



Progress on aligning on measurement methodologies in the steel sector

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worldsteel – who we are

The World Steel Association (worldsteel) is a non-profit organisation.

It has headquarters in Brussels, Belgium and Beijing, China.

Members represent around 85% of global steel production.

worldsteel represents steel producers, national and regional steel industry associations, and steel research institutes.

Approaches to defining low carbon steel



Launched at COP 28 in 2023

STEEL STANDARDS PRINCIPLES

Common emissions measurement methodologies to accelerate the transition to near zero

Endorsed by:



Endorsements as of 05/12/23

Steel Standards Principles

Common emissions measurement methodologies to accelerate the transition to near zero

Endorsed by:



Endorsers

- Standard-setting / initiatives / methodology development bodies
- Industry associations
- Steel companies
- Suppliers, consumers, investors
- International organisations, initiatives and civil society

Steel Standard Principles

Common emissions measurement methodologies to accelerate the transition to near zero

Steel Standards Principles:

Suggested Actions for Practical Implementation

23/01/2025

Background:

To date, more than 60 organizations have endorsed the Steel Standards Principles. This document sets out a menu of suggested actions that can be taken by different types of endorsing organizations to support the effective implementation of the Steel Standards Principles. *This document will be updated periodically based on actions and examples shared by endorsing organizations.* Five main groups of endorsing organizations are identified below. Endorsing organizations may self-identify with multiple categories and are invited to make use of this guidance as appropriate.

Standard-setting / initiatives / methodology development bodies

- **Adhere to trade principles:** Ensure that standards development or revision processes and procedures are consistent with the WTO Technical Barriers to Trade (TBT) Agreement Code of Good Practice and the TBT Committee's Six Principles for the Development of International Standards, Guides and Recommendations
- **Implement net zero principles:** Ensure that standards are aligned with the IEA "Net Zero Principles" for emissions measurement and data collection, in partnership with other stakeholders. This includes identifying key relevant standards, coordinating across these, identifying priority revisions, and accelerating processes to agree on and implement revisions.

worldsteel's mapping exercise

Standard/initiative	Leading/sponsoring organisation(s) ▼	Scope - assessment basis ▼	GHG emissions included ▼	System boundary definition ▼	Scope 2 included? ▼
ACT Initiative	ADEME, France, WBA	Company	CO2	Cradle-to-gate (crude steel)	Yes (location-based)
Buy Clean California Act	CLF, California	Product	All GHGs	Cradle-to-gate (product)	Yes (location-based)
CARES Sustainable Construc...	CARES	Product	All GHGs	Cradle-to-gate (product), Cr...	Yes (location-based)
Catena-X	Catena-X	Product	All GHGs	Cradle-to-gate	Yes (market-based o
China Iron and Steel Associa...	CISA	Product	All GHGs	Cradle-to-gate (product), Cr...	Yes (market-based o
China Iron and Steel Associa...	CISA	Product	All GHGs	Cradle-to-gate (product), Cr...	Yes (market-based o
China/Baowu Low Carbon-E...	Baowu	Site, Product	CO2	Cradle-to-gate (TBD) (partial)	Yes (market-based o
Chinese national standard: G...	SAC	Product	All GHGs	Cradle-to-gate (product) wit...	Yes
Climate Bonds Initiative	Climate Bonds Initiative, GEI	Company, Product	CO2	Cradle-to-gate (product)	Yes (market-based o
Climate Group SteelZero	The Climate Group, Respons...	Site - Crude Steel	All GHGs	Cradle-to-gate (crude steel)	Yes
EN 15804:2012+A2:2019	CEN	Product	All GHGs	Cradle-to-grave	Yes (not specified)
EN 17662 [not yet published]	CEN				
EPA GHG Reporting Rule	US EPA	Site	CO2, CH4, N2O	Gate-to-gate	No
EU CBAM	European Commission	Product	CO2, N2O, PFCs		No
First Movers Coalition	First Movers Coalition, USA, ...	Site - Crude Steel	CO2e	Cradle-to-gate (crude steel)	Yes (not specified)



