



STEEL

Information for local residents.

Information for the general public provided by the Duisburg North operational area of thyssenkrupp Steel Europe AG in accordance with § 8 a and § 11 of the German Hazardous Incident Ordinance.

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thyssenkrupp

Information on our safety culture.

Dear neighbors of thyssenkrupp,

As some substances covered by the German Hazardous Incident Ordinance are used in parts of our operations, we would like to inform you, our neighbors, about the nature of any possible risks, the safety precautions we have in place, and what you should do in the event of an incident. Since our Duisburg North operational area – with plants in Hamborn, Bruckhausen, Beeckerwerth and Schwelgern – falls within the scope of the Hazardous Incident Ordinance, we would like to provide you with details of our safety culture and our preventive measures.

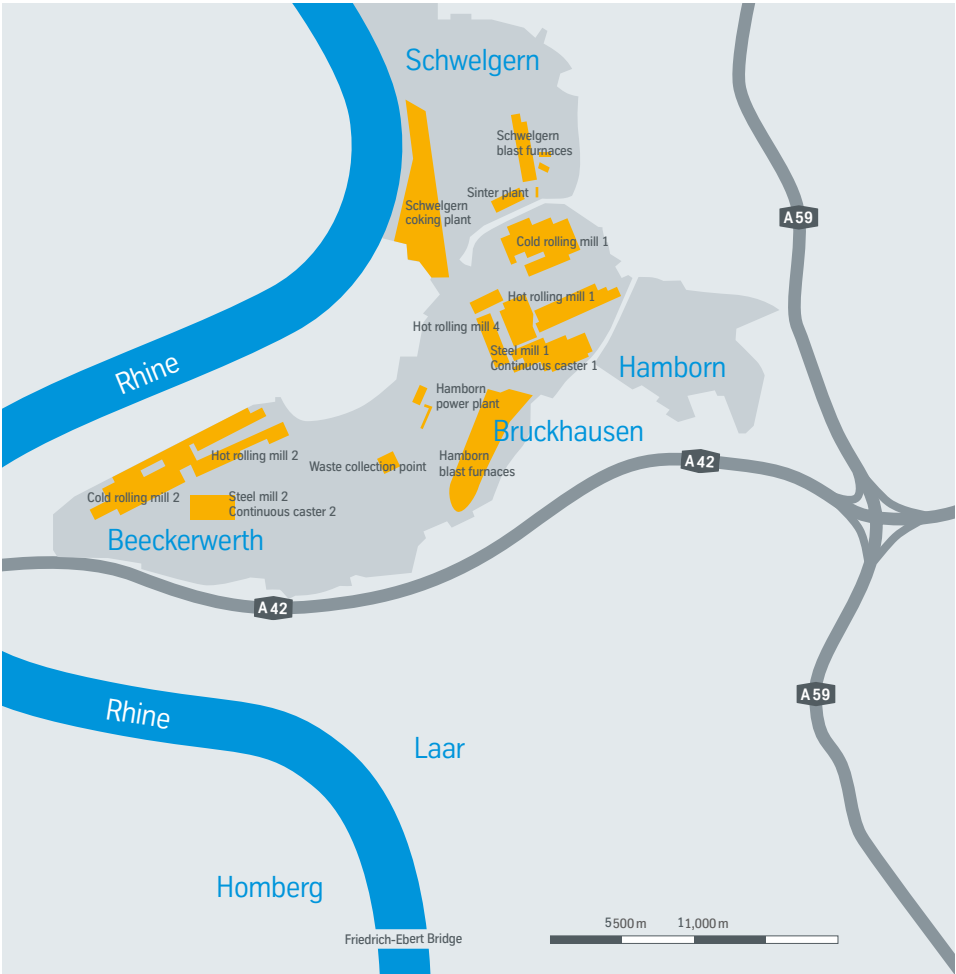
We have notified the competent authorities of the substances in our operational area that falls within the scope of the Hazardous Incident Ordinance.

We have always attached utmost importance to safety at thyssenkrupp. Should an incident occur despite all our precautionary measures, this brochure tells you exactly what you should do.

