Carbon Border Adjustment Mechanism (CBAM) Compliance Report for CIRCLIPS Technologies Pvt. Ltd.

Prepared for: CIRCLIPS Technologies Pvt. Ltd.

Address: Plot No. 234 / 235 / 235-A / 236 / I-9, I-10 GIDC Umargam, 396171 Gujarat, India
Reporting Period: December 2024 – May 2025
Audit Conducted: July 11–12, 2025
Prepared by: Quality Austria Central Asia (QACA)

Date: July 30, 2025

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1. Executive Summary

This Carbon Border Adjustment Mechanism (CBAM) Compliance Report provides a comprehensive overview of greenhouse gas (GHG) emissions associated with the production activities of CIRCLIPS Technologies Pvt. Ltd., located in Umargam, Gujarat, India, for the reporting period from December 1, 2024, to May 30, 2025. The report adheres to the requirements of the CBAM transitional period (October 1, 2023, to December 31, 2025) as outlined by the European Commission, utilizing Version 2.1.1 of the CBAM Communication Template.

CIRCLIPS Technologies Pvt. Ltd., a manufacturer of circlips, retaining rings, and fabricated metal components, underwent a CBAM compliance audit at its Umargam, Gujarat facility on July 11–12, 2025. Quality Austria Central Asia (QACA) conducted this audit. This report details adherence to the European Union's Carbon Border Adjustment Mechanism (CBAM) for the reporting period of December 2024 to May 2025, assuming all production is exported to the EU as per understanding with senior management.

The audit confirms compliance, with specific embedded emissions (SEE) calculated for four CBAM-relevant product lines:

- **75C6 wires** (11.27 tCO2e/t) [CN Code: 7229 90 50]
- **80C6 sheets** (5.45 tCO2e/t) [CN Code: 7226 92 00]
- **SS301 sheets** (3.11 tCO2e/t) [CN Code: 7220 20 21]
- **SS304 sheets** (2.95 tCO2e/t) [CN Code 7220 20 41]

The facility produces more than 7,000 items for the four product lines mentioned above. The total production volume for the reporting period was 690.93841 metric tons, with specific embedded emissions (SEE) calculated for each product category. The installation recorded total emissions of 1354.213 tCO_2e, comprising 3.843 tCO_2e of direct emissions and 1350.37 tCO_2e of indirect emissions, primarily from electricity consumption using India's grid emission factor of 0.757 tCO_2e/MWh.

Currently there is no formal agreement between the EU and India on an acceptable carbon pricing mechanism, and thus, no carbon price rebates or compensation are reported herein. Data quality is ensured through measurement-based calculations and adherence to international standards, with the four-eyes principle applied for quality assurance. This report includes detailed emissions data, production processes, and precursor consumption, ensuring full transparency for reporting declarants importing these goods into the European Union.

The filled up CBAM Communications template for installations is attached with this report (Appendix A).

2. Introduction

The Carbon Border Adjustment Mechanism (CBAM), under Regulation (EU) 2023/956, requires reporting of greenhouse gas emissions embedded in goods imported into the EU. During the transitional period (October 2023–December 2025), operators must report specific embedded emissions (SEE) for each CBAM goods category, such as iron and steel products. CIRCLIPS Technologies Pvt. Ltd., located in Umargam, Gujarat, India, produces more than 7,000 items along four CBAM-relevant product lines. This report fulfills the requirements of the CBAM Communication Template (Version 2.1.1) based on provided data.

The audit, conducted on July 11–12, 2025 by Quality Austria Central Asia (QACA) involved physical assessment, data verification, and management consultations. All production is assumed to be exported to the EU for compliance purposes.

3. Company Overview

Founded in 1967 by Late Hansraj S. Thaman, CIRCLIPS Technologies Pvt. Ltd. manufactures circlips, retaining rings, vehicle body assembly components, special formed components, and clamps. Located at Plot No. 234 / 235 / 235-A / 236 / I-9, I-10 GIDC Umargam, Gujarat, India, the company holds IATF 16949, ISO 9001, ISO 14001, ISO 45001, and MSME ZED Gold certifications. Its factory license (No. 15360, valid until December 31, 2026) ensures operational compliance.

