ENVIRONMENTAL PRODUCT DECLARATION
as per ISO 14025 and EN 15804

<table>
<thead>
<tr>
<th>Owner of the Declaration</th>
<th>ArcelorMittal Europe-Long Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme holder</td>
<td>Institut Bauen und Umwelt e.V. (IBU)</td>
</tr>
<tr>
<td>Publisher</td>
<td>Institut Bauen und Umwelt e.V. (IBU)</td>
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<td>19/09/2021</td>
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</tbody>
</table>

Reinforcing steel in bars
ArcelorMittal

www.ibu-epd.com / https://epd-online.com
1. General Information

ArcelorMittal

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Reinforcing steel in bars

Owner of the Declaration
ArcelorMittal Europe-Long Products
66, rue de Luxembourg
L-4221 Esch-sur-Alzette
Luxembourg

Declarer product / Declared unit
1 metric ton of reinforcing steel in bars

Scope:
The declaration applies to 1 metric ton of reinforcing bar produced by ArcelorMittal
The Life Cycle Assessment is based on data collected from the four ArcelorMittal plants producing rebar (Ostrava in Czech Republic, Jorf Lasfar in Morocco, Warsaw in Poland, Zenica in Bosnia and Herzegovina).
It covers 100% of the annual production from 2015.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Verification
The CEN Norm /EN 15804/ serves as the core PCR
Independent verification of the declaration according to /ISO 14025/

Prof. Dr.-Ing. Horst J. Bossenmayer
(President of Institut Bauen und Umwelt e.V.)

Dr. Burkhart Lehmann
(Managing Director IBU)

Dr. Frank Werner
(Independent verifier appointed by SVR)

2. Product

2.1 Product description / Product definition
Rebar (Reinforcing Steel in bars, including standard rebars, special rebars – Krybar®, rock bolt and tie bars - and threaded bars) covers carbon steel for geotechnical use and the reinforcement of concrete according to EN10080 standard. The surface of rebars is patterned to form a better bond with soil and concrete; in addition the ribs on threaded bars, rock bolts and tie bars allow for bolting. EN10080 is not yet a harmonized standard and has to be considered as an open standard, i.e. with no steel grades. Therefore, steel grade might be specified in some national standards or labels as for instance mentioned in the following table.

<table>
<thead>
<tr>
<th>Grades</th>
<th>Dimension [mm]</th>
<th>Length [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>B500S, EPSTAL</td>
<td>10-40</td>
<td>6-24</td>
</tr>
<tr>
<td>B500S, B500B</td>
<td>10-75</td>
<td>6-24</td>
</tr>
<tr>
<td>K500B-T, B500C-T, B500C, B500NC, B550B</td>
<td>10-50</td>
<td>6-24</td>
</tr>
<tr>
<td>A500H</td>
<td>10-32</td>
<td>6-24</td>
</tr>
<tr>
<td>S650/1000, S555/700, S1900/1100, S1470/570, S1450/650, S1640/600, S1450/700</td>
<td>16-75</td>
<td>6-24</td>
</tr>
</tbody>
</table>

For the placing on the market in the EU/EFTA (with the exception of Switzerland), /Regulation (EU) No. 305/2011/ applies.
As no harmonized product standard exists, no Declaration of Performance and following to that no CE-marking may be required.


2.2 Application
Reinforcement bars are steel rods that are used as a tension device in concrete. Typical applications are in the construction of buildings, bridges, roads and other civil works (infrastructures, superstructures, etc.) as well as mining.

2.3 Technical Data
Delivered product may contain many types of alloys, depending on the intended performance and characteristic of the steel product.

Construcional data

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength</td>
<td>483 - 1100</td>
<td>N/mm²</td>
</tr>
<tr>
<td>Type of steel (Bar, coil, welded fabric, lattice grinders)</td>
<td>Bar and coils</td>
<td></td>
</tr>
<tr>
<td>Production route (EAF or BF)</td>
<td>EAF and BOF</td>
<td></td>
</tr>
</tbody>
</table>

For the placing on the market in the EU/EFTA (with the exception of Switzerland), /Regulation (EU) No.
The most common elements are manganese, chromium, and vanadium. Other elements like nitrogen or copper may be present in the steel. The composition of these elements depends on the steel designation/grade.

In integrated steel production plants, iron ore is used as raw material to prepare sinter, which is later on used in a blast furnace together with coke to produce pig iron. Different ferro-alloys, metal alloys, and steel scraps are added to the liquid pig iron in a basic oxygen furnace (or in a tandem furnace), blowing oxygen to lower carbon content in the steel and obtaining liquid steel with the required characteristics.