Please regard this brochure as part of our safety precautions. It contains details on all key framework conditions at the site as well as general information and important telephone numbers. Please use it as a work of reference and keep it handy at all times.

Dennis Grimm
Chief Executive Officer of thyssenkrupp Steel Europe AG

The Duisburg North operational area with plants in Hamborn, Bruckhausen, Beeckerwerth and Schwelgern and their main production facilities.



What happens where in the operational area.

The Duisburg North operational area of thyssenkrupp Steel Europe AG are shown on the map opposite. The Düsseldorf district government, as the competent authority, has been notified of this operational area in accordance with § 7 (1) Hazardous Incident Ordinance. The safety reports required under § 9 (1) Hazardous Incident Ordinance have been presented to the authorities.

In the following, we briefly present the individual production processes from delivery of raw materials to completion of coated coil, focusing in particular on how the substances of significance for the Hazardous Incident Ordinance (see substance data table on pages 9–14) are produced and used.

Raw material delivery

The raw materials needed for the iron and steel making process (mainly iron ore, coal and coke) are delivered by ship or rail. Other materials required for the production process (e.g. paint for coating, as well as cleaning and treatment chemicals) are delivered by road. Oxygen, natural gas and coke oven gas from the Schwelgern coking plant located on the site arrive by pipe.

Schwelgern coking plant

The Schwelgern coking plant is located on the works premises and includes all the equipment required for coke making, from delivery of the coal to removal of the finished coke. It has two coke oven batteries, each with 70 chambers. The pretreated coking coal is charged into these chambers and heated from the side walls in the absence of air. After the end of the carbonization time, the incandescent coke is pushed out of the chambers and cooled with water in one of two quenching towers. Subsequently, the coke is screened before leaving the coking plant.

The coal-to-coke carbonization process produces coke oven gas which is extracted from the chambers. It is then cleaned in the by-product plant. Crude tar is removed in the tar precipitator. Downstream cleaning operations remove other undesired components (mainly ammonia, benzene and hydrogen sulfide) and the cleaned coke oven gas is fed as fuel into the cross-plant gas network. The by-products such as crude tar, crude benzene and sulfur are stored in the plant and later sold.

Sinter plant

The job of the sinter plant is to convert incoming iron ore fines into lumps. The blast furnace process requires the charge materials to have a certain minimum particle size so that the evolving reaction gases can be removed. The sintering process itself takes place on a slowly moving belt charged with a precisely made-up mixture of ore fines, ground coke and other materials. This mixture is ignited at its surface by burners. Air is sucked through the material from below the belt as it moves slowly towards the discharge chute. The coke burns, the high temperatures in the sinter bed causing the small iron ore particles to fuse into larger lumps. The sinter produced in this way is then processed (cooled, crushed, screened) ready for the blast furnace process.

Blast furnaces

In the blast furnace the iron-containing charge materials are reduced to molten iron with the aid of the coke. This takes place at temperatures well over 1,000 °C with a hot blast of air being blown into the reaction zone at temperatures of 1,200–1,300 °C.

In addition to the hot metal which is removed from the bottom of the blast furnace, this process also produces blast furnace top gas. This gas is removed from the blast furnace, cooled, cleaned and then used as a fuel in other plant units and in the power plants.

Power plant

The job of the Hamborn power station is to produce in-house electricity from steel mill gases (blast furnace top gas and coke oven gas) and natural gas.

Steel melt shops

In the steel melt shops the hot metal produced in the blast furnace is converted into crude steel by removing carbon. The carbon is removed from the hot metal by the oxygen top blowing process. In this process, high-pressure (approx. 20 bar) oxygen is blown onto the hot metal, which is contained in a special vessel called a converter. This process generates an energy-rich combustible gas (converter gas), which is used as a fuel in the same way as the coke oven and blast furnace top gases. After alloying, the steel is cast into slabs (measuring roughly 25 cm thick, 1.5 m wide and 10 m long) by continuous casting.