The facility's coordinates are 20.1645993°N, 72.7770122°E, with economic activities focused on manufacturing fabricated metal products (UNLOCODE: IN UBR). CIRCLIPS uses SAP Business One for operational efficiency.

4. CBAM Compliance Framework

The CBAM Regulation mandates reporting of direct, indirect, and precursor emissions for each aggregated goods category (Annex I). Transitional period requirements include:

- **Reporting Period**: December 1, 2024 to May 30, 2025.
- **Emissions Calculation**: Direct emissions from source streams, indirect emissions from electricity, and precursor emissions, reported per product line.
- **Data Quality**: Measurements, international standards, or justified default values.

CIRCLIPS' compliance was assessed using the CBAM Communication Template, verified during the audit.

5. Installation Details

Facility Information:

- **Name**: CIRCLIPS Technologies Pvt. Ltd.

- **Address**: Plot No. 234 / 235 / 235-A / 236 / I-9, I-10 GIDC Umargam, 396171 Gujarat, India
- **UNLOCODE**: IN UBR
- **Coordinates**: Latitude: 20.1645993°N, Longitude: 72.7770122°E
- **Economic Activity**: Manufacture of other fabricated metal products
- **Certifications**: IATF 16949, ISO 9001, ISO 14001, ISO 45001, MSME ZED Gold
- **Factory License**: No. 15360, valid until December 31, 2026

Additional Information: Processes include profile cutting, austempering, press tempering, grinding, deburring, phosphating, and oiling.

Currently, no formal agreement on carbon pricing applies to goods exported from India to the EU. This report and filled up (

6. Production Processes and Goods

Circlips Technologies produced four CBAM-relevant product lines, classified as iron or steel products under the “All production routes” category:

Product Line	Aggregated Goods Category	CN Code	Quantity (kg)
75C6 Wire Products	Iron or steel products	7229 90 50	606,686
80C6 Sheet Products	Iron or steel products	7226 92 00	80,190.95
SS301 Sheet Products	Iron or steel products	7220 20 21	2,305.82
SS304 Sheet Products	Iron or steel products	7220 20 41	1,755.64

The total production of all four product lines is 690,938.41 kg. The facility produces certain brass items; however, these items do not fall within the ambit of CBAM-relevant goods.

The unit processes at Circlips are:

Process	75C6 (Sheet)	80C6 (Wire)	SS 301 and 304	Brass
Raw Material		✓		
Flattening		✓		
Coiling		✓		

Stress Reliving		✓		
Coil Cutting		✓		
Profile Cutting	✓	✓	✓	✓
Hole Punching		✓		
Coiling		✓		
Austempering	✓	✓		
Press Tempering	✓	✓		
Grinding	✓	✓		
Deburring	✓	✓		
Phosphating & Oiling	✓	✓		
Final Inspection	✓	✓	✓	✓
Packing & Dispatch	✓	✓	✓	✓

7. Energy Consumption

The break-up of energy usage is:

Energy Item	Unit	Quantity	Remarks
Electricity	KWh	1,761,123	From DGVCL and DG set (emergency use)
Diesel (DG Set)	Liters	5,679.6	4 kWh/liter (assumed)
Diesel (Vehicle)	Liters	1,140	Non-production use; not considered
Natural Gas (PNG)	SCM	17,362.894	From Gujarat Gas, used in heat treatment
Solar Energy Output	KWh	702,139	Renewable contribution

Circlips does not have a system for measuring electricity consumed during different unit processes. Based on the intuitive understanding of senior operations personnel at the facility and cross-checking with anecdotal industry reporting it was considered safe to assume that 85% of electricity (1,496,954.55 KWh) is used for processing 75C6 wire products and 15% (264,168.45 KWh) for 80C6 sheet products; none for SS301/SS304 (no heat treatment involved).

