweeping machine is running to collect pellets. However, it is not possible to assess the quantity of the collected pellets on the roads against other collected litter.

4 – Collected quantities from January to September 2021. Additional clean-ups will be organised until end of 2021, which could possibly impact the amounts of collected pellets in 2021.

5 – The estimated quantities in 2017 and 2018 differ from the quantities of the 2019 OCS Port of Antwerp Activity report.

This is explained by the following events:

- 2017: additional pellets were removed via a special treatment for oil spills in the PoA. For that year, an additional quantity of 5 tonnes removed pellets is estimated, bringing the removed pellets at the PoA (docks) hotspots to 8.1 Mt.
- 2018: a clean-up action was postponed to the early 2019 due to bad weather condition. An additional quantity of 3,5 tonnes removed pellets is thus estimated for 2018, bringing the removed pellets at the PoA (docks) hotspots to 6.8 Mt.

In addition, the University of Antwerp (UA) carried out research in the Port in 2020–2021, which will provide a picture of the current distribution of pellets lost on roads and accumulation areas in the PoA and the exposure in biota.

Preliminary results indicate an overall decrease in pellet losses on the Port roads and suggests a positive effect of the actions recently undertaken on industrial sites. The research also shows a heterogeneous distribution over the entire PoA area, for both recent historical losses. In addition, the biomonitoring campaign indicates that birds are at risk due to possible ingestion of plastic pellets (Vyshal Delahaut –UA).

The Port authority aims at continuing the UA monitoring in the longer term as a separate Port authority campaign. This would help continued evaluation of the distribution of pellet loss on the roads and their accumulation at defined hotspots. In turn, providing a continuous overview of the pellet loss situation, contributing to industry's performance evaluation of its prevention measures.



*Port of Antwerp, pellet loss  
hotspot cleaning, September 2020*

*© Port authority*

# Antwerp plastics value chain working towards zero pellet loss

**Platform members have been implementing numerous measures, in line with the OCS programme and the Action Plan, to prevent pellet spills and mitigate losses in the environment, both jointly and as individual companies.**

The upcoming OCS certification scheme will enable assessment of the companies' preventive and mitigating measures in a harmonised and accurate way. In the meantime, a survey<sup>6</sup> to the individual companies<sup>7</sup> enabled the Platform to have an overview of the current state of prevention and to identify areas for further improvement.

The below results reflect the companies' aggregated and anonymised inputs<sup>8</sup>.

## 1. Mapping risks and implementing measures<sup>9</sup>

The survey shows that a risk mapping of potential pellet spills incidents during operations<sup>10</sup> has been carried out at more than 90% of Platform's

producing and logistics companies' sites, to identify where they need to implement the relevant measures. However, a full root cause analysis to assess possible incidental release outside of the site's boundaries (such as via the waste/rain drainage and sewer) has been performed on only 35% of the sites. The later will become a requirement under the upcoming OCS certification, though.

Based on their observations and in function of their needs, the Platform's producing and logistics companies took new preventive measures since 2019. Examples include, upgraded fencing (to prevent the wind to blow pellets outside the site's boundaries), the installation of cleaning tunnels and frames for silo trucks and containers after loading, the use of closed loading pipes and level sensors for bulk loading to avoid overfilling.

In addition to preventive measures, last line of defence measures are also needed to avoid remaining spills entering the environment or breaching a site's boundary. In this regard, the survey shows that the majority of the Platform's producing and logistics sites have filtration systems to retain plastic pellets before water enters the public drainage- the Scheldt River or the dock water (91% for rainwater<sup>11</sup> and 100% for waste/operational water)<sup>12</sup>. Depending on the infrastructure and the specific activities performed on their sites, a choice has been made between the installation of a centralised water treatment or sieves at the

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6 – The survey run in the summer 2021. The survey's questions have been developed by the Platform members.

7 – To all the Platform's active members: 10 producing companies, 6 logistics companies & 9 transport companies, representing 23 facilities in the PoA. Production & logistics operators present on the same facility (integrated facilities) were counted as one facility.

8 – Please note that the companies' inputs to the survey were not third party audited, and that the survey bears some limitations in terms of definitions used and questions asked, leading to possibly contradictory inputs from the Platform's companies.