- Electric arc furnace (EAF) route: Different steel scraps are melted in an electric arc furnace to obtain liquid steel. This steel is then refined in a ladle furnace with addition of ferroalloys and metals to obtain the required steel characteristics.

The steel is then cast at a continuous caster to obtain semi-finished products as billet or blooms. The semis are then rolled to the desired size. The rib profile is rolled onto the bar in the last stand of the rolling process. They are two methods to achieve the required mechanical properties in hot rolled bars, either through in-line heat treatment QST (Quenching and Self-Tempering) or by micro-alloying additions. At the end of the rolling operation, the rebar is cut to the required length, generally bundled and labeled.

### 2.7 Environment and health during manufacturing

Environmental, occupational health, safety and quality management are in accordance with the following norms:

- /ISO 14001/
- /OHSAS 18001/.

### 2.8 Product processing/Installation

Processing the material to its final shapes and length has to be done depending on the generally recognized rules of engineering and the manufacturer’s recommendations. Standard /EN 1992/ (Eurocode EC2) applies to the design of concrete structures and it includes all performance requirements such as durability, bearing capacity, serviceability, fire resistance and so on.

Normal safety measure should be applied during handling and use of the product. Any instructions from the manufacturer concerning special operations (e.g. welding) have to be applied.

Residual steel scrap, should be collected as it is 100% recyclable.

### 2.9 Packaging

Reinforcing bar is supplied in straight lengths or in bundles using plastic/steel strapping. The steel strips can be recycled after collection and sorting as steel scrap.

### 2.10 Condition of use

During use no changes in material composition shall occur. Maintenance requirement will depend on specific design and application.

### 2.11 Environment and health during use

Under normal conditions of use, rebar products do not cause any adverse health effects nor release VOCs to indoor air.

No environmental impact to water, air or soil is expected due to the extremely low metal release from steel and the low maintenance requirements.
2.12 Reference service life
Rebar is used in soil or concrete to give additional mechanical resistance. The lifetime of rebar therefore will be limited by the service life of the construction work. Under these circumstances, no RSL according to the relevant ISO standards can be declared.

2.13 Extraordinary effects

Fire

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building material class acc. /EN 13501-1/</td>
<td>A1</td>
</tr>
<tr>
<td>Burning droplets</td>
<td>NA</td>
</tr>
<tr>
<td>Smoke gas development</td>
<td>NA</td>
</tr>
<tr>
<td>Building material class</td>
<td>Unintended contact with water</td>
</tr>
</tbody>
</table>

Water
No environmental impact to water, air or soil is expected due to the extremely low metal release from steel and the low maintenance requirements. In case of flooding no impacts are to be expected.

2.14 Re-use phase

Deconstruction
Reinforcing bars are not reused at end of life but can be easily separated from the soil/concrete and recycled into similar steel products.

Recycling and Recovery
Steel rebar is 100% recyclable and can be recycled to the same (or higher/lower) quality of steel depending upon the metallurgy and processing of the recycling route. Recycling routes are well established and recycling should be preferred as disposal route.

2.15 Disposal
Steel rebar is a valuable resource and therefore should not be disposed.

The European Waste Index code for iron and steel products is 17 04 05.

2.16 Further information
Additional information on rebar product can be found at http://barsandrods.arcelormittal.com/

3. LCA: Calculation rules

3.1 Declared Unit
The declaration refers to the functional unit of 1 metric ton of reinforcing steel bar as specified in Part B requirements on the EPD for Reinforcing Steel.

Declared unit

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declared unit</td>
<td>1</td>
<td>t</td>
</tr>
<tr>
<td>Density</td>
<td>7850</td>
<td>kg/m³</td>
</tr>
<tr>
<td>Conversion factor to 1 kg</td>
<td>0.001</td>
<td>-</td>
</tr>
</tbody>
</table>

Reinforcing steel bars are produced by the following four ArcelorMittal plants: Ostrava in Czech Republic, Jorf Lasfar in Morocco, Warszawa in Poland, and Zenica in Bosnia and Herzegovina. All data reported are calculated astotal value per site averaged across all production sites based on production volume per site.

3.2 System boundary
Type of the EPD: cradle-to-gate - with options. Module A1-A3, Module C3 and module D were considered.

Modules A1-A3 of the structural steel production include the following:
- The provision of resources, additives and energy
- Transport of resources and additives to the production site
- Production processes on site including energy, production of additives, disposal of production residues, and consideration of related emissions.
- Recycling of production/manufacturing scrap. Steel scrap is assumed to reach the end-of-waste status once is shredded and sorted, thus becomes input to the product system in the inventory.

