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Statement of Conformity

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February 07, 2024

Validation of decarbonization for steel billet and steel reinforcing bars

Compliance with the TÜV SÜD veriX program (VERIsteel®) based on DIN EN ISO/IEC 17029

Producer	Yazıcı Demir Çelik	
Production site	Sarıseki, 31218 İskenderun/Hatay, Türkiye	
Objective	Projectline validation <i>Sourcing of renewable electricity for 50% of electricity demand during steelmaking process at İskenderun production site</i>	
Projectline	Steel billet	290 kg CO ₂ e / t
	Steel reinforcing bar (10 – 40 mm)	357 kg CO ₂ e / t
	Steel reinforcing bar (8 – 12 mm)	416 kg CO ₂ e / t
System boundary	Cradle-to-gate	
Level of assurance	Reasonable	
Materiality threshold	10% of total CO ₂ e emissions	

This statement of conformity is only valid for the described scope and in conjunction with validation/verification aim, criteria, and conclusion (page 2 - 6).

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Business Unit Manager



Remarks to this validation attestation

Brief description of the validation/verification procedure

Yazıcı Demir Çelik voluntarily assigned TÜV SÜD to validate/verify independently (third-party) the claim of the specific CO₂e emissions for the 2022 and the projectline based on partial usage of renewable electricity (50% of total demand). The evaluation is based on the defined and above-mentioned scope (Sariseki, 31218 İskenderun/Hatay, Türkiye). The validation/verification was conducted in general alignment with DIN EN ISO/IEC 17029 in combination with the veriX-program defined in the TÜV SÜD veriX Standard Version 06/2023.

Yazıcı Demir Çelik has worked out the claim for the specific CO₂e emissions of steel billet and steel reinforcing bars. Yazıcı Demir Çelik defined the approach and provided all available primary and secondary data for 2022 as well as the prognosed data for the projectline. During the data evaluation, the calculation method has been assessed via an independent calculation of the specific CO₂e emission leaned on Greenhouse Gas Protocol – Product Life Cycle Accounting and Reporting Standard and DIN EN ISO 14067.

Audits were performed by TÜV SÜD experts on 2023/09/26 – 2023/09/28 (on-site at the production site in Sariseki, 31218 İskenderun/Hatay, Türkiye), 2023/10/05 (remote) and 2023/10/18 (remote). After evaluation of conformity and effectivity of all requested corrective actions and clarifications, the independent review decided to issue this conformity statement.

Roles and responsibilities

The measuring, data collection, GHG inventory, and declaration of greenhouse gas emissions are solely the responsibility of Yazıcı Demir Çelik.

The role and responsibility of the TÜV SÜD verification body was to validate/verify the specific CO₂e emissions reported by Yazıcı Demir Çelik and assess the compliance with veriX-program following the evidence-based approach.

Scope / System boundaries

Yazıcı Demir Çelik uses an electric arc furnace (EAF) for steelmaking at the İskenderun/Hatay steel plant (Türkiye). The high-voltage electric current passing between electrodes, creates an intense heat that melts scrap. The molten iron is further refined in the ladle furnace (LF) with precise heat adjustment for composition and quality. The molten steel is continuously casted as billets at the continuous casting machine (CCM). Yazıcı Demir Çelik operates two rolling mills (RM1 and RM2) for reduction in thickness and elongation in length through multiple rolling passes.

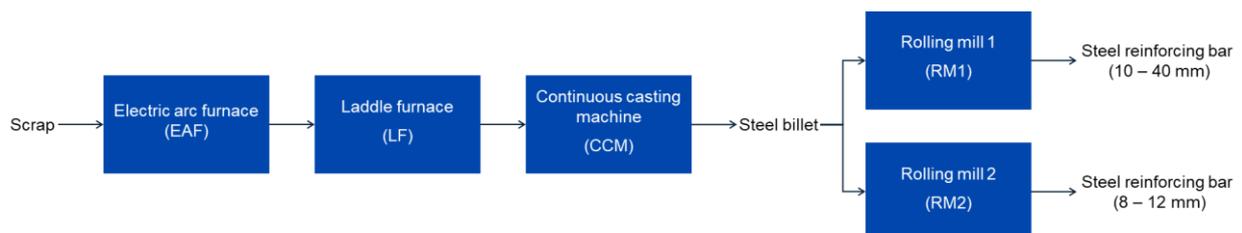


Figure 1: Production process.



The system boundary for this validation/verification is cradle-to-gate, including extraction of materials, ship, and road transportation of raw materials from supplier, and processing activities by Yazıcı Demir Çelik until the products are ready to leave the factory gate. The system boundary includes all relevant and material greenhouse gas emissions sources and sinks described in Table 1.

Table 1: Greenhouse gas sources within system boundary

Scope 1	Scope 2	Scope 3
✓ Stationary combustion	✓ Electricity	✓ Purchased goods and services
✓ Fugitive emission	✓ Cooling and heating	✓ Upstream transportation
	✓ Auxiliary energy	

Direct removals or storages of greenhouse gases are not in place.

Relevant greenhouse gases included in GHG inventory

For the production site, the following directly emitted greenhouse gases were considered:

- CO₂

Emissions of other greenhouse gases have not been identified in this case.

