

TATA STEEL



Roadmap Plus progress report

Fast track to a better living environment



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We aim for green and circular, but above all for clean steel

Steelmaking has been linked to IJmond for over a century and we want to continue this in a future-proof manner.

In the long term, this means the transition to green and circular steel. The steel with which we can build a sustainable foundation for the Netherlands as well. In the short term, this specifically means working towards the cleanest possible steel production. We do not take this step lightly: Tata Steel wants to further reduce the impact on its living environment, as quickly as possible.

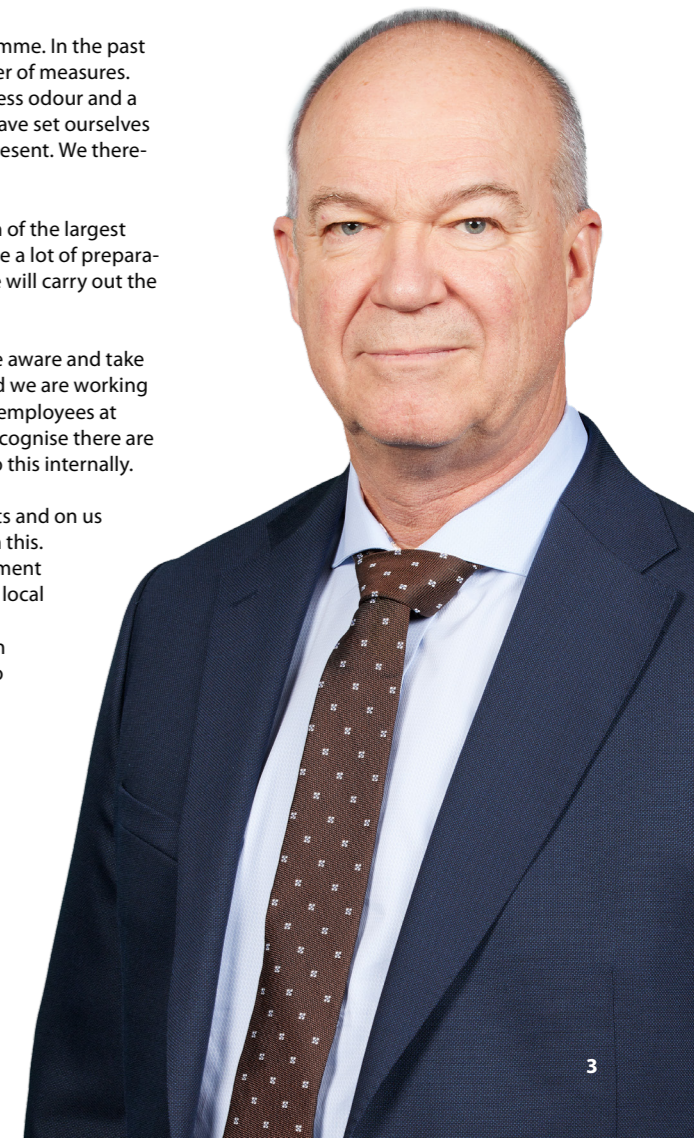
We do this by accelerating the measures from the Roadmap Plus programme. In the past year, as you can read in this report, we have implemented a huge number of measures. And we can see the impact of these in the measurements. Fewer PAHs, less odour and a reduction in dust and noise. But we aren't there yet. The ambitions we have set ourselves are challenging and the concerns of our local residents are still clearly present. We therefore have to continue to improve.

Many major measures are still on the agenda, including the construction of the largest environmental installation in our history. Although these projects require a lot of preparation time, they are well on schedule. We are therefore convinced that we will carry out the improvement programme according to plan.

In addition to the large-scale projects, we call on all our employees to be aware and take action in their daily work. The organisation wants to improve further and we are working hard on that. This is reflected in, for example, the progress made by our employees at Coking and Gas Plant 2, with positive results. Yet at the same time, we recognise there are still steps to be taken, which is why we will continue to draw attention to this internally.

The local community must be able to rely on the correctness of the results and on us keeping our promise. Independent verification plays an important role in this. That's why we have measurements performed by independent measurement agencies. In addition, we of course like to maintain the dialogue with the local community as well. After all, the experiences of our local residents are an important starting point. Feel free to visit us at the Environmental Desk in Wijk aan Zee and tell us about your experiences. This way, we continue to push forward.

Hans van den Berg
CEO Tata Steel Nederland



Reduced emissions through Roadmap Plus improvement programme

Great progress in especially PAHs and odour.

We are doing everything we can to accelerate the implementation of the environmental measures in the Roadmap. We added new measures at the end of 2020, under the name Roadmap Plus. With this programme, we set ourselves concrete goals for 2022 and 2023, combined with maximum transparency of the improvements to be achieved.

And those improvements are coming soon. For example, in terms of a reduction in PAHs (Polycyclic Aromatic Hydrocarbons). Measurements by independent measurement agencies show that we have now achieved the intended 50% reduction compared to 2019 levels.

Various measures have contributed to this reduction. For example, last March we started using a high-tech environmental installation at the Cold Strip Mill. In addition, measures at the Sintering Plant and Coking and Gas Plant 2 have led to fewer emissions.



We have also made great strides in the field of odour emissions over the past year. For example, thanks to a combination of adjustments to the existing installation and operational measures, we achieved positive results at Coking and Gas Plant 2. Here, odour emissions were reduced by more than three quarters. The odour emission when heating steel pans in the Steel Plant also decreased, in this case by half. Fewer odour emissions means that the so-called odour load, the number of hours that odour can be considered undesirable, has also decreased in Wijk aan Zee and IJmuiden. Initial measurements show that we are making great progress towards our ultimate target of approximately 85%.

In the past year, we also further reduced our dust emissions. The dust that was released during the dumping of the slag is considerably contained, because the slag is now cooled in a completely covered environment. We also installed a dust-removal installation in the Sintering Plant.

During and following the execution of various projects, we also developed new ideas and insights to implement further improvements. At our Pickling Line, measures such as an extra vapour scrubber and another pickling inhibitor have reduced odour emissions, but we want to reduce this even further. At the Steel Plant, we placed three new silencers to muffle the buzzing sound of the exhaust systems. While noise emissions have decreased, the buzzing sound has not. We continue to look for possibilities to further muffle this sound source.