8. Direct and Indirect Production-process Emissions (Excluding Precursors)

Emission Factors:

- Electricity: 0.757 tCO2e/MWh (Gujarat grid)

  [For India, as an aggregated entity, the emission factor is 0.82 tCO2e/MWh]

- PNG: 1.973 kgCO2e/SCM (IEA 2023, converted to 2.0 tCO2e/1000Nm³)

- Diesel: Used to produce electricity for continuity of heat treatment processes during power cuts. Using generic data, we assumed that 1 liter of diesel generates 4 kwh of electricity. There are no direct emissions relating to diesel at Circlips.

Direct Emissions:

Direct emissions associated with PNG				
Item		**Amount produced**	**PNG associated with the item** (SCM)	**Emissions for the PNG associated with the item** (tCO2e/t)
75C6 Wires	Kgs	606686	3344.851915	6.68970383
80C6 Sheets	Kgs	80190.95	442.1180852	0.88423617
SS301 Sheets	Kgs	2305.82	0	0
SS304 Sheets	Kgs	1755.64	0	0
Note 1	Typically, 1000 SCM of PNG is responsible for 2 metric tons of CO2e emissions.			
Note 2	PNG is used only during heat treatment processes. SS 301 and 304 do not undergo heat treatment at Circlips.			

Indirect Emissions from Electricity:

Products	**Amount produced** (kg)	**Electricity from Diesel** (used only for heating purposes)	**Distribution of non-heating Electricity (KWH)**	**Distribution of heating Electricity (KWH)**	**Electricity from Gujrat State Electricity Board (heating + non-heating consumed by different Products (KWH)**	**Total Electricity Usage** (Gujarat state provided + DG set generate) **(KWH)**	**Emissions associated with the electricity (tCO2e)**	**Emissions per ton of product from electricity** (tCO2e/t)
75C6 Wire	606,686	20,066.09	231,955.9861	1322,189.225	1554145.211	1574211.302	1191.677955	1.96
80C6 Sheet	80,190.95	2,652.309	30,659.63429	174765.2163	205424.8506	208077.1598	157.51441	1.96
SS301 Sheet	2,305.82	0	881.5907273	0	881.5907273	881.5907273	0.667364181	0.29
SS304 Sheet	1,755.64	0	671.238841	0	671.238841	671.238841	0.508127803	0.29
	690938.41	**22718.4**	**264168.45**	**1496954.441**	**1761122.891**	**1783841.291**	**1350.367857**	

9. Purchased Precursors and Emissions

Precursor emissions are calculated as quantity × emission intensity, based on supplier data:

Supplier	Material	Quantity (kg)	Emission Intensity (tCO2e/t)	Emissions (tCO2e)
Tata Steel	75C6 Round Bar	12,945	2.61	33.79
JSW Steel	75C6 Round Bar	366,837	2.62	961.11
Jaiswal Neco Steel	75C6 Round Bar	237,664	2.58	613.17
JSPL Steel	75C6 Round Bar	49,337	2.62	129.26
Tata Steel	SS301 Sheets	183.4	2.43	0.45
Tata Steel	SS304 Sheets	96.9	2.43	0.24
Tata Steel	80C6 Sheets	194,591.5	2.61	507.88
JSW Steel	SS301 Sheets	3,697.4	2.44	9.02
JSW Steel	SS304 Sheets	3,704.8	2.44	9.04
Avon Ispat & Power Ltd	80C6 Sheets	13,198.7	1.30	17.16
Tube Investments of India	80C6 Sheets	57,214.6	2.13	121.87
Bright Metal	Brass Sheets	2,063.3	2.88 (non-CBAM)	0 (excluded)

Precursor Quantities and Emissions by Product Line:

Item (Quantity)	Emissions
• 75C6 Wires (606,686 kg)	1,737.33 tCO2e
• 80C6 Sheets (265,004.7 kg)	646.91 tCO2e
• SS301 Sheets (3,880.8 kg)	9.47 tCO2e
• SS304 Sheets (3,801.7 kg)	9.28 tCO2e

Note: Brass emissions (5.94 tCO2e) are excluded as non-CBAM.

