

ENVIRONMENTAL BIODIVERSITY RISK ASSESSMENT REPORT

LEAP Assessment according to TNFD Methodology

Company: Hanwha Advanced Materials Europe

Location: Chlebovice

Sector: Automotive materials manufacturing – polypropylene automotive parts forming

Assessment framework: TNFD LEAP (Locate, Evaluate, Assess, Prepare)

Supporting tools: IUCN, Ramsar, UNESCO, ENCORE, WWF

Executive summary

Advanced Materials Europe operates a manufacturing facility producing polypropylene-based automotive components in Chlebovice, Czech Republic.

The site is located outside directly Hanwha protected biodiversity areas, UNESCO World Heritage Sites, and Ramsar wetlands. However, the operation is situated within an ecologically relevant regional landscape influenced by proximity to the Beskydy Protected Landscape Area and Natura 2000 sites.

Key biodiversity-related risks are primarily indirect:

- climate and energy dependency,
- microplastics,
- supply-chain dependency on petrochemical raw materials,
- transport-related habitat fragmentation.

No material direct impacts on UNESCO sites or Ramsar wetlands were identified.

Overall biodiversity risk level: Moderate.

1. LEAP STEP – (LOCATE)

Spatial analysis of operations and value chain

1.1 Facility location

Manufacturing site: Chlebovice industrial area, Frýdek-Místek district , predominantly urban/industrial landscape

Operational activities: polypropylene thermoforming/pressing , material storage , logistics and warehousing

1.2 IUCN biodiversity screening (25 km radius)

The facility is not located within a biodiversity hotspot, but regional biodiversity sensitivity is increased by nearby forest and mountain ecosystems.

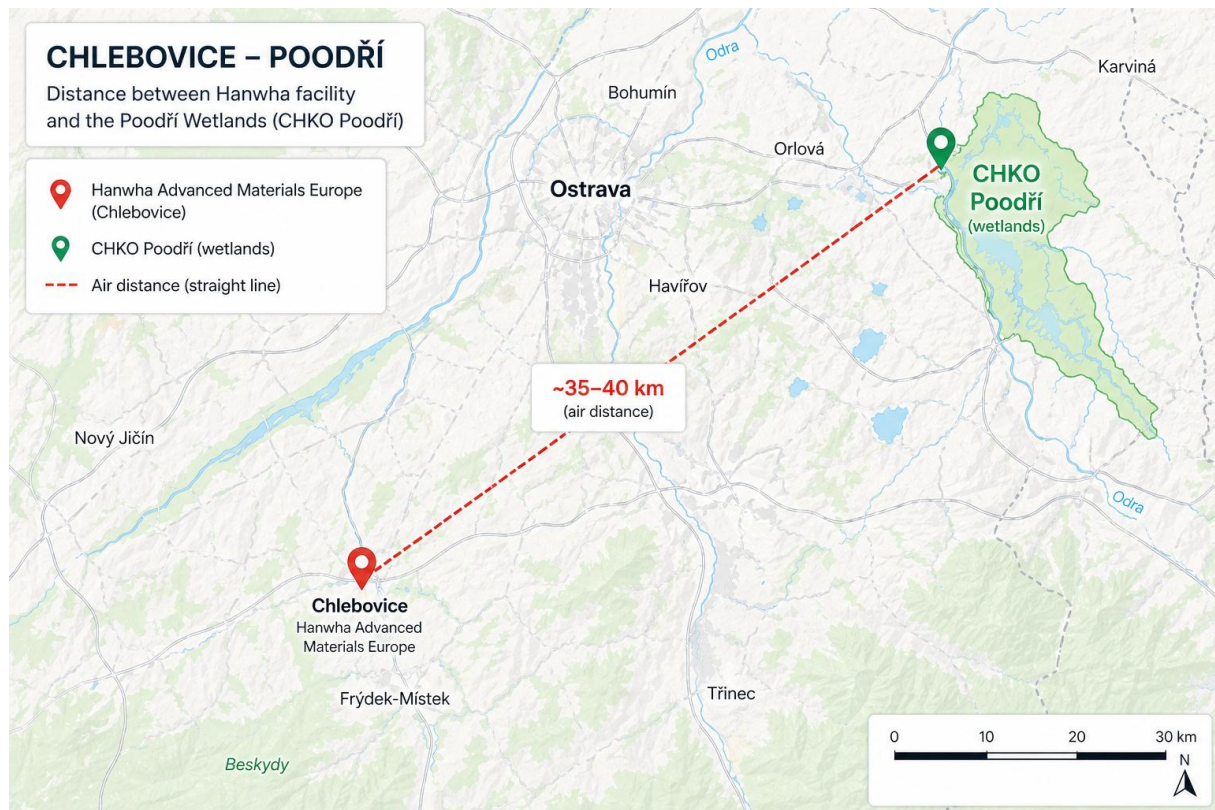
IUCN threatened species screening (25 km radius)