We continue at a fast pace

A multitude of measures was completed in the past year, with positive results. In the coming year, we will continue with the rest of the improvement programme.

We have quite a few projects in the pipeline. This is how we accelerate the construction of the dust-removal installation at the Pelletising Plant. This will be the largest environmental installation in Tata Steel's history and will further reduce emissions of dust, lead and heavy metals from next year onward. Construction has already started and is on schedule.

We are also further tackling dust emissions at the raw material storage facilities and the conveyor belts. This year, we want to start building a windbreak around the storage facilities of more than 18 metres high and a kilometre long. Because less wind means less chance of dust blowing up. In addition, we recently installed an extra exhaust system at one of the blast furnaces. Five more will follow next year, spread over both blast furnaces, thereby further reducing emissions via the roof. We are also installing an extra exhaust system at the Steel Plant. Two of the systems are already in place, but because dust is still being released through the roof, we will install a third one.

In short: many positive results and we look forward to the follow-up with confidence. But we're not there yet. We are a manufacturing industry, so making ourselves invisible is not going to work. We can, however, further limit the impact, and we are working hard on that.

Bram Nugteren

Environmental Manager at Tata Steel Nederland

"We are a manufacturing industry, so making ourselves invisible is not going to work. We can, however, further limit the impact, and we are working hard on that."

Results and progress at a glance

KPI	What is this?	Target reduction (±)	Where are we at?
PAHs	Reducing emissions of Polycyclic Aromatic Hydrocarbons	50% in 2022	In June 2022, we announced an important result. Measurements by independent measurement agencies demonstrate that the intended 50% reduction in PAH emissions compared to 2019 levels has now been achieved. In doing so, we are fulfilling the ambition set for this year under the Roadmap Plus improvement programme.
Odour load	The number of hours that the concentration of odour in the environment is higher than 1 odour unit. This unit applies throughout Europe. This also takes into account the (un)pleasantness of an odour (hedonistic correction). A value of above 1 is assumed to be a nuisance.	85% in 2023	Our measures at e.g. Coking and Gas Plant 2 and the Steel Plant are effective and have more than halved the odour emissions from these plants. This puts us well on the way to the intended 85% odour load reduction we aspire to for next year. We will need to carry out more measurements to ensure this improvement continues. To that end, we draw up a measuring programme.
Dust deposition	Decrease in the precipitation of visible dust (solid particles) in the environment, caused by Tata Steel.	65% in 2023	Dust samples show that the share of slag dust in these samples has fallen sharply as a result of the implementation of various measures. A large windbreak around the storage facilities and the reduction of dust dispersion at the bunkers of the blast furnaces will further reduce dust deposition.
Heavy Metals, lead and particulate matter	Reduction in emissions of heavy metals, including lead and particulate matter.	55% heavy metals, 70% lead and 35% particulate matter in 2023	Various measures already seem to further reduce emissions of particulate matter, heavy metals and lead. Next year we will realise major improvements in the field of particulate matter and heavy metals. For example, the construction of the largest environmental installation ever at the Pelletising Plant. These projects are all on track.
Nitrogen	Reduction in nitrogen oxide emissions	30% in 2025	Thanks to previous measures, our nitrogen emissions have already been reduced by 20% over the past 2 decades. The DeNOx installation at the Pelletising Plant is scheduled to be commissioned in 2025. In addition, there are other nitrogen-reducing measures outside the Roadmap Plus planned in the short term.

Measurement reports

The stated results are based on measurements or verifications performed by independent measurement agencies. These measurement reports can be found at: omgeving.tatasteel.nl/roadmap-plus/voortgangsrapport



Residents of Beverwijk-West:

“Pleased with attention to interests of local residents”

Frans Backus (74) and Renée van Buren (68) from Beverwijk have been participating in Wijkgroep Westertuinen-Warande, a discussion group, for several years now and Backus has been participating in Burentafel, Tata Steel’s discussion group, since its foundation. “We cherish a healthy dose of distrust,” says Van Buren. “Fortunately, people now listen better, that was different in the past.”

They both worked at the steel company for almost 4 decades. That means they are involved, but certainly no less critical. People listening better is a good thing, but have the Roadmap measures already shown noticeable results? Backus: “We are experiencing less noise nuisance, which can be attributed to interventions in scrap processing. In terms of odour and dust, he is careful. “Our motto is: keep measuring. That way, we can really tell.”

Still a lot to do

Backus and Van Buren know from their professional past that finding the right environmental measures is complex. “Only by measuring can you tell whether things are improving. Measurements also often lead to new insights and therefore other adjustments,” Backus explains, who believes that how and what is being measured should

be explained better. According to Van Buren, this is important for the long term: “Roadmap Plus extends up to and including 2025. Yet the transition to hydrogen and DRI takes many years and is extremely drastic. So how do you prevent more nuisance?”

Backus and Van Buren continue to monitor the developments. In agreement: “We’re happy with the way Tata Steel now talks and listens, yet that can be made even more transparent and more concrete. We have many questions, especially about their plans until 2030 and 2040. Our children and grandchildren in particular will be the beneficiaries of this.”

Photo: Frans Backus (left) and Renée van Buren follow their former employer critically.



From Wijk aan Zee:

“It’s getting better, but distrust is significant”

Michel Schellevis (52) has been living for years against the strip of dunes that separates his native village Wijk aan Zee from the steel company. His motto is thinking along critically, such as about the E-noses, most of which are in Wijk aan Zee. “Given the prevailing south-westerly wind, you expect more would have been installed in Beverwijk-West.” Since the construction of an industrial facility for slag

utilisation, Schellevis has experienced a significant drop in dust nuisance. “Recently a brown cloud passed, but I understand that they don’t always have complete control over the process.” He emphasises that open and honest communication had been absent for too long. “Consequently, the levels of distrust are significant. Because I can’t check 50% fewer PAHs. Less odour and dust nuisance I can actually experience.”

Monitoring & measuring

Continuing to measure the progress of Roadmap Plus is important. That's why we record in this report how we measure the effects of our measures and who checks these measurements.