Hot and cold rolling mills

In the hot rolling mill the slabs from the continuous casters are heated, rolled to a thickness of as little as 1.5 mm and wound into coils. In the cold rolling mills further reduction down to the final thickness required by the customer takes place. The steel is then annealed in an inert gas atmosphere (to prevent corrosion) to develop the required strength. Hydrogen is added to the inert gas atmosphere to bind oxygen atoms.

Surface treatment lines

All surface treatments serve the purpose of corrosion protection. Many customers (e.g. in the automotive industry) require galvanized materials. For other applications the steel is coated with paint or plastics.

In the hot-dip galvanizing lines on site, cold-rolled steel is given a thin two-side coating in a bath of molten zinc.

In the electrolytic coating lines, thin sheets of steel are coated with zinc by electrolytic coating. Liquid zinc-containing treatment chemicals (zinc electrolyte) are used for this.

Waste collection point

The waste collection point at the Duisburg site stores and treats waste materials that occur in production and plant maintenance. A few of these materials may pose a risk to health and/or the environment.

Possible effects of hazardous incidents, and what we do to prevent them.

What do we do to prevent incidents from occurring?

As a leading European flat steel producer, thyssenkrupp Steel Europe AG invests continuously in new equipment and regularly modernizes existing units. Our efforts ensure that all our operations meet the latest safety requirements. The company has taken all necessary safety measures to prevent incidents.

To guarantee the safety of our facilities, we cooperate with the authorities to avoid hazards for employees, local residents and the environment.

The latest site inspection by Düsseldorf district government was at the Duisburg-North site of thyssenkrupp Steel Europe AG in April 2025. Information on this and on the corresponding monitoring plan can be obtained from Düsseldorf district government. Further information (taking into account the protection of public or private interests under the provisions of the federal and state governments) regarding access to environmental information can be obtained from Düsseldorf district government.

What effects could an incident have?

thyssenkrupp Steel Europe AG has taken all necessary safety measures to prevent incidents. If, despite our extensive safety precautions, an incident occurred, this could e. g. be in the form of a fire, an explosion or the release of harmful substances. Depending on the type of incident, it may not be possible to rule out harmful effects on people, animals and plants, and pollution to the air, soil and water.

In the case of fire, there may be effects outside our plant area (noticeable smell of fire, widely visible smoke plumes). In the event of an explosion, there could be damage outside our works site.

To prevent fires and explosions, our facilities are fitted with automatic detection and extinguishing systems. Where necessary, explosion-proof parts are used. If a fire occurs despite all this, our well-equipped works fire service can also rely on the support of the municipality of Duisburg fire department.

If harmful substances are released, particularly gaseous substances (blast furnace top gas or converter gas), plumes of smoke can be expected. Liquid and solid substances can be held back by permanently installed collectors and barriers. When gaseous substances are released, e.g. due to an accident causing a pipe leak, a cloud of harmful substances may spread several hundred meters outside the works area depending on the size of the leak and the prevailing wind and weather conditions. Gas warning systems are in place to detect leaks quickly. Our gas pipes are constructed from resistant materials and are also fitted with shutoff devices to quickly minimize any leaks. Leaks that do occur can be plugged immediately by the works fire service using readily available materials. Regular maintenance and replacement of safety-relevant equipment is an important part of our safety culture.

Moreover, a large number of our plants at the Duisburg-North site are equipped with fire protection installations like fire alarm systems and automatic fire extinguishing systems. Furthermore, equipotential bonding systems are installed as explosion protection devices where necessary. These installations are designed to prevent incidents or limit the effects of an incident in accordance with StörfallV (Hazardous Incident Ordinance), sections 4 and 5.







What do we do to limit the effects of an incident?



Emergency control plans are in place to deal with potential incidents. These plans are regularly updated and coordinated with the relevant authorities (fire service, police, disaster control). In regular emergency drills, counter-measures are practiced and continuously improved. As operators, we are required to take appropriate measures to combat and contain the effects of incidents in cooperation with external emergency services. For this the company has a well-trained and equipped works fire service with direct links to the municipality of Duisburg fire department. In the event of an incident, any concentrations of harmful substances outside our works are monitored by the municipality of Duisburg fire department, the public is alerted (see page 15), and further hazard control measures are initiated. More information on the municipality of Duisburg fire department can be found online at: <https://www.duisburg.de/micro/feuerwehr/index.php>



If an incident occurs, the company notifies the relevant authorities immediately. Together with the company, the authorities will arrange for all further necessary measures to be taken in order to contain the possible effects.