9 – This section presents aggregated information for the 23 facilities in the PoA.

10 – For example: production, packaging, loading and unloading activities, etc.

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11 – For the remaining sites, skimmer pits are installed to retain spilled pellets, which are then removed.

12 – Please note that the survey did not enable to investigate the type of filtration systems put in place at each producing and logistics sites in the PoA, and their retention efficiency.

entrance of drainage pipes. In some cases, both are used to complement each other in specific areas where spills may occur. The survey shows that last line of defence measures are also evaluated against heavy rain and wind at 60% of the sites. Additionally, some companies clean their site's roads, sometimes also outside the sites' boundaries, on their own initiative.

In the context of the Flanders' [OVAM Uitvoeringsplan Kunststoffen 2020-2025](#)<sup>13</sup>, the Platform is also supporting public authorities in their investigation towards implementing a uniformed level of pellet loss preventive and mitigating measures in the entire Flemish plastics value chain, including in the PoA.

13 – Available at <https://www.ovam.be/uitvoeringsplan-kunststoffen-2020-2025-van-de-ovam-hergebruik-van-plastic-en-investeren-in-vlaamse>

## 2. Keeping on exchanging best practices

Finding technical solutions at existing producing and logistics sites, especially for older infrastructure, remains a challenge. This is where best practices exchanges are helpful.

In function of the companies' needs, best practices exchanges are organised amongst members of the Platform. Recent sessions notably covered preventive infrastructures and equipment, techniques to minimise spills for bulk loading, truck inspection and cleaning procedures, as well as loading and unloading instructions for truck drivers.

Some examples of implemented best practices in the Port of Antwerp are shown in the infographic on the next page.



Closed loading pipe for bulk loading

© Katoen Natie



Cleaning machine

© Ineos Manufacturing  
Belgium



# How we strive for zero pellet loss in the Port of Antwerp

Cleaning areas for trucks to remove pellets and dispose used liners and seals after unloading



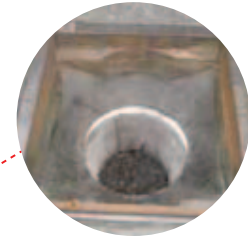
Inspection and cleaning of trucks when loaded



Sweeping machines for regular cleanings



Sieves installed in sewage entrances which are regularly cleaned



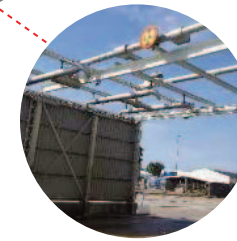
Pellet separator installed to separate pellets from the rain water, before the release into the public sewage system



Concrete fences to optimize the cleaning and avoid spills outside the factory site