In this report we not only provide insight into the progress of the measures taken, we prefer visualising their effects as well. We do this as concretely as possible, despite the complexity of these measurements.

Dust is monitored in a completely different way than say smell and sound. Sometimes it is not possible to measure directly at a source. In such cases, we use calculation models. At the same time, we need to take into account many external factors that can influence the measurements, such as the weather. By measuring continuously, based on the best possible techniques and methods, we map out our emissions as accurately as possible.

Clear, concrete goals

We determined our goals on the basis of data that we share with the authorities, such as with the North Sea Canal Area Environment

Agency. For example, the electronic annual environmental report. This is an annual report in which all major industrial companies report their emissions. The new inventory of Substances of Very High Concern was recently added to this.

The odour concentration in the living environment (odour emission) is calculated using a legally prescribed dispersion model. This way we ensure that our measurements always comply with the standards and recognised measurement methods.

We used the data from these reports to determine an initial value for the various emissions. In order to compare our results with the most current status, we used the values from our reports between 2019 and 2021 for all themes. Based on this, we determined what we want to achieve with our measures.

Measurement methods

Dust

To measure dust that precipitates in the immediate living environment, we have dust samples taken at various locations. The samples are analysed for their origin in collaboration with TNO (Netherlands Organisation for Applied Scientific Research). This gives a clear picture of the proportion of dust originating from Tata Steel.

We will continue to carry out these analyses in the coming years. This way we will keep an up-to-date picture of dust dispersion and we can continue to make targeted efforts to further reduce this as much as possible.

Odour

In order to calculate the odour load, i.e. the number of hours that local residents can experience odour as unpleasant, we have accredited measurement agencies carry out measurements at odour sources on the site. These measurements serve as input for a dispersion model that is also used to report to the North Sea Canal Area Environment Agency. New odour emission measurements are performed every year and calculated using this dispersion model. The results from these measurements are then compared with the baseline situation, which

has been compiled on the basis of data for the past decade and which has been laid down in the Odour Decree of 23 May 2022 of the North Sea Canal Area Environment Agency.

Heavy metals, particulate matter and nitrogen oxides

Tata Steel reports the emissions of heavy metals, particulate matter and nitrogen oxides annually in the Electronic Environmental Annual Report (eMJV). This is assessed by the Environment Agency. Every year, we use the most current eMJV value to monitor the changes compared to the baseline situation from 2019.

PAHs

To determine the emission of Polycyclic Aromatic Hydrocarbons (PAHs), air is drawn in at an emission point, which is then passed through a tube where the PAHs are bound to a 'carrier'. The PAHs are separated from this carrier in a laboratory, after which the concentrations of the 16 individual PAH substances are determined. This is performed through a technique called gas chromatography mass spectrometry. Both the sampling and the analysis are carried out in accordance with a prescribed standard, by an accredited measurement agency.

How did we set our goals?



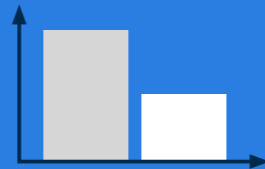
Step 1

We determined the initial values (baseline) on the basis of existing reports, such as the electronic annual environmental report or the dossier for Substances of Very High Concern.



Step 2

We then calculated what each measure could yield, for example in terms of dust, odour or heavy metals.



Step 3

By comparing these results to our initial values, we achieved our objectives.

How do we measure?



Step 1

For each theme, we look at how we can best measure in consultation with the authorities. The best, most recognised measurement method is then chosen.



Step 2

We carry out these measurements, or we have them carried out by external measurement agencies. This gives us a more precise picture of the emissions from a specific source.



Step 3

We continuously compare the results with the initial values. This way, we monitor progress and we know where adjustments are still needed.



PAH measures

In June 2022, we announced an important result. Measurements by independent, accredited, measurement agencies demonstrate that the intended 50% reduction in PAH emissions compared to 2019 levels has now been achieved. In doing so, we are fulfilling the ambition set for this year under the Roadmap Plus improvement programme.

Where are we at?

All PAH measures within Roadmap Plus have been implemented. The most important were those at the Cold Strip Mill and Sintering Plant. We have already made adjustments to the production process of taphole clay at the Blast Furnaces. Emissions at the doors of the furnaces of Coking and Gas Plant 2 have decreased sharply.

We achieved the reduction in PAHs (Polycyclic Aromatic Hydrocarbons) on our site in IJmuiden thanks to a variety of measures. For example, we commissioned a new high-tech environmental installation at the Cold Strip Mill. This cleans the gases from the annealing furnaces, so that no more PAHs are released when annealing rolls of steel. The installation captures the vast majority of PAHs by means of special filters. The remaining PAHs are then incinerated and converted into pure water and a CO₂ fraction. We will, of course, monitor the results of this improvement.

Optimising flue gas cleaning Sintering Plant

We also worked on further reducing PAHs at the Sintering Plant. To this end, we improved the dosage of activated carbon in the existing flue gas cleaning system. PAHs bind to activated carbon, causing them to precipitate in the dust filter. We have achieved very positive results with this new approach. We will continue this process in the coming period with new tests and measurements.

Fewer PAH emissions at Coking Plant 2

In Coking Plant 2 we produce coke by heating coal in furnaces. Most of the gases produced in the process are extracted by means of a gas-cleaning installation. However, emissions containing PAHs can still be released through a number of openings such as filler holes, climbing pipes and furnace doors. We have achieved positive results in these areas thanks to drastic operational measures. For example, through periodic visual observations, we determine that emissions at the furnace doors have been halved. We expect that this will lead to a reduction in PAH emissions.

Measurement reports

The stated results are based on measurements or verifications performed by independent measurement agencies. View the measurement reports by scanning this code.



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Would you like to know more about our measures?