The inventory covers indirect emissions of CO₂ as well as other greenhouse gases, reported as CO₂-equivalents (CO₂e) following the IPCC GWP 100-year approach, including CH₄, N₂O, HFCs, PFCs, SF₆, and NF₃. Biogenic carbon emissions as well as removals are included.

Particularity in reporting

The evaluation of the greenhouse gas relevant data of the period 2022 and the prognosis for a projectline enable a basal modelling with qualification of the specific greenhouse gas emissions and their reduction potential based on the following decarbonization measure by sourcing 50% of total electricity demand from renewable sources. The result of this statement does not reflect a carbon footprint study of a product according to ISO 14067.

Intended user of this verification declaration

- Potential customers of Yazıcı Demir Çelik

Yazıcı Demir Çelik uses the results of this validation/verification for the above-mentioned products as information for their customers and business partners.

Aim of the validation/verification

The assessment was carried out applying a risk-based approach in alignment with impartiality of TÜV SÜD experts. Rational methods were used to achieve reliable and reproducible conclusions. Our conclusions are based on the surveys and explanations from audits as well as supporting evidence that was assessed and gathered during the review.



Criteria

The check of data was carried out according to the following criteria: relevance, completeness, accuracy, transparency of information and consistency. The assessment of comparable alternatives was based on the principle of conservatism.

Agreed level of assurance

- Reasonable level of assurance

Remark:

Using a reasonable – not absolute - level of assurance the verification body inspects the emission declaration of material correctness. This includes a verification of processes, data and documents of their correctness and accuracy with correspondingly adequate random samples.

Materiality threshold

- 10% of total greenhouse gas emissions

Remark:

The materiality threshold is a value for our assessment of data gaps, false statements, and non-conformities. During the verification identified gaps, omissions, inaccuracies which lead into a value larger than the defined threshold are “material” and are a “non-conformity.”

Method of validation/verification

- Strategic analysis and risk assessment
- Validation/verification planning incl. evidence-gathering planning and audit scheduling
- Assessment of GHG-related data and information systems as well as methodology for data collection and GHG accounting
 - Interviews with relevant personnel
 - Collection and review of evidence and documents
 - Random sampling of data and supporting documents for activity data
 - Independent recalculation of GHG inventory
 - Site-inspection with assessment of relevant operations and activities, data management and control systems, equipment, process units and material flows
- Assessment of forecasted greenhouse gas reduction for projectline



Summary of results

Table 2: Validation/verification results – Steel billets

Baseline – base year: 2022	Scope 1	Scope 2	Scope 3 upstream	Total (cradle-to-gate)
Absolute GHG emissions [t CO ₂ e / a]	56 257	207 689	103 043	366 989
Specific GHG emissions [kg CO ₂ e / t]	61	225	112	397
Projectline - Sourcing of 50% renewable electricity				
Absolute GHG emissions [t CO ₂ e / a]	56 257	108 661	103 043	267 961
Specific GHG emissions [kg CO ₂ e / t]	61	118	112	290
Decarbonization potential: 27% to baseline				

Table 3: Validation/verification results – Steel reinforcing bar (10 – 40 mm)

Baseline – base year: 2022	Scope 1	Scope 2	Scope 3 upstream	Total (cradle-to-gate)
Absolute GHG emissions [t CO ₂ e / a]	78 022	201 112	87 744	366 879
Specific GHG emissions [kg CO ₂ e / t]	103	265	116	483
Projectline - Sourcing of 50% renewable electricity				
Absolute GHG emissions [t CO ₂ e / a]	78 022	105 220	87 744	270 987
Specific GHG emissions [kg CO ₂ e / t]	103	139	116	357
Decarbonization potential: 26% to baseline				



Table 4: Validation/verification results – Steel reinforcing bar (8 – 12 mm)

Baseline – base year: 2022	Scope 1	Scope 2	Scope 3 upstream	Total (cradle-to-gate)
Absolute GHG emissions [t CO ₂ e / a]	19.614	36.348	15.247	71.208
Specific GHG emissions [kg CO ₂ e / t]	151	280	118	549
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Projectline - Sourcing of 50% renewable electricity	Scope 1	Scope 2	Scope 3 upstream	Total (cradle-to-gate)
Absolute GHG emissions [t CO ₂ e / a]	19.618	19.017	15.247	53.881
Specific GHG emissions [kg CO ₂ e / t]	151	147	118	416
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Decarbonization potential: 24% to baseline				

Conclusion

Yazıcı Demir Çelik operates and maintains a suitable data collection and recording system, which enabled verification of specific greenhouse gas emissions based on the reporting year 2022 as baseline.

After the review of the Yazıcı Demir Çelik's claim of the reduced specific CO₂e emissions for the production of steel billet and steel reinforcing bars, TÜV SÜD verification body determined that the current and forecasted specific greenhouse gas emissions are presented factually correctly in all material respects. The independent review confirms the achievement of the agreed level of assurance and compliance with the materiality threshold agreed for the validation/verification activity.

This statement of conformity is issued in accordance with the agreement made with Yazıcı Demir Çelik and within the framework of the validation and verification regulations of the verification body. The results recorded here are based on internal documentation of this validation/verification project T0005746.