Substances.







The chart below summarizes the main substances used at thyssenkrupp Steel Europe AG falling under the hazardous incident ordinance.



Substance				
	Hazard symbols	Characteristics	Possible effects	First signs of health impact if inhaled
Uncleaned coke oven gas				
		<ul style="list-style-type: none">Extremely flammable gasLighter than airMay cause cancerMay harm unborn babies	<ul style="list-style-type: none">Fire hazardMay explode in contact with airHealth risk if inhaled	<ul style="list-style-type: none">HeadacheDizzinessNausea
		<ul style="list-style-type: none">Prolonged or repeated exposure may damage organs		
		<ul style="list-style-type: none">Harmful if inhaled		
Cleaned coke oven gas				
		<ul style="list-style-type: none">Extremely flammable gasLighter than airMay cause cancerMay harm unborn babies	<ul style="list-style-type: none">Fire hazardMay explode in contact with airHealth risk if inhaled	<ul style="list-style-type: none">HeadacheDizzinessNausea
		<ul style="list-style-type: none">Prolonged or repeated exposure may damage organs		
		<ul style="list-style-type: none">Harmful if inhaled		

Substance				
	Hazard symbols	Characteristics	Possible effects	First signs of health impact if inhaled
Fumes from gas cleaning system (contain hydrogen sulfide and ammonia)		<ul style="list-style-type: none">Extremely flammable gasToxic if inhaledRisk of acid burns to skin and eyesHazardous to the aquatic environment	<ul style="list-style-type: none">Risk of poisoning if inhaledFire and explosion hazardHazardous to water	<ul style="list-style-type: none">DizzinessNauseaEye burns
Tar		<ul style="list-style-type: none">May cause cancer and genetic defectsMay harm unborn babiesFlammable liquid and vaporMay cause allergic skin reactionsHazardous to the aquatic environment	<ul style="list-style-type: none">Fire hazardSevere health damageSeverely hazardous to water	<ul style="list-style-type: none">DizzinessNausea

Substance				
	Hazard symbols	Characteristics	Possible effects	First signs of health impact if inhaled
Crude benzene				
		<ul style="list-style-type: none">▪ Highly-flammable liquid and vapor▪ May cause cancer and genetic defects▪ Harmful to organs▪ Hazardous to the aquatic environment▪ Causes skin irritation and severe eye irritation	<ul style="list-style-type: none">▪ Serious health damage▪ Fire hazard▪ Severely hazardous to water	<ul style="list-style-type: none">▪ Dizziness▪ Nausea
Blast furnace top gas				
		<ul style="list-style-type: none">▪ Toxic if inhaled▪ Extremely flammable gas▪ Same weight as air▪ May harm unborn babies▪ Prolonged or repeated exposure may damage organs	<ul style="list-style-type: none">▪ Health risk if inhaled▪ Fire hazard▪ May form an explosive mixture with air	<ul style="list-style-type: none">▪ Headache▪ Dizziness▪ Nausea

Substance				
	Hazard symbols	Characteristics	Possible effects	First signs of health impact if inhaled
Converter gas		<ul style="list-style-type: none">▪ Toxic if inhaled▪ Extremely flammable gas▪ Same weight as air▪ May harm unborn babies▪ Prolonged or repeated exposure may damage organs	<ul style="list-style-type: none">▪ Health risk if inhaled▪ Fire hazard▪ May form an explosive mixture with air	<ul style="list-style-type: none">▪ Headache▪ Dizziness▪ Nausea
Oxygen		<ul style="list-style-type: none">▪ Oxidizing	<ul style="list-style-type: none">▪ Accelerates combustion▪ May react violently with other substances	<ul style="list-style-type: none">▪ Prolonged inhalation of very high concentrations may cause nausea
Hydrogen		<ul style="list-style-type: none">▪ Extremely flammable gas▪ Lighter than air	<ul style="list-style-type: none">▪ Fire hazard▪ May form an explosive mixture with air	<ul style="list-style-type: none">▪ Prolonged inhalation of very high concentrations may cause nausea