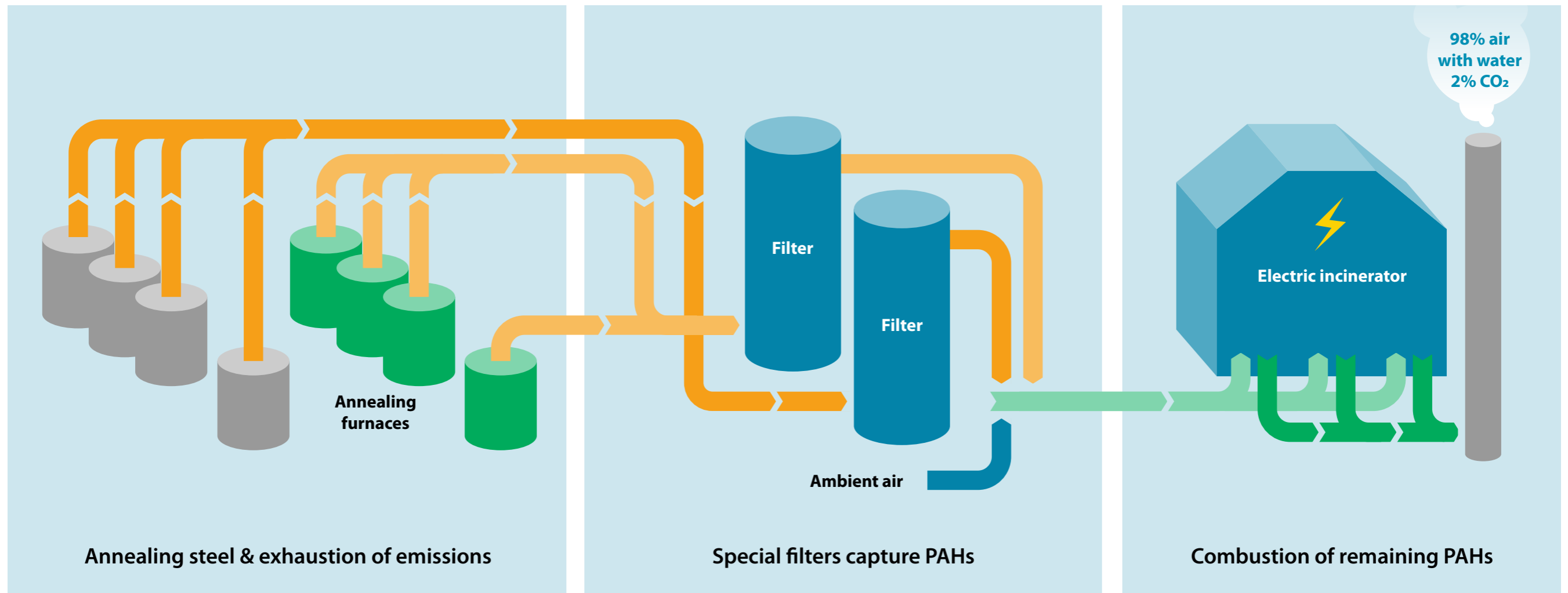
Scan the QR code to find out more about our PAH measures!

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Waste gas cleaning installation (ARI)

End of PAH emissions



Odour-reducing measures

Our measures at, for example, Coking and Gas Plant 2 and the Steel Plant are effective. Initial measurements by accredited measurement agencies show that the odour emissions from these plants have been reduced by more than half. As a result, the odour load, the number of hours during which local residents experience odour as unpleasant, has decreased as well. This puts us well on the way to the intended 85% reduction we aspire to for next year.

Where are we at?

Thanks to various operational measures, we have been able to reduce odour emissions at Coking and Gas Plant 2 by more than 75%, according to initial measurements. And we have reduced odour emissions by 50% when heating steel pans in the Steel Plant. The vapour scrubber at Pickling Line 22 has been installed and we are looking at additional measures to further reduce odour emissions.

In order to say with certainty by how many hours the odour load has decreased and thus the number of fewer hours of unpleasant odour can be perceived in the environment, we will have to perform a series of follow-up measurements. We do not want to base the results on a few measurements.

Community involvement

The fact that the results show that the odour load is decreasing doesn't mean that there is no longer any odour perceptible in the environment. Nor can we remove this in its entirety. The first results show that unpleasant odours from the business processes are present in the living environment less often. However, the experience of smells and odours is very personal. That's why the experiences of local residents are and remain an important starting point in our approach. We are and continue to be keen to keep the dialogue alive, especially about odour nuisance. Visit our Environmental Desk in Wijk aan Zee and let us know.

Major improvements at Coking and Gas Plant 2

Reducing the impact is high on the agenda of the employees. We are working hard here to further reduce emissions, where possible. In the past year, we delivered a large number of projects: adjustments to existing installations and structural process measures. And they prove to be successful. Initial measurements by an accredited measurement agency show that odour emissions at this plant have been reduced by more than 75%.

An important measure is the sealing of the coking chambers, which has seen a structural improvement. We have now completed 32% of this project. At the same time, we are rapidly replacing the oven walls to heat the coke more evenly and further reduce odour from this process. Furnaces that are out of operation have also been found to be a source of odour. We developed a special construction to keep these closed.

In addition, we adjusted the central pressure control at Coking and Gas Plant 2, which allows us to better control the furnaces. Fewer peaks and deviations lead to fewer odour emissions.

Up close: Jelmer Heijkant

Read the story of Jelmer, a technologist at the Coking Plant, about how he and the team are working hard on reducing odour emissions at Coking and Gas Plant 2.



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New insights play an important role

In 2020, we developed a model that allows us to accurately detect odour sources in the field. For this we use new technologies, such as an e-nose on a drone, to make measuring at the pipes at high altitudes easier. The new insights have helped us to gain an even clearer picture of what the odour sources are, for example at Coking Plant 2, and what measures are needed.

Measures at the Steel Plant have an effect

Odour emissions at the ladle drying plant of the Steel Plant have been halved since December 2021. The odour emissions from this process were monitored for a longer period of time by

means of e-noses at the Tata Steel site. Compared to the situation without adjustments, these e-noses detected 50% fewer odour components. The positive results are confirmed by e-noses in the immediate living environment.



What is a ladle drying plant?

After replacing the brickwork in pig iron and steel pans, they must dry in the ladle drying plant. When heating the pans, odours can be released. The released emissions are now being collected and reused in the production process.