Automated bulk cleaning system



Strict cleaning procedures before loading packed goods onto trailers



Sweeping machines on the public roads of the Port of Antwerp



Cleaning kits & bins available at each loading and unloading area

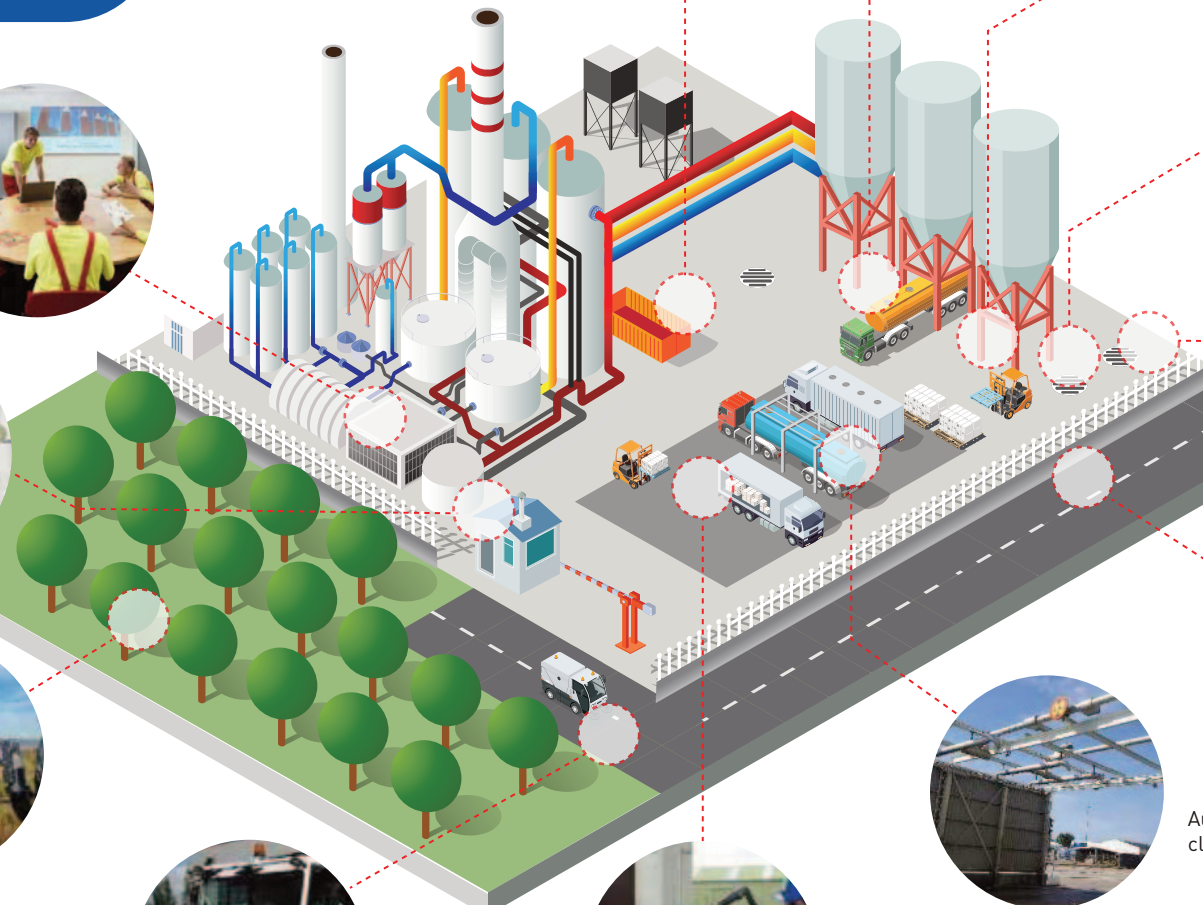


Sweeping kit for each fork lift driver



Regular trainings for workers and truck drivers on best practices to avoid pellet loss

Nul-o-Plastic sweeping machine to clean historical spill of pellets in Galgeschoor nature reserve



Port of Antwerp pellet loss prevention best practices infographic, developed by *essenscia PolyMatters*

### 3. Inspecting and cleaning

Both bulk and packed loading and unloading operations account for the highest risk of loss at all stages of the value chain. Since 2019, the Platform members have paid an increased attention to truck inspection and cleaning in this regard.

The survey shows that, after loading silo trucks and bulk containers, 87% of Platform's producing and logistics companies proceed with an OCS inspection. 56% of them inspect more than 90% of loaded silo trucks and bulk containers. For cleaning of the remaining pellets, companies may choose to work with automated blowing tunnels and frames or with a manual cleaning. Inspection and cleaning are typically performed by the loading sites' operators or, in some cases by/in cooperation with the truck drivers.

75% of the companies declare that they regularly check the effectiveness of their current truck inspection and cleaning activities, some of them even including a check outside their site's boundaries (e.g. presence of pellets at exit points, parking places, etc.).

Before loading trailers and containers with packed plastic pellets (e.g. bags or cardboard octabins on pallets), about 86% of the companies declare checking if pellets from the previous journey remain (e.g. sticking on the floor or in potholes) and conduct a final cleaning if needed. When trailers and containers are unloaded from their packed plastic pellets, companies usually perform an OCS check so that no pellet would be lost on the return transit. This preventive best practice needs to be further promoted in the PoA and at all unloading locations (e.g. converters and distributors), more generally. Indeed, up to a third of the incoming trailers and containers still have pellets from previous journeys on their floors.

Raising the awareness and education of staff members (e.g. loading and packaging operators) that inspection and cleaning is a continuous responsibility, is a challenge for the producing and logistics companies. The survey shows that 87% of the Platform members set training programmes for their employees (e.g. forklift drivers, packaging and bulk loading operators, etc.) in this respect and dedicated procedures.