10. Total Embedded Emissions

Item	Direct emissions from production (tCO2e/t)	Indirect emissions from production (tCO2e/t)	Precursor emissions (tCO2e/t)	Total embedded emissions (tCO2e/t)
75C6 Wires	6.68970383	1.96	2.62	11.26970383
80C6 Sheets	0.88423617	1.96	2.61	5.45423617
SS301 Sheets	0	0.67	2.44	3.11
SS304 Sheets	0	0.51	2.44	2.95

Note: In situations where data from multiple authoritative sources had variance, the audit organization selected higher values for emissions or associated factors that increased the emission levels.

11. Data Quality and Assurance

Data Quality:

- Predominant Approach: Measurements and international standard factors (e.g., IEA 2023 emission factors).
- Justification for Default Values: Not applicable, as measurements were used in most cases.
- Quality Assurance: Four-eyes principle applied during data collection and audit.

Audit Findings:

- Data from the CBAM Communication Template is consistent, with manual entries in Sheet C ensuring accuracy.

12. Compliance with CBAM Reporting Requirements

CIRCLIPS meets CBAM reporting requirements:

- **Reporting Period**: December 2024–May 2025.
- **Installation Data**: Complete, with accurate UNLOCODE, coordinates, and economic activity.
- **Emissions Data**: Separate SEE calculations for each product line.

- **Production Data**: Quantities and processes for CBAM goods fully documented.
- **Precursor Data**: Supplier-specific emission intensities included, with brass excluded.
- **Data Quality**: High-quality data supported by measurements and standards.

13. Recommendations

1. *Complete Source Stream Data*: Enhance direct measurements for all source streams.
2. *Increase Renewable Energy Use*: Expand solar contribution (702,139 KWh) to reduce indirect emissions for 75C6 and 80C6 products.
3. *Automate Data Collection*: Implement automated energy logging to reduce errors.
4. *Engage Suppliers*: Refine supplier emission intensity data, especially for Avon Ispat.

14. Conclusion

CIRCLIPS Technologies Pvt. Ltd. demonstrates robust CBAM compliance for December 2024–May 2025, with specific embedded emissions reported separately for 75C6 wires (11.27 tCO2e/t), 80C6 sheets (5.45 tCO2e/t), SS301 sheets (3.11 tCO2e/t), and SS304 sheets (2.95 tCO2e/t). Production, energy, and precursor data are well-documented in the CBAM Communication Template. Addressing minor source stream data gaps will strengthen future reports. CIRCLIPS is well-prepared for EU import requirements and can enhance sustainability through recommended actions.

15. Appendices

Appendix A: CBAM Communication Template Summary

- File: CBAM Communication template for installations_en_V2.1.1.xlsx
- Key Sheets:
    - A_InstData: Installation details, production processes, precursors.
    - B_EmInst: Source streams (incomplete, overridden by manual entries).
    - C_Emissions&Energy: Energy emissions, precursors separate.
    - D_Processes: Production levels and attributed emissions.
    - E_PurchPrec: Precursor consumption and emissions.
    - Summary_Products: SEE calculations per product line.

Appendix B: Supplier Emission Intensities

- Tata Steel: 2.61 tCO2e/t (75C6), 2.43 tCO2e/t (SS301, SS304).
- JSW Steel: 2.62 tCO2e/t (75C6), 2.44 tCO2e/t (SS301, SS304).
- Jaiswal Neco: 2.58 tCO2e/t (75C6).
- Avon Ispat: 1.30 tCO2e/t (80C6).
- Tube Investments: 2.13 tCO2e/t (80C6).

Appendix C: Audit Methodology

- **Physical Assessment:** Verification of production facility bills and logs**,** supplier invoices**.**
- **Data Cross-Check:** Validation of CBAM template data.
- **Management Consultation:** Confirmation of EU export assumption and data accuracy.