Reduction of vapours Cold Strip Mill

At the pickling lines of the Cold Strip Mill, acid vapours are now extracted and washed in a vapour scrubber. To further reduce odour emissions, we have improved the operation of the vapour exhaust system at one of the pickling lines.

Furthermore, in December 2021 we installed an additional vapour scrubber. In order to further reduce odour emission here, we will continue with follow-up research into possible additional measures.

What's coming in 2023?

- We will continue unabated with the measures and measures already taken at Coking and Gas Plant 2
- We are going to build a new type of ladle drying plant at the Steel Plant
- We are conducting follow-up research at the Pickling Lines to further reduce odour emissions

Measurement reports

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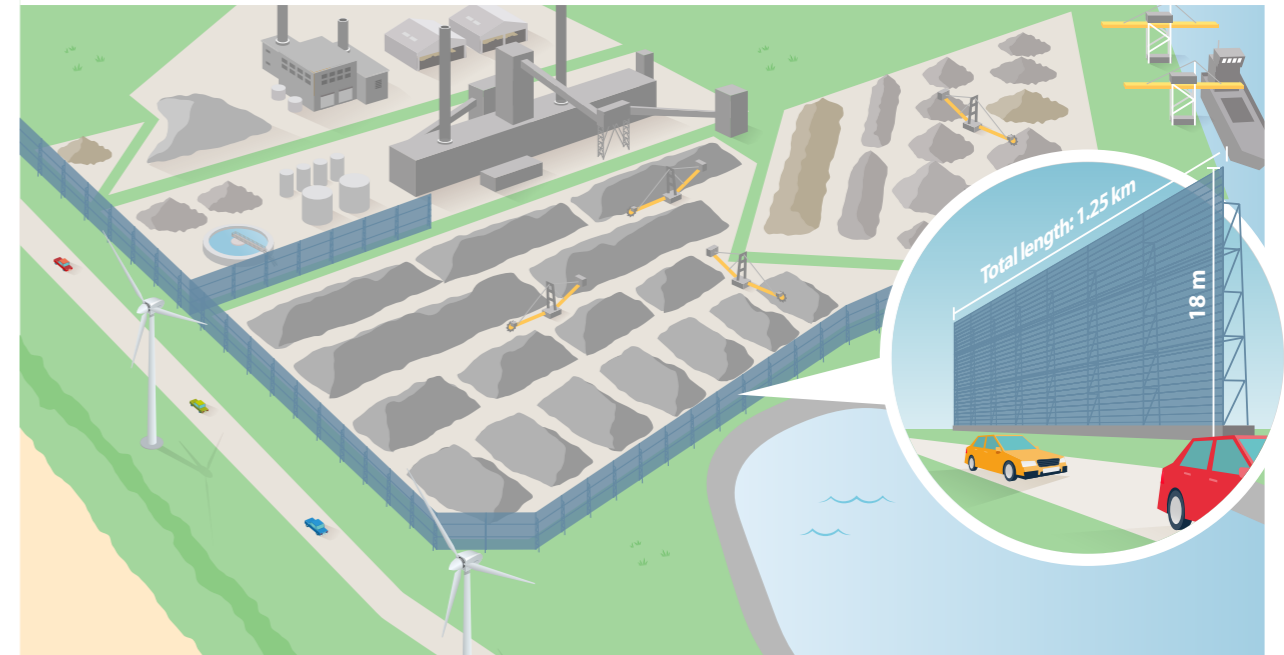
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Dust & heavy metals measures

A new bay, an electrofilter installation and covered slag pits. A multitude of concrete measures have led to substantially fewer dust emissions in recent years. A new dust-removal installation, a windbreak and additional covers will further improve this situation next year.

Where are we at?

Next year we will realise major improvements in the field of dust and heavy metals. For example, a windbreak will be installed around the raw material storage facilities and we will be building the largest environmental installation ever at the Pelletising Plant. Various measures as a precursor to these major measures already seem to further reduce emissions of particulate matter, heavy metals and lead. The first results are hopeful. We will continue to monitor this to ensure these positive results remain.



Visible dust

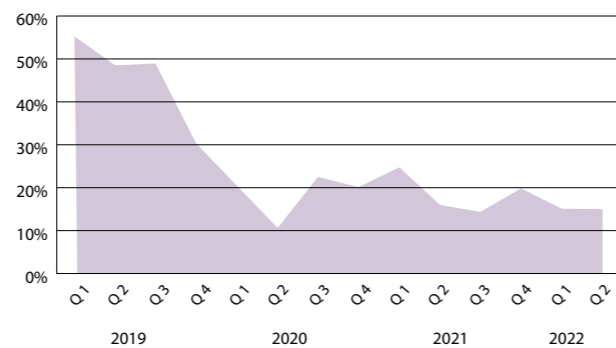
Since the start of the Roadmap in 2019, we have taken various measures to further reduce dust emissions. As a result, less dust is deposited from our company premises in the immediate living environment. With Roadmap Plus, we are adding a whole package of new measures. We expect this to reduce the dust deposition of Tata Steel in Wijk aan Zee by approximately 65%.

The majority of these measures will be completed by the end of 2023, such as the construction of additional environmental installations. These are large, complex measures that require extra preparation time. A lot of technical experts are working hard every day to realise all this at an exceptionally fast pace.

Further reduction in slag dust

In April 2022, we commissioned a number of new slag pits with a mobile covering. From now on, the entire converter slag flow is cooled under a cover. A thick mist curtain ensures that as much dust as possible remains in the pit and that any dust that is released precipitates immediately. We expect this process to generate a reduction in dust emissions of approx. 80%.

Dust samples show that, with the Roadmap (the predecessor of Roadmap Plus), we have already taken a big step in the field of slag dust. Sample analyses show that the amount of slag dust in the environment is structurally decreasing, from 50% in the first half of 2019 to 15% in the first half of 2022. This is with the exception of peaks due to incidents.



Sintering dust tackled

In May 2021 we started using the second electrofilter installation of the Sintering Plant. This installation filters dust from the hot cooling air. The environmental installation is 15 metres wide, 30 metres long and 30 metres high; more than three times the size of the first electrofilter installation in this plant.

What is converter slag?