Substance				
	Hazard symbols	Characteristics	Possible effects	First signs of health impact if inhaled
Zinc electrolyte (liquid)	 	<ul style="list-style-type: none">▪ Causes severe burns to skin and serious eye damage▪ Hazardous to the environment	<ul style="list-style-type: none">▪ Causes acid burns and eye damage▪ Toxic to aquatic organisms	<ul style="list-style-type: none">▪ Breathing difficulties▪ Severe burning of mouth and throat if swallowed▪ Headache▪ Dizziness▪ Nausea
Phosphating solution (liquid)	  	<ul style="list-style-type: none">▪ May cause cancer▪ Causes severe burns to skin and serious eye damage▪ Hazardous to the environment	<ul style="list-style-type: none">▪ Causes acid burns and eye damage▪ Toxic to aquatic organisms	<ul style="list-style-type: none">▪ Breathing difficulties▪ Severe burning of mouth and throat if swallowed
Other flammable gases		<ul style="list-style-type: none">▪ Extremely flammable gas	<ul style="list-style-type: none">▪ Fire hazard▪ May explode in contact with air	<ul style="list-style-type: none">▪ Prolonged inhalation of very high concentrations may cause nausea

Substance				
	Hazard symbols	Characteristics	Possible effects	First signs of health impact if inhaled
Other solid/liquid toxic and/or environmentally hazardous substances, primarily wastes or other treatment chemicals		<ul style="list-style-type: none">▪ Toxic and/or dangerous to life and/or flammable and/or environmentally hazardous	<ul style="list-style-type: none">▪ Hazard to health▪ Fire hazard▪ Toxic/Very toxic to aquatic organisms	<ul style="list-style-type: none">▪ Prolonged inhalation may cause nausea
Paints and solvents		<ul style="list-style-type: none">▪ Liquid and vapor may be flammable and/or harmful to health and/or irritant	<ul style="list-style-type: none">▪ Fire hazard▪ May form an explosive mixture with air	<ul style="list-style-type: none">▪ Prolonged inhalation of very high concentrations may cause nausea

Emergency instructions for local residents.

1. Alarm signal/All-clear signal

- Public siren signals
 - Alarm: High-low siren wail, 1 minute
 - All-clear: Continuous tone, 1 minute
- Observe the warnings on the WarnAPP NINA, see also:
https://www.bbk.bund.de/DE/Warnung-Vorsorge/Warn-App-NINA/warn-app-nina_node.html



2. Safety instructions

- Stay calm
- Seek shelter in buildings
- Close windows and doors
- Switch off air conditioning and ventilation
- Switch off air conditioning and ventilation in vehicles
- Help children and vulnerable people
- Take in passers-by
- Alert neighbors accordingly
- Make sure children do not leave school/kindergarten premises



3. Information

- Duisburg municipal hazard hotline: 0800 1121313
thyssenkrupp Steel Europe AG phone service for the public: 0800 5220001
- Internet: www. Duisburg.de // www.thyssenkrupp-steel.com
- Please switch on the radio for news updates:

Radio	House antenna	Cable
- Radio Duisburg	VHF 92.2 MHz	VHF 101.75 MHz
- Do not block** the fire service and police telephone lines with queries.
Only use the phone in extreme cases of emergency.
If necessary, use the standard emergency numbers:
Police: 110 Fire/Ambulance service: 112



4. Keep transport routes free

- Follow the instructions given by the emergency and ambulance/rescue services
- Keep transport routes free to allow emergency vehicles unhindered access

Do you have any questions about the information in this brochure?

If so, please call or write to:

thyssenkrupp Steel Europe AG

Bereich Umweltschutz

Störfallbeauftragter

Kaiser-Wilhelm-Straße 100

47166 Duisburg

T: 0800 5220001

infobroschuere.steel@thyssenkrupp.com

(Please note: The Environmental Unit is authorized to provide information concerning the German Hazardous Incidents Ordinance (Störfall-Verordnung).)

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Steel

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