The current level of truck inspections and staff member training by the Platform member companies is a significant step forward towards pellet loss prevention from transport. The companies will continue working towards the highest level of truck inspection and staff awareness raising, as per the Action Plan and the upcoming OCS certification.



*Automated blowing tunnels and frames*

© Ineos Manufacturing Belgium



*Loading of packed goods*

© Ineos Manufacturing Belgium



*Manual cleaning after bulk loading*

© Borealis

## 4. Outreach to truck drivers

Since 2019, the transport sector has become significantly involved in zero pellet loss, with increasing signatories in Belgium and involvement within the Platform, notably with the sector federations Febetra and Transport Logistiek Vlaanderen.

The survey shows that close to 90% of Platform's transport companies offer a periodic OCS training to their drivers and have included OCS instructions in their drivers' manuals to minimise spills during the loading and unloading operations. 75% of the Platform's producing and logistics companies also declare giving specific actions to incoming truck drivers on their sites, via various communication materials or dedicated sites operators.

Based on best practices exchanges, a series of [educational infographics](#)<sup>14</sup> has been developed by Plastics Europe highlighting the key procedural steps for truck drivers when loading and unloading plastic pellets. All transport companies and more than half of the producing and logistics companies of the Platform declare promoting them.

Drivers of product-dedicated transport companies seem to be generally trained and informed about pellet loss prevention, and companies notice that the awareness of incoming truck drivers have improved since 2019. Although, sub-contracted transporters and non-specialised transport companies (e.g. for the transport of sea containers) remain a challenge to reach out to (also for example as regards the return of containers' liners). Further awareness raising actions are being considered.

<sup>14</sup> – These educational infographics are available for all stakeholders of the plastics value chain in their communication towards truck drivers since January 2021, in various languages (Dutch, English, French, German, Italian, Polish, Portuguese and Spanish). [www.opcleansweep.eu/the-solution/tools-manual](http://www.opcleansweep.eu/the-solution/tools-manual)



*Awareness raising posters for truck drivers*

*© Ineos Manufacturing Belgium and Bertschi-Antwerp Zomerweg Terminal*



## CONTAINERS' LINERS

Inner plastic liners in containers – generally used for bulk inland intermodal transport or sea transport – with residual product, must be removed and disposed by the transporter in an appropriate area and a new one installed for the following journey. Liners are generally taken back at the trucks' depot. However, some drivers occasionally change liners on the side of the public road. This practice results in product losses during their subsequent journey. Unfortunately, some liners are on rare occasions also littered on the public road.

Conscious about this issue, the Platform included specific instructions related to the correct disposal of liners and container cleaning in the Plastics Europe communication materials for truck drivers. As foreseen in the Action Plan, several producing and logistics companies in the Port of Antwerp also offer specific locations on their sites for containers to be cleaned with appropriate tools. Liners can also be disposed at any of four locations in the Port.



## 5. Volunteering to audit performances

To control and document compliance with requirements targeting the minimisation of pellet loss across the entire supply chain, the European plastics value chain has developed the OCS certification scheme building on the six pillars of the [OCS pledge](#).

As foreseen in the Action Plan, the Antwerp plastics value chain volunteered to serve as a pilot for the OCS certification scheme: two production locations were pilot tested against the OCS audit questionnaire by accredited third party auditors, and two additional production locations were tested against the accompanying risk minimisation model<sup>15</sup> as well. Feedback from these tests is key to ensure that the questionnaires are fit for purpose and practicable ahead of the official launch of the certification on the 1<sup>st</sup> of January 2022.

## 6. Procurement as a tool for outreach

Continually reaching out, via procurement and other channels, is needed to foster awareness across the value chain, certainly to sub-contracted transporters, waste collectors, recyclers and industrial cleaning companies.

The survey shows that tender specifications for logistics services (e.g. transport, distribution and cleaning services) are increasingly specifying the zero pellet loss objective (77% of the Platform's producing and logistics companies) or requiring that providers sign-up to and implement OCS (25% of them fully requiring it, and 43% partly requiring it). Outreach to logistics providers via procurement will remain an area of improvement for the Platform's member companies in the coming years.

About 80% of Platform's producing and logistics companies declare using their complaint systems and hold regular meetings with their service providers to report on environmental issues.