Converter slag is formed as a by-product of the steel production process. Harsco processes this slag on our site. To do this, it must be cooled in water pits first. This is accompanied by a lot of steam, taking dust particles with it into the air.

New solutions against dust blowing up

We expect a lot from the approach in the fight against dust blowing up at the storage fields and conveyor belts. We are further reducing visible dust with new measures. For example, by building a windbreak of more than 18 metres high and more than a kilometre long. The windbreak will be around the raw material storage facilities, thereby reducing wind speeds above this area. As a result, the wind has less grip on the material and less dust will be dispersed. There will also be covers for the blast furnace bunkers and the associated raw materials transport.

In close consultation with the Environment Agency, it has been agreed to have a so-called QuickScan carried out of the possible impact of the windbreak on nature in the immediate vicinity. A specialised agency will be performing this QuickScan for us. As a result, we will not be able to start construction in the autumn of 2022, as previously planned. We are of course still aiming to have the windbreak commissioned in 2023. At the same time, we are working on a cover and exhaust system for the conveyor belts and the blast furnace bunkers. We expect to complete this project next year as well.

Focus on more insight

As can be read in the chapter 'Monitoring & measuring', we have had dust samples taken at various locations in the area since the end of 2021, under the supervision of TNO. We analyse these dust samples to determine their origin.

We also analyse the concentration of metals in the dust in accordance with the investigation method of the Dutch Institute of Public Health (RIVM). This helps us to make our results comparable with those of external studies, including those of the RIVM.



Heavy Metals and particulate matter

In the past decade, we have already undertaken a lot to reduce the emissions of heavy metals, such as lead and particulate matter. Lead emissions from the site have already been reduced by 95% for example, mainly as a result of the bag filter installations at the Sintering Plant. We continue to prepare the construction of a Dust-removal installation and a DeNOx installation at the Pelletising Plant. This will be our largest environmental installation ever. Together with a number of other measures, we will reduce total lead emissions by approximately 70% in 2023, heavy metal emissions by approximately 55% and particulate matter emissions by approximately 35%. These reductions are in comparison to levels at the start of Roadmap 2030 in 2019.

Environmental installations Pelletising Plant

The Pelletising Plant will have a dust-removal installation fitted. In addition, there will be a DeNOx installation to further reduce nitrogen oxide emissions. A team of technical experts has been working on a smart design over the past year, which means that we can start on the new dust-removal installation earlier than expected. Thanks to this expansion, we expect to reduce emissions of particulate matter, lead and other heavy metals by approximately 80% at the Pelletising Plant by 2023.

Interim measures achieving positive results

Although the realisation of the dust-removal installation is not easy, we don't want to wait for the entire project to complete to reduce emissions. In order to achieve results faster, we looked at what is possible in the very short term. We've already taken various measures. For example, the fluorine scrubbers, which currently fulfil the function of the future dust-removal installation, have been fitted with new nozzles that capture dust and heavy metals even better. We therefore see a reduction in particulate matter, heavy metals and lead in our preliminary results. We will continue to monitor this to ensure these improvements continue.



Up close: Thomas Mous

Read the story of Thomas, a project manager at Blast Furnace 7. He explains how we will further reduce dust emissions at the Blast Furnaces.

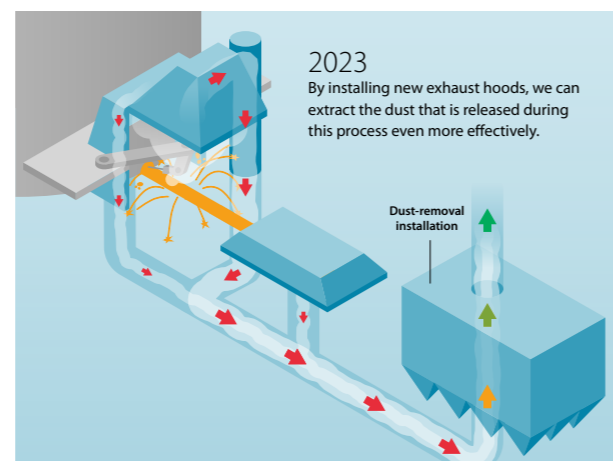
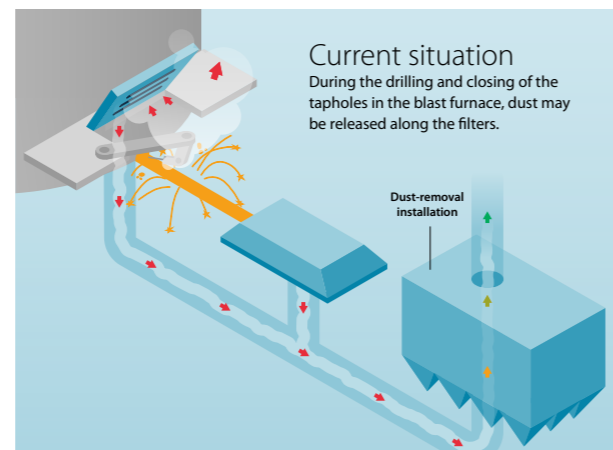


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Fewer roof emissions thanks to new exhaust hoods

In the coming period, we will be installing additional exhaust systems on the roofs of our Steel Plant and Blast Furnaces. We have now installed one extra exhaust hood at one of the blast furnaces. Five more will follow next year, spread over the two Blast Furnaces. These are expected to reduce dust emissions during the tapping of liquid pig iron by approximately 75%.

The Steel Plant too is making preparations to take an additional exhaust system into service next year. This exhaust system will be even more effective in the targeted extraction of flue gases in the steel-making process.



What's coming in 2023?

- The dust-removal installation at the Pelletising Plant
- The windbreak and other measures in Raw Materials Logistics
- Covering of bunkers at the Blast Furnaces and the supply route to this
- Additional exhaust systems at the Blast Furnaces and the Steel Plant



Noise-reducing measures

Thanks to the measures taken in 2019 and 2020, there is less noise from our scrap activities and locomotives. New measures will limit train and production noise even further.

Where are we at?

All noise-reducing measures are in progress and will be completed as planned this year. Examples include the alarms on our conveyor belts, or the measures for our train transport. Where the effect could be improved on, such as with the silencers in the Steel Plant, we will continue with new plans.