IUCN Category	Estimated occurrence within 25 km	Examples
Critically Endangered (CR)	1–2	localized rare flora (Sorbus species)
Endangered (EN)	3–6	Lynx lynx
Vulnerable (VU)	5–10	Ciconia nigra
Near Threatened (NT)	10+	forest bird species
Least Concern (LC)	numerous	common mammals/birds
Data Deficient (DD)	several	bats/invertebrates

Key species of regional relevance

Likely relevant species in wider region: Canis lupus , Ursus arctos , Barbastella barbastellus

1.3 Ramsar wetlands assessment



Assessment against Ramsar Convention on Wetlands database:

Within 25 km: **No Ramsar site identified**

Nearest relevant wetland: Poodří Protected Landscape Area (~35–40 km)

Potential negative impacts on Ramsar wetlands

Direct impacts: none identified

Indirect potential impacts:

- atmospheric emissions (minor)
- wastewater contamination risk (low probability)
- transport emissions

Conclusion: **Low risk**

1.4 UNESCO World Heritage assessment

Assessment against UNESCO database:

Within 25 km: no UNESCO World Heritage sites

Nearest sites outside radius: Olomouc Holy Trinity Column (80 km) , Kroměříž gardens and castle (70 km)

Potential negative impacts on cultural/natural heritage

World cultural heritage

Potential impacts: none material

World natural heritage

Potential impacts: none material

Conclusion: **No significant direct or indirect impact**

2. LEAP STEP 2 – EVALUATE

Dependencies and impacts on natural capital (ENCORE)

Business activities depend indirectly on ecosystem services.

2.1 Dependency analysis

Business activities depend indirectly on ecosystem services

Natural capital service		Dependency level	Relevance
Water supply		Medium	cooling and sanitation
Climate regulation		Medium	operational continuity
Energy resources		High	electricity-intensive production
Raw materials		High	petrochemical feedstock
Waste assimilation		Medium	emissions and waste

Analysis of dependency of business activities on biodiversity

Hanwha's operations are indirectly dependent on biodiversity through: stable water availability , climate regulation , raw material extraction ecosystems ,ecosystem resilience in supply chain countries

Material dependency level: **Moderate**

2.2 Operational impacts on biodiversity

Impact category	Magnitude	Description
GHG emissions	High	electricity and heating
Plastic leakage	Medium	pellets/microplastics
Water contamination	Low–Medium	accidental release risk
Land transformation	Low	existing industrial area
Noise/light	Low	localized disturbance

3. LEAP STEP 3 – ASSESS

Risks and opportunities (WWF)

Step	Process	Tool
Step 3	Risk and opportunity analysis	WWF

Physical risks

Risk	Level
Extreme weather	Medium
Heat stress	Medium
Flooding	Low

Transition risks

Risk	Level
Plastic regulation	High
Carbon pricing	High
Customer decarbonization pressure	High

Reputational risks

Risk	Level
Plastic-related ESG scrutiny	Medium–High
Biodiversity disclosure expectations	Medium

Biodiversity-specific risks

Risk	Level
Habitat fragmentation via logistics	Low
Microplastic pollution	Medium
Supply-chain ecosystem degradation	Medium

Opportunities

- recycled polymers
- circular economy
- eco-design
- lower carbon materials

4. LEAP Step 4 (PREPARE)

Mitigation actions and biodiversity measures

Biodiversity management

- 1) Biodiversity Action Plan
- 2) annual biodiversity screening
- 3) supplier biodiversity due diligence

Water protection

- 1) closed-loop water systems
- 2) spill prevention

Plastic management

- 1) Zero Pellet Loss Program
- 2) pellet containment audits

Climate

- 1) renewable electricity sourcing
- 2) energy efficiency roadmap

Monitoring KPI

Final conclusion

The Hanwha Advanced Materials Europe site in Chlebovice:

Positive findings

- outside UNESCO zones
- outside Ramsar wetlands
- outside protected areas

Key biodiversity exposures

- proximity to regional biodiversity-sensitive areas (Beskydy/Natura 2000)
- indirect biodiversity dependencies
- medium exposure to plastic and climate transition risks

Overall conclusion

No significant direct biodiversity conflict identified.

Moderate indirect biodiversity risk exposure through operational emissions, plastic management, and supply chain dependencies.

ESG reporting conclusion statement

“Hanwha Advanced Materials Europe’s Chlebovice facility is not located within or adjacent to protected Ramsar wetlands, UNESCO World Heritage sites, or directly protected biodiversity areas. Biodiversity-related risks are predominantly indirect and arise from operational emissions, polymer material handling, and supply-chain dependencies. Appropriate mitigation measures have been identified in alignment with TNFD LEAP methodology.”