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<sup>15</sup> – This model is complementary to the OCS certification scheme and will be proposed to the plastics value chain stakeholders to assess the magnitude of losses during their operations based on the retention efficiency of their implemented preventing and mitigating measures.



## 7. Cleaning pellet loss

In addition to the PoA clean-up activities at specific locations (see page 3), a road sweeping plan has been running since June 2020 to clean the roads of the Port where incidental pellet loss is most likely to occur, as part of the Action Plan. Cleaning takes place every two weeks and, similar to the hotspots clean-up, is financed by the Platform member companies on a voluntary basis<sup>16</sup>.

The Platform is also investigating the best options for stakeholders to report incidental pellet loss on the Port roads. Currently, the PoA has installed a [hotline](#) to report environment issues, including pellet losses. The Platform members have promoted this hotline to their employees and aim at raising the awareness on this reporting tool to other stakeholders.

Nul-o-Plastic, Envisan (Jan De Nul Group) – winner of the 2019 PoA open innovation call for new clean-up techniques to tackle the historical plastics pollution in Galgeschoor nature reserve – has finalised the design of its vacuum cleaner and is ready to remove small plastic particles.



*Nul-O-Plastic in Galgenschoor*

©Jonathan Ramael

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<sup>16</sup> – The road sweeping plan is however managed by the Port authority.

# Antwerp OCS Action Plan – 2022 onwards

**OCS certification<sup>17</sup> will support the effective, harmonised and quantifiable implementation of the OCS programme by setting common minimum requirements<sup>18</sup> that will be audited regularly by accredited third party auditors.**

Plastics Europe's member companies committed to get audited against the OCS certification by the 1st of January 2025. This means that all Platform producing companies, together with the Antwerp logistics and transport companies audited against the OCS certification, will bring all their preventive and last line of defence measures to the same required standards and ensure a level playing field between the Platform companies' OCS strategies, and fill the remaining gaps that were identified in the present report.

Thanks to the survey of its member companies, the Platform also detected several additional areas of improvements where it wants to further act in 2022 onwards.

- The Platform wants to further work on the retention efficiency of water filtration techniques to avoid pellet loss via rainwater or waste/operational water.
- As per the Action Plan, the Platform members companies will continue efforts regarding of silo trucks and bulk containers inspection (by site operators and/or the truck drivers) to avoid pellet loss on the roads.

<sup>17</sup> – Developed by the European plastics value chain and to be launched on the 1<sup>st</sup> of January 2022.

<sup>18</sup> – Based on the six pillars of the OCS pledge

- In terms of outreach, the Platform's companies will continue their efforts to ensure 100% incoming truck drivers receive OCS instructions at all their loading sites, and to further raise the awareness of sub-contracted transporters and non-specialized transport companies as regards pellet loss. The Platform – its member companies and organizations – will also pursue with their outreach activities to converters, as regards OCS in general and the specific issue of cleaning unloaded trucks, as it is essential to ensure that the entire value chain is working towards zero pellet loss.
- Procurement being a key tool for outreach, the Platform's member companies will pursue their efforts to require OCS to their logistics partners (e.g. transport, distribution, waste collection and cleaning services).

The Platform will keep on reporting on its efforts to prevent pellet spills and mitigate losses in the environment on a regular basis.



*Surveyor cleaning a trailer before the loading of palletized goods.*

© ExxonMobil Petroleum & Chemical BV



*Surveyor checking and cleaning loaded trucks from spilled plastic pellets.*

*© ExxonMobil Petroleum & Chemical BV*



# Operation Clean Sweep® (OCS) in Belgium

In total, 109 companies across the plastics value chain have now joined the OCS programme in Belgium, together with 9 organisations<sup>19</sup>. The [list of OCS signatories](#) can be found on the OCS website.

Outreach towards the value chain continues, with dedicated workshops for converters in Flanders and Wallonia, information sessions to member companies of value chain organisations, such as Denuo, ABAS-KVBG (logistics) and Forward Belgium (shipping companies and forwarders). Awareness sessions also have been organised for Agoria, Fedustria, Centexbel and CEPA (Centrale der Werkgevers aan de Haven van Antwerpen). OCS is now also proposed in the Voka Sustainability Charter and was put forward at 2020 Voka Alfaport Sustainability event.