Immediately after the start of the Roadmap, we took measures to noticeably reduce noise emitted to the environment. We achieved substantial noise reduction in loading scrap. We raised the noise barrier around the scrap yard and built U-shaped compartments as soundproofing. We also achieved positive results in our shunting activities. For example, we fitted all wagon sets with bumpers and we reduced the number of distress signals from our locomotives by more than 65%.

Noise reduction is sometimes at odds with safety. For safety reasons, we use warning signals in many of our processes. Reducing noise is therefore only possible within the applicable safety margins.

Reduction of slab yard activities

When turning slabs of steel, a slab sometimes falls out of the magnet. The bang can be heard in the vicinity. To reduce this noise, we have agreed that slabs will only be turned during the daytime. We therefore no longer carry out the associated activities at night.

Why turning slabs?

Steel slabs are inspected and repaired at the slab yard before entering the hot strip mill. It's important to do this on both sides of a slab. That's why each slab is turned with a large magnet.

Further reduction of train noises

In addition to the aforesaid measures, we will continue to look for ways to further limit train noise. Such as the noise of the bell at railway crossings. We are replacing the bells at railway crossings close to Wijk aan Zee with ones that adapt to the ambient noise. So at quieter ambient times, the bells are also quieter. The first bells have now been installed. We will install more later this year.

Another idea to help reduce noise is lubricating the rails. This reduces train noise in bends and also limits wear. We are currently looking at whether we can apply this technology on a large scale.

Conveyor belt alarms

A few hundred safety alarms are set up on the conveyor belts of raw materials logistics. They warn when a conveyor belt starts running.

We have converted all these safety alarms so that they produce less ambient noise.

Sometimes things work against you

The three new silencers at the Steel Plant do not have the desired effect yet. We placed the huge devices to muffle the buzzing sound of the exhaust systems. While noise emissions have decreased, the buzzing sound has not. We continue to look for possibilities to further muffle this sound source.

Monitoring and feedback

Despite the many improvements already achieved, we continue to further reduce noise, wherever possible. The monitoring of noise is essential for this. That's why we installed a new monitoring system at the most critical installations, such as the scrap yard and the slab yard. The system gives us better insight into which activities still require noise-reducing measures.



Up close: Tim Barnhard

Read how Tim Barnhard identified sound sources on the basis of environmental complaints.



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At the same time, we also include feedback from the local community in our considerations. The Wijk aan Zee village council, for example, informed us that it is concerned about extra noise caused by the new furnace of Hot Strip Mill 2, which is still to be taken into service. We started working with the feedback and now want to install an extra silencer here.

What's coming in 2023?

- Completion of projects to reduce noise from trains
- New alarms for conveyor belts at Raw Materials Logistics
- Further monitoring of possible new noise sources



Quieter bells?

Bells that adapt to ambient noise. Curious about how this works? We made a video about it.



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Nitrogen-reducing & other measures

Reducing nitrogen emissions is a prominent theme in the Netherlands and Tata Steel is working hard on this as well. We are constantly looking for measures to further reduce nitrogen oxide emissions. In addition, within the Roadmap Plus programme, we also take measures in other areas, for example against light pollution.

Where are we at?

Thanks to previous measures, our nitrogen oxide emissions have already been reduced by approximately 20% over the past 2 decades. The DeNOx installation at the Pelletising Plant is scheduled to be commissioned in 2025. Besides Roadmap Plus, other measures are planned in the short term.

Dust-removal and DeNOx installation

2025

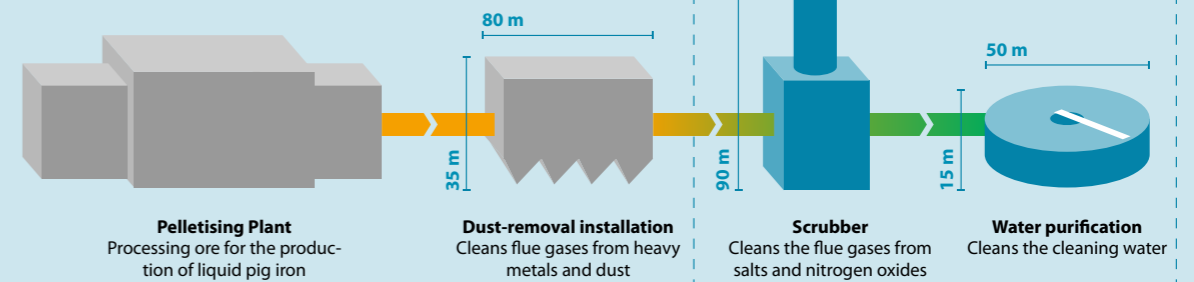


Expected result:

-80% nitrogen oxide emissions



No noise increase



The DeNOx installation is scheduled for 2025

An important measure of Roadmap Plus is the construction of a DeNOx installation at the Pelletising Plant. This is expected to reduce Tata Steel's total nitrogen oxide emissions by approximately 30% compared to 2019. For this, we will introduce a new technology that has not yet been applied on this scale elsewhere in the steel industry. The engineering phase of the installation is currently in full swing. Construction is expected to be completed in 2025.

Reduction of artificial light

We need light to perform our activities safely in the dark. We realise that the community may experience the light emission from our site as a nuisance. That's why we replaced all the fixtures of lighting masts on the site with LED fixtures last year. It concerns some 3,000 lamps. Because the LEDs are individually switchable and have a directed light emission to the road surface, this measure reduces light emissions at night.

Additional nitrogen-reducing measures

In addition to the Roadmap Plus improvement programme, there are other measures as well and we are continuously looking at what more we can do. These additional measures will be further developed in the coming period. We've already started with the implementation of some measures. For example, part of our fleet of commercial vehicles is switching from diesel to biofuel.

In addition, we are working on even more onshore power facilities for inland vessels, so that they do not have to use their diesel engines during loading and unloading. Would you like to know more about our measures? Feel free to visit our website: tatasteel.nl/omgeving



In touch with our local community

The dialogue with the local community is of vital importance to us. That's why we keep the local community informed of developments within Roadmap Plus. We use different channels for this.