Module C3

This module takes into account the sorting and shredding of after-use steel and as well the non-recovered scrap due to sorting efficiency which ends up in landfilling. Recycling should be understood as the preferred way to treat the product after use.

Module D refers to the benefit or burden of net scrap amount recycled at End-of-Life.

3.3 Estimates and assumptions
For all input- and output material the actual transport distances were applied or assumptions were taken.

3.4 Cut-off criteria
All information from the data collection process has been considered, covering all used and registered materials, thermal energy, electrical energy and diesel consumption. Measurement of onsite emissions took place and those emissions were considered. The specific emissions that are linked to the provision of thermal and electrical energy were considered in the specific processes.

Data is collected through recommended templates developed by worldsteel association and its experts for LCI purpose /Worldsteel LCA 2011 methodology report/. Data for different sites were cross-checked with one another and with the previous years’ data to identify potential data gaps. No processes, materials or emissions that are known to make a significant contribution to the environmental impact of the products studied have been omitted. On this basis, there is no evidence to suggest that input or outputs contributing more than 1% to the overall mass or energy of the system or that are environmentally significant have been omitted. It can be assumed, that all neglected processes contribute less than 5% to the impact assessment categories.
3.5 Background data

For life cycle modeling of the considered products, the GaBi 6 Software System for Life Cycle Engineering, developed by thinkstep AG, is used /GaBi 6 2015/. The GaBi-database contains consistent and documented datasets which can viewed in the online GaBi-documentation /GaBi 6 2013D/.

To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

3.6 Data quality

All relevant background datasets are taken from the /GaBi 6/ software database. Regarding foreground data, this study is based on high quality of primary data, collected by ArcelorMittal for the period of 2014. Data were delivered in form of excel tables and manually integrated in the GaBi model with 2 iterations of data quality check:

- First iteration is for raw manufacturing data
- Second iteration is for the cradle-to-gate data and including End-of-Life recycling potential.

3.7 Period under review

The considered primary data for the input and output of energy and materials where collected in the year 2014.

3.8 Allocation

The allocation method used here was developed by the World Steel Association and EUROFER to be in line with /EN 15804/. The methodology is based on physical allocation and takes account of the manner in which changes in inputs and outputs affect the production of co-products. The method also takes account of material flows that carry specific inherent properties. This method is deemed to provide the most representative partitioning of the processes involved. Economic allocation was not considered, as slag is considered a low-value co-product under /EN 15804/, however, as neither hot metal nor slag are tradable products upon leaving the blast furnace (BF) route, economic allocation would most likely be based on estimates. Similarly blast furnace (BF) slag must undergo processing before being used as a clinker or cement substitute. Worldsteel and EUROFER also highlight that companies purchasing and processing slag work on long-term contracts which do not follow regular market dynamics of supply and demand.

In some plants system expansion has been used to allocate electricity and process steam produced by the power plants. This is approach deviates from the standard procedure in EN 15804 as it is not possible to allocate using the economic basis. This is a conservative approach as, e.g., the GWP impact of the electricity generated by the power plant is 10% to 100% higher per kWh compared to the national electricity grid mix GWP impact.

3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building context, respectively the product-specific characteristics of performance, are taken into account. The used background database has to be mentioned.

### 4. LCA: Scenarios and additional technical information

<table>
<thead>
<tr>
<th>End of life (C3)</th>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfilling or loss materials after sorting</td>
<td>15</td>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reuse, recovery and/or recycling potentials (D), relevant scenario information</th>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling</td>
<td>85</td>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>
### 5. LCA: Results

#### Description of the System Boundary (X = included in LCA; MND = module not declared)

<table>
<thead>
<tr>
<th>PRODUCT STAGE</th>
<th>CONSTRUCTION PROCESS STAGE</th>
<th>USE STAGE</th>
<th>END OF LIFE STAGE</th>
<th>BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw material supply</td>
<td>Transport</td>
<td>Manufacturing</td>
<td>Use</td>
<td>Repair</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>A2</td>
<td>A3</td>
<td>A4</td>
<td>A5</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>MND</td>
<td>MND</td>
<td>MND</td>
</tr>
</tbody>
</table>