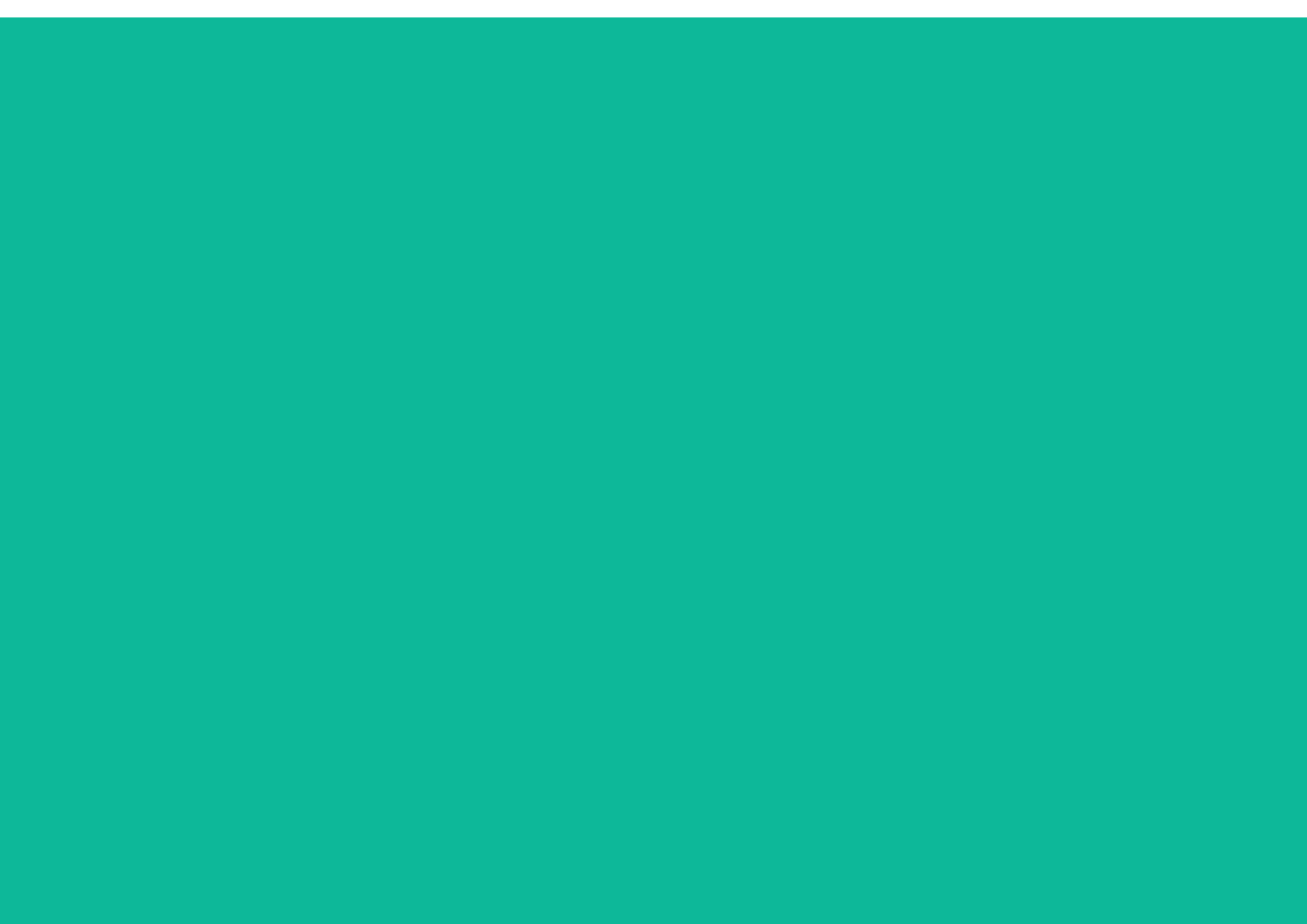



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<sup>19</sup> – Taking into account the signatories in the Port of Antwerp, and in addition to the companies who joined the OCS programme at European level and in other Member States, which could provide their services in Belgium as well. The complete list of signatories can be found on <https://www.opcleansweep.eu/signatories>

This report has been elaborated in collaboration with






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