We measure and monitor the effects of our measures. Ultimately, the experience of local residents in the region counts as well of course. That's why we keep a close eye on the development of complaints. We also ask a panel of local residents every month to share their experiences with us.

All information about Roadmap Plus can be found on our environment website: www.tatasteel.nl/omgeving. Every quarter we update the status of all measures on the online Dashboard. This includes an overview of the development of complaints, the different emission sources and the measures for improvement we are taking, in addition to the latest developments.

News media

You can also follow the latest developments via our social media channels: Facebook Tata Steel in the Netherlands and Twitter Tata Steel in the Netherlands. In addition, we publish various newsletters to keep the region informed. The first edition of the Staal & IJmond newspaper was recently published. This is published four times a year and provides information about, among other things, the progress of our measures for a cleaner environment, the hydrogen route and Tata Steel as an employer. The newspaper is distributed door-to-door in the IJmond region. Another newsletter which anyone can subscribe to is RondonStaal, a digital newsletter. This newsletter is published monthly and is full of the latest news.

Community involvement

We believe it is important to enter into dialogue with local residents and, above all, to listen to their experiences. This is valuable to us, especially in order to be able to continue to push forward and reduce the impact on the environment. Since November 2019, Tata Steel operates an information desk called 'Tata Steel and the Community' at **Zwaanstraat 20 in Wijk aan Zee**. People who are interested are welcome to visit us here with questions about our company, for more information about the production processes, Roadmap Plus or our transition to green steel.

We discuss our ideas, plans and approach openly and transparently with various groups in the area. For example in the recently started live sessions 'In discussion with Tata Steel'. In these sessions, we have live discussions with local residents and everyone else who feels involved in life and living in the area around Tata Steel. Two sessions have now been held and we will continue with these. As soon as a new session is scheduled, we will inform the local community.

In addition, we remain in contact with various organisations and authorities in the area.

In addition, representatives of village and district councils from the IJmond region and Tata Steel discuss the quality of life in the area every three months. In addition, consultations are held with the Wijk aan Zee village council. Reports of all these meetings are published on Tata Steel's community website. We also regularly organise neighbourhood tours to show what we do and what we are working on.

Sharing experiences with Tata Steel

We would like to stay informed about the experiences of local residents in the IJmond region. They can share their experiences with us through various channels. At the beginning of 2020, we started an online residents' panel to obtain additional information about experiences in Wijk aan Zee. This panel consists of residents of Wijk aan Zee who complete a digital questionnaire each month. We share this feedback in our organisation, on the basis of which the relevant work units can make adjustments.

Do you have any questions or tips?

Or do you have any comments or suggestions to keep you better informed? Please let us know. Send an e-mail to omgevingsnieuws@tatasteeleurope.com or visit the information desk in Wijk aan Zee.



Roadmap Plus mapped out

An interactive display of our measures for a better living environment

Environment and living environment

FILTER

Dust Odour PAHs Noise Biodiversity All

Raw materials logistics
Windbreaker
More information

Windschermen

Cold Strip Mill
Cleaning of annealing furnace flue gases
More information

Reiniging afgassen gloeiovens

Responsible steelmaking. That's our corporate social responsibility. Roadmap Plus programme puts us on a fast track towards a better living environment. We've set ourselves concrete targets to further reduce emissions in 2022 and 2023. We also provide as clear a picture as possible of the improvements we expect to achieve.

We think it's important to keep this transparent. That's why we have developed an interactive map in which you can clearly view these measures, their status and the intended planning.



Curious?

Scan the QR code to view the interactive map

Or visit: tatasteel.steelsimvr.com

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General map

	2019/2020	2021	2022	2023	2024/2025
Dust					
1 Slag utilisation: covering the converter slag cooling process			✓		
2 Slag utilisation: feasibility study new converter slag utilisation method					
3 Blast furnaces: air screen above furnace house gutters			✓		
4 Blast furnaces: new type of exhaust hoods				✓	
5 Raw materials logistics: dust screens				✓	
6 Raw materials logistics: covering and extracting supply and bunker at Blast Furnaces				✓	
7 Raw materials logistics: technical measures					
8 Steel Plant: additional exhaust system				✓	
9 Pelletising Plant: dust-removal installation					
10 Sintering Plant: electrofilter installation		✓			
Odour					
1 Coking Plant 2: mechanical seal					
2 Coking Plant 2: individual furnace pressure control				✓	
3 Coking Plant 2: operational measures					
4 Coking Plant 2: overhaul of coking chambers					
5 Steel Plant: operational adjustments to ladle drying plant					
6 Steel Plant: new type of ladle drying plant				✓	
7 Cold Strip Mill: operational adjustments and new vapour scrubber at Pickling Line 22		✓	✓		
8 Cold Strip Mill: reducing odour emissions Pickling Line 22				✓	
9 Expansion E-noses network					
PAH substances					
1 Blast Furnaces: production of taphole clay ended		✓			
2 Cold Strip Mill: cleaning of annealing furnace flue gases			✓		
3 Sintering Plant: optimising flue gas cleaning			✓		
4 Coking Plant 2: operational measures					
Noise					
1 Steel Plant: new silencers for primary exhaust system				✓	
2 Scrap yard: operational adjustments					
3 Raw materials logistics: new conveyor alarms			✓		
4 North site: reducing noise from trains			✓		
5 Steel Plant: reduction of slab yard noise					
6 Hot Strip Mill: new silencer for roller kiln 25					
Biodiversity & other					
1 Pelletising Plant: DeNOx installation					✓
2 Feasibility study NOx reduction in blast furnace gas and coke gas					
3 New vegetation at north site			✓		
4 Reducing light scattering			✓		

Expected results for 2022

Expected results for 2023

Expected results for 2025

35%
particulate matter reduction

55%
reduction of heavy metal emissions

65%
less dust deposition

70%
fewer lead emissions

85%
reduction of odour load for the immediate living environments

50%
fewer PAH emissions

Maximum reduction
of noise within safety margins

30%
reduction in nitrogen (NOx) emissions

www.tatasteel.nl/omgeving

The content of this booklet has been compiled with utmost care. However, neither Tata Steel nor its subsidiaries are responsible for errors or possibly misleading information.

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