Irish Standard
I.S. EN 19694-2:2016

Stationary source emissions - Greenhouse Gas (GHG) emissions in energy-intensive industries - Part 2: Iron and steel industry

I.S. EN 19694-2:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 19694-2:2016 is the adopted Irish version of the European Document EN 19694-2:2016, Stationary source emissions - Greenhouse Gas (GHG) emissions in energy-intensive industries - Part 2: Iron and steel industry

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 19694-2

July 2016

ICS 13.040.40

English Version

Stationary source emissions - Greenhouse Gas (GHG) emissions in energy-intensive industries - Part 2: Iron and steel industry

Émissions de sources fixes - Détermination des émissions de gaz à effet de serre (GES) dans les industries énergo-intensives - Partie 2: Industrie sidérurgique

Emissionen aus stationären Quellen - Bestimmung von Treibhausgasen (THG) aus energieintensiven Industrien - Teil 2: Stahl- und Eisenindustrie

This European Standard was approved by CEN on 5 May 2016.

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European foreword

This document (EN 19694-2:2016) has been prepared by Technical Committee CEN/TC 264 “Air quality”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2017, and conflicting national standards shall be withdrawn at the latest by January 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate M/478 given to CEN by the European Commission and the European Free Trade Association.

This European Standard deals with sector-specific aspects for the determination of greenhouse gas (GHG) emissions from steel production. This standard can be used to measure, report and compare the GHG emissions of a steel facility. It can also be used to assess the GHG performance of a steel facility or parts of it.

EN 19694, *Stationary source emissions — Determination of greenhouse gas (GHG) emissions in energy-intensive industries* consists of the following parts:

— *Part 1: General aspects*

— *Part 2: Iron and steel industry*

— *Part 3: Cement industry*

— *Part 4: Aluminium industry*

— *Part 5: Lime industry*

— *Part 6: Ferroalloy industry*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The steel industry recognizes the urgent need to take action to combat climate change. Slowing and halting global warming will require substantial reductions in greenhouse gas emission on a global scale. To play a part in achieving these reductions, steel production sites, recognized as major emitters of GHG, should as a first step assess their CO_2 emission performance relating to the production of steel products in order to identify and quantify emission reduction opportunities.

Steel production involves complex chemical reactions, successive heating cycles, and the recycling of various by-products. A variety of inputs, including raw materials, reactive agents, fuel and heat sources are transformed into a wide range of steel products, by-products, waste materials and waste energy.

Steel sites manufacture a wide range of products including, among others, sheet products, plate products, long products, pipe and tubes. In addition, some steel sites produce unique high-performance specialty steel products, which are created by employing various sub-processes including micro-alloying and surface treatment, thus requiring additional heat treatments. Therefore, there are no two steel sites in the world which are the same. As a consequence, a sound assessment of performance should be made independent of the production structure.

Regulations related to climate change require steel companies to devise methods to reduce CO_2 emissions from steel sites while continuing to produce steel products from these diverse and complex steelmaking processes. To accomplish this, it is desirable to have universally common indicators for determining the CO_2 emission performance of a site.

It has been the usual practice to determine CO_2 emissions at facility level, from which a CO_2 intensity per unit of reference product, usually “crude steel”, can be derived. ISO TC 17/SC /WG 21 has proposed and issued a standard for the determination of CO_2 intensity derived from the method developed by worldsteel (the world steel association) as ISO 14404-1 and ISO 14404-2.

Although giving a valuable insight on CO_2 emission performance, the “CO_2 intensity” approach suggested by the ISO 14404 standards series has some limitations as it provides only one single CO_2 value for any specific facility, regardless of the complexity of its structure.

With a view to better evaluating the CO_2 performance of a facility along the steel value chain, the European Steel Industry has, since 2005, worked to set up CO_2 accounting rules aimed at carrying out the CO_2 emission performance assessment of steel production facilities while taking into account and properly addressing potential distortions due to differing facility structure. To this end, this standard goes beyond the mere “CO_2 intensity” approach to determine the performance of each process and unit that is part of the facility in order to identify the strengths and weaknesses in the value chain and, at a later stage, consolidate the performance at facility level.

As stressed in Part 1 of this standard series, this standard does not prejudice the content or application of any other standard or legal provision.

1 Scope

This European Standard provides a harmonized methodology for calculating GHG emissions and GHG performance in the steel industry.

This European Standard applies to facilities producing any of the multiple products of the steel value chain. It is supported by a set of worksheets [1].

This European Standard deals with the specific aspects for the determination of GHG emissions from steel production and the assessment of emission performance. This standard is to be used in conjunction with EN 19694-1, which contains overall requirements, definitions and rules applicable to the determination of GHG emissions for energy-intensive sectors, thereby providing a common methodological approach.

EN 19694-1 and EN 19694-2 provide a harmonized method for:

a) measuring, testing and quantifying methods for the determination of greenhouse gas (GHG) emissions;

b) assessing the level of GHG emissions performance of production processes over time, at production sites;

c) the establishment and provision of reliable and accurate information of proper quality for reporting and verification purposes.

In addition, this standard provides a stepwise approach for the determination of CO_2 emissions and the assessment of CO_2 performance of steel facilities, providing a set of methodologies allowing for a fair and reliable assessment of the CO_2 performance of each individual process along the steel production value chain.

It can be seen as a toolbox which enables the determination of CO_2 emissions and the assessment of CO_2 performance of steel production facilities at various levels of disaggregation, establishing a sound system for:

— the evaluation of the global CO_2 performance of a steel production facility taking its production structure into account;

— setting a reliable basis for evaluation of the CO_2 reduction potential in a facility and the contributing processes;

— setting a basis for accurate evaluation of new technologies.

Next to the determination of the direct and indirect CO_2 emissions of a steel facility, this standard has a strong focus on performance assessment which it strives to address through the following aspects:

— assessment of CO_2 impact, including process emissions: this methodology evaluates the total CO_2 emission of a steel facility, with the carbon content of the waste gases burdened as CO_2 to the processes giving rise to them;

— assessment of the actual CO_2 impact: this methodology evaluates the total CO_2 emissions released by a steel facility, but considers waste gases exported or used in a power plant as equal to natural gas in terms of CO_2 emissions;

— carbon input CO_2 performance at facility level: this methodology delivers an indicator comparing the facility performance with best practice, on the basis of the carbon input to the system;

— CO_2 performance assessment at process level: this methodology delivers a set of indicators comparing process performance with best practice at unit level. These indicators are then combined as a consolidated figure for the whole facility. This methodology also provides a theoretical assessment of the CO_2 saving potential up to best practice.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 19694-1, *Stationary source emissions — Determination of greenhouse gas (GHG) emissions in energy intensive industries — Part 1: General aspects*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
boundaries
organizational or technical limits of a facility or plant

Note 1 to entry: The wording of "battery limits" can also be utilized.

3.2
Electric Arc Furnace facility
steel production facility based entirely or partially on the use of recycled scrap melted in an electric arc furnace

Note 1 to entry: By extension, this type of facility can incorporate a direct reduction production unit.

3.3
integrated facility
steel production facility based on use of virgin iron ores applying the blast furnace route

3.4
net use
net use of a source stream is the amount of fuel, material or energy which is used at the reporting boundaries during the reporting period.

Note 1 to entry: It can be calculated for the total facility from procurements, deliveries and stock variations or at process level from external use and net generation excluding internal recycling.

3.5
processing CO_2 emissions
CO_2 emissions related to the transformation of upstream to downstream products incorporating direct emissions and indirect emissions resulting from procurements

Note 1 to entry: The processing emissions do not include the indirect emissions of upstream products.