Steel Standards Principles

Common emissions measurement methodologies to accelerate the transition to near zero

Statement for COP29

We, the stakeholders of the global steel industry, building on the Steel Standards Principles (SSP)¹, aim to pursue an inclusive, open and transparent process that intends to achieve harmonization of measurement methodologies, and where not possible, yield the interoperability of existing GHG emissions frameworks for steelmaking, thereby accelerating the transition to near zero. Launched at COP28 with 42 signatories, the SSP have now been endorsed by 61 organizations with wide geographical and stakeholder coverage.

This unified mechanism has supported open dialogue, collaboration, and mutual understanding. As the first step towards harmonization, the priority has been to identify commonalities, similarities and differences between emissions accounting methodologies, and where the benefits of alignment would be greatest. It was emphasized that methodology variance is closely related to the diverging purposes of methodologies and whether they focus on the company, site or product level emissions. Whilst some aspects of alignment may be simpler to resolve, more challenging aspects may prevail for which robust interoperability tools and a pathway towards recognition would be required. Developing guidance on interoperability and recognition to assist in the alignment of methodologies and to provide clarity to relevant stakeholders will be essential moving forward.

To support the SSP's work, the World Steel Association is leading a mapping exercise to collate a large number of initiatives and methodologies from around the world. This mapping exercise assesses commonalities, similarities and differences across more than 40 criteria and identifies opportunities for harmonization. Approximately 80 initiatives or standards were identified and over 40 prioritized for initial and direct engagement.

With much progress made in 2024, we have set the following 2025 objectives:

1. **Establish a Common Boundary** to enable comparability which encompasses an emissions intensity reporting point from mining to crude steel. This should be reported as tonnes of CO₂e per tonne of crude steel (in addition to existing reporting points, e.g. tonnes CO₂e/tonne hot rolled steel, tonnes CO₂e/tonne finished steel product).
2. **Enhance Data Quality** including increased data transparency, establishing common emission factors and maximizing the usage of primary data.
3. **Develop Common Terminology** in a “glossary” that is consistent across initiatives, standards and methodologies.
4. **Increase Stakeholder Engagement** with steel companies, policy makers, NGOs, customers, investors, and raw material suppliers from around the world.

Working towards these objectives with the expertise and competencies of the endorsing organizations will be a significant step in the alignment of common emission measurement methodologies in the steel sector. These objectives will contribute to more accurate and transparent reporting, greater comparability and interoperability between methodologies, and a better understanding of the industry’s emissions. Increased engagement will lead to more holistic representation and thereby more steel producers reporting their emissions. Consistent reporting is a prerequisite for policy makers to create better policies that will support global decarbonization.

We will continue this important work in 2025 and will present the progress on our objectives at COP30.

¹ https://www.wto.org/english/tratop_e/envir_e/steel_standards_principles_e.pdf

Our recommendations

- Common reporting point – crude steel – with a common reporting boundary
 - Relevant way to compare all measurement methodologies
 - Needs to be **in addition to** current reporting e.g. product level
- Use of IPCC aligned GHG emissions
 - CO₂, methane, N₂O, etc.
- Common open-source emission factors for upstream processes e.g. mining, electricity
- Data quality
 - Common reporting on the quality of data used
 - Temporal, geographical, technological assessment
 - Preference for supplier specific data
- Interoperability and recognition
- Glossary of relevant terms – based on worldsteel glossary
 - Aligns different terms and avoids confusion

Recognition and interoperability

Recognition: Acceptance of data or claims made on the basis of one scheme by another scheme, such that they are regarded as providing a means to compliance with its requirements.

Interoperability: The state of measurement methodologies, or thresholds, that are seen as sufficiently aligned to enable conversion between two or more schemes. It requires a mechanism to enable operation and a governance system to oversee this.

- Common boundary and emission intensity reporting point
 - What should be included in a common system boundary?
 - What is the next step?
- Criteria or good practices to enable recognition between methodologies
 - Any experiences to share?
 - Acknowledging differences?

Glossary

Category	Definition	Source
Interoperability	The state of measurement methodologies, or thresholds, that are seen as sufficiently aligned to enable conversion between two or more schemes.	SSP
Recognition	Acceptance of data or claims made on the basis of one scheme by another scheme, such that they are regarded as providing a means to compliance with its requirements.	SSP
Alignment	Common building blocks of calculation methodology e.g. data points	
Harmonisation	The process of aligning different methodologies to enable comparison of methods	
Equivalency		
Standard	A document, established by consensus and approved by a recognized body, that provides guidelines or characteristics for activities or their results, aimed at the achievement of the optimum conditions in a given context.	
LCA	Life cycle assessment	
EPD	Environmental product declaration, typically used in the construction sector with EN 15804 are relevant.	
Low carbon (emission) steel	Low-carbon steel is manufactured using technologies and practices that result in lower carbon emissions than conventional production.	
Green steel	Green steel is being used and interpreted by many different parties to mean different things, often in the context of marketing new more environmentally conscious products. It has been used to refer to steel produced from scrap, reused and remanufactured steel, and conventional steel with emissions offset through the retirement of carbon units or allowances. Often the term is used in relation to the carbon emissions only (see low carbon steel) and is therefore only a subset of environmental performance. Given this inherent lack of clarity, diversity of meanings and focus on carbon emissions, 'green steel' is not an expression worldsteel uses.	
Carbon-neutral steel	If a balance can be achieved between the greenhouse gases put into the atmosphere by sinks, the resulting steel can be referred to as carbon-neutral. Carbon-neutral steel may require offsets in other sectors to achieve true neutrality. Producers are transparent about boundaries, their accounting, and any offsets used.	
Net-zero steel	See carbon-neutral steel	
Zero-carbon steel	To be truly zero-carbon, steel would need to be produced without any CO2 emissions. It is difficult to conceive of a production technology that could achieve this in the steel sector.	
Clean steel	Clean steel is a technical expression used in the steel sector to refer to steels with low carbon inclusions, or low or ultra-low level of carbon dissolved in the metal. The phrase was first used in the 2004 'Study on Clean Steel', and means something specific. As such worldsteel does not use the term in relation to climate change.	
Claims	Information communicated to customers, investors or other stakeholders about credentials, in the form of trademarks, certification marks, marketing material etc (not only B2C).	SSP

Green steel is being used and interpreted by many different parties to mean different things, often in the context of marketing new more environmentally conscious products. It has been used to refer to steel produced from scrap, reused and remanufactured steel, and conventional steel with emissions offset through the retirement of carbon units or allowances. Often the term is used in relation to the carbon emissions only (see low carbon steel) and is therefore only a subset of environmental performance. **Given this inherent lack of clarity, diversity of meanings and focus on carbon emissions, 'green steel' is not an expression worldsteel uses.**

Glossary

Boundary		
Common reporting point	The point at which the emissions are reported, adopted by multiple standards; the denominator when reporting GHG or CO2-e emissions.	worldsteel
Crude steel	Steel in the first solid state after melting, suitable for further processing or for sale (therefore includes secondary metallurgy and casting).	worldsteel
Site	A physical location on which steel making or processing operations are carried out.	worldsteel
Installation		
Process	A distinct part of the steel making process, e.g. coke ovens, sinter plant, blast furnace etc.	worldsteel
Emission factors		
Scope 3		
Upstream		
Data quality terms		
Empirical		
Specific		
Measurement based		
Primary data		
Secondary data		
Emission factors		
Chain of custody		
Chain of custody		
Insets		
Offsets		
Mass balance		
Book and claim		
Physical connection		

Communications on websites

WTO – [Principles](#)

Or via worldsteel.org which also includes:

- [Steel Standards Principles statement for COP29](#)
- [Mapping exercise](#)
- [List of suggested actions](#)

worldsteel and ISO approaches



worldsteel data collection projects

Site level emissions: since 2007

- worldsteel CO₂ data collection project
- tonnes **CO₂** per tonne crude steel --- moving to GHG emissions and expansion of upstream scope 3 emissions
- Equivalent to the ISO 14404 series of standards

Product level emissions: since 1995

- worldsteel LCI data collection project
- **All environmental impacts** (including CO₂ and **GHGs**) for 17 products
- Equivalent to the ISO 20915 standard --- currently under revision

Data quality proposal – ISO 20915

4.4.1 Data quality - general

- The data quality requirements set out in ISO 14044:2006 should be followed, including time-related, geographical and technology coverage. Additionally, the share of primary and secondary data should be calculated using the methodology in section 4.4.5.

4.4.2 Time-related coverage

- one full representative year
- primary data sets used in LCI studies should not be more than five years old
- any secondary data used should be less than 10 years old, unless its ongoing validity is justified

4.4.3 Geographical coverage

- various geographical representations possible (e.g. one steelworks, one steel company, national, regional or global coverage)
- geographical coverage and representation should be clearly stated
- weighted average by the production quantity of the covered scope
- manufacturers contributing to the LCI shall be documented

Data quality proposal – ISO 20915

4.4.4 Technology coverage

This document covers production technologies of unalloyed steels and alloy steels >> **Proposal discussion for stainless to be included.**

4.4.5 Sources of the data

- Steel production data shall be directly sourced from steel producers based on primary data, such as measurement, engineering calculations and purchasing records.
- Upstream data produced by suppliers should be used. If not available, secondary data (geographically relevant) may be used.

The Primary Data Share (PDS) is defined as the proportion (%) of an LCI that is derived from primary data.

1. Primary data (data from the site(s) under study shall be prioritized) should be used instead of secondary data for the processes over which the manufacturer of the specific product has influence, and for the most relevant material inputs
2. For the environmental impacts of most importance, the primary data share should be reported – this is expressed as a % of the cradle to gate environmental impact.
3. Alongside product carbon footprint/LCA results, report Data Quality Rating (DQR)

Other types of 'low carbon' steel



Steel company 'low emission' steel products



sidenor sustainable steel
sidenor neutral steel

HINEX[®]
Steel



Kobenable Steel



HyECO steel



greentec steel

XCarb[®]

Towards carbon neutral steel

BeyondECO

HYBRIT
FOSSIL-FREE STEEL

Optemis[™] Carbon Lite

A brighter, greener future



bluemint[®] Steel

HIGH QUALITY.
LESS CO₂.



Zeremis[®]
Carbon Lite



NSCarbolex[®]
Innovative action for sustainability



JGreeX

Zeremis[®]
Recycled

Note: these brands use different approaches, some of which are based on chain of custody!

Home > Climate action > Chain of custody

GHG chain of custody approaches in the steel industry

Chain of custody approaches in the steel industry

The role of GHG reduction certificates

The steel industry has a long history of producing life cycle assessments (LCA) and carbon footprints (CFP) of its products.

Up until recently, the reductions in greenhouse gas (GHG) emissions by the industry were passed on to customers by including changes in an updated CFP. In recent years, the demand for low-carbon products has been increasing and steel companies are looking for ways to supply low-carbon steel products to the market.

In this context, the use of chain of custody approaches to assign GHG emission reductions to specific products can be a useful tool and its use has been increasing in the steel industry.

Today there is no standardised methodology for GHG chain of custody approaches and companies have developed their own schemes to meet their own needs. As these schemes multiply, the need for industry guidance has become increasingly clear.

Therefore, worldsteel, together with its members, has developed a set of [Principles](#) and [Guidelines](#) to provide transparency and clarity on the application of chain of custody approaches within the steel industry, to provide guidance to the companies who choose to use these approaches and also to provide input to other organisations

Chain of custody approaches in the steel sector



[Download worldsteel Principles \(PDF\) \(PDF / 108.93 KB\)](#)

worldsteel guidelines for GHG chain of custody approaches

The general approach



CARBON FOOTPRINT
of the product being sold



BANKING REDUCTIONS
from GHG reduction projects



SELLING CERTIFICATES
alongside the carbon footprint

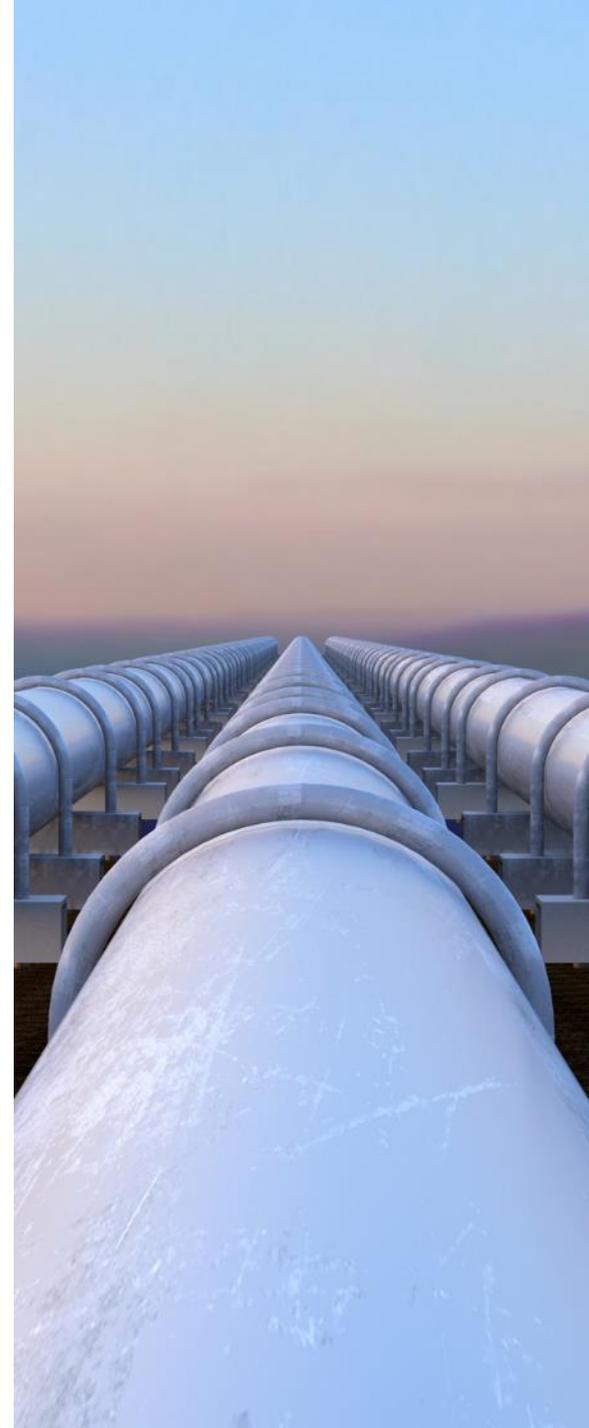
Carbon footprint also includes: Environmental Product Declaration, Life Cycle Inventory, GHG emissions.

■ And finally...



The other issues...

- While we're making all this effort to reduce carbon emissions, we need to understand the 'ripple effect'
- While we're busy doing this, our competitors are less concerned and get on with it
 - Cement and concrete assuming
 - slag is a waste and not a valuable input
 - They can use waste plastics and not account for their emissions
 - GCCA developed their own thresholds for concrete based on average EPDs



Contact



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A S S O C I A T I O N

worldsteel.org | constructsteel.org | steeluniversity.org | worldautosteel.org | worldstainless.org