#### Results of the LCA - Environmental Impact: 1 metric ton of reinforcing steel in bars

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>A1-A3</th>
<th>C3</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming potential</td>
<td>[kg CO(_2)-Eq.]</td>
<td>1.23E+3</td>
<td>4.28E+0</td>
<td>-1.76E+1</td>
</tr>
<tr>
<td>Depletion potential of the stratospheric ozone layer</td>
<td>[kg CFC11-Eq.]</td>
<td>2.00E-8</td>
<td>1.34E-9</td>
<td>7.93E-11</td>
</tr>
<tr>
<td>Acidification potential of land and water</td>
<td>[kg SO(_2)-Eq.]</td>
<td>8.43E+0</td>
<td>1.98E-2</td>
<td>-6.81E-2</td>
</tr>
<tr>
<td>Eutrophication potential</td>
<td>[kg P(PO(_4)_3)-Eq.]</td>
<td>4.16E-1</td>
<td>5.37E-3</td>
<td>-5.95E-3</td>
</tr>
<tr>
<td>Formation potential of tropospheric ozone photochemical oxidants</td>
<td>[kg ethene-Eq.]</td>
<td>5.73E-1</td>
<td>1.90E-3</td>
<td>-9.96E-3</td>
</tr>
<tr>
<td>Abiotic depletion potential for non-fossil resources</td>
<td>[kg Sb-Eq.]</td>
<td>4.33E-3</td>
<td>2.53E-3</td>
<td>-5.37E-3</td>
</tr>
<tr>
<td>Abiotic depletion potential for fossil resources</td>
<td>[MJ]</td>
<td>1.23E+3</td>
<td>4.28E+0</td>
<td>-1.76E+1</td>
</tr>
</tbody>
</table>

#### Results of the LCA - Resource Use: 1 metric ton of reinforcing steel in bars

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>A1-A3</th>
<th>C3</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable primary energy as energy carrier</td>
<td>[MJ]</td>
<td>8.37E+2</td>
<td>1.22E+1</td>
<td>8.71E+0</td>
</tr>
<tr>
<td>Renewable primary energy resources as material utilization</td>
<td>[MJ]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Total use of renewable primary energy resources</td>
<td>[MJ]</td>
<td>8.37E+2</td>
<td>1.22E+1</td>
<td>8.71E+0</td>
</tr>
<tr>
<td>Non-renewable primary energy as energy carrier</td>
<td>[MJ]</td>
<td>1.34E+4</td>
<td>6.44E+1</td>
<td>-1.56E+2</td>
</tr>
<tr>
<td>Non-renewable primary energy resources as material utilization</td>
<td>[MJ]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Total use of non-renewable primary energy resources</td>
<td>[MJ]</td>
<td>1.34E+4</td>
<td>6.44E+1</td>
<td>-1.56E+2</td>
</tr>
<tr>
<td>Use of secondary material</td>
<td>[kg]</td>
<td>8.39E+2</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Use of renewable secondary fuels</td>
<td>[MJ]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Use of non-renewable secondary fuels</td>
<td>[MJ]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Use of net fresh water</td>
<td>[m³]</td>
<td>3.21E+0</td>
<td>1.97E-2</td>
<td>-1.17E-2</td>
</tr>
</tbody>
</table>

#### Results of the LCA - Output Flows and Waste Categories: 1 metric ton of reinforcing steel in bars

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>A1-A3</th>
<th>C3</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous waste disposed</td>
<td>[kg]</td>
<td>9.61E-6</td>
<td>1.03E-6</td>
<td>-2.25E-7</td>
</tr>
<tr>
<td>Non-hazardous waste disposed</td>
<td>[kg]</td>
<td>8.31E+0</td>
<td>1.50E+2</td>
<td>-2.52E-1</td>
</tr>
<tr>
<td>Radioactive waste disposed</td>
<td>[kg]</td>
<td>1.40E-1</td>
<td>4.97E-3</td>
<td>2.87E-3</td>
</tr>
<tr>
<td>Components for re-use</td>
<td>[kg]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Materials for recycling</td>
<td>[kg]</td>
<td>0.00E+0</td>
<td>8.50E+2</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Materials for energy recovery</td>
<td>[kg]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Exported electrical energy</td>
<td>[MJ]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
<tr>
<td>Exported thermal energy</td>
<td>[MJ]</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
<td>0.00E+0</td>
</tr>
</tbody>
</table>

### 6. LCA: Interpretation

Rebar is produced by ArcelorMittal using both EAF route (70%) and BF/BOF route (30%). Per ton of rebar produced, 840 kg scrap is used. After use, 850 kg rebar is recycled and 150 kg is landfilled.

A potential environmental benefit is calculated for the end-of-life stage (module D) for all the considered impact categories. As shown in the following mass flow diagram, the net amount of scrap is 850-840 = 10 kg. This means that the system has a net output of 10 kg scrap (which carries a potential credit), thus module D shows an environmental benefit.
The graph above shows the relative contribution of the Product stage (Module A1-A3), Waste treatment (C3) and the Benefits and loads beyond the product system boundary (Module D). For all the selected categories, the results for product stage (A1-3) provide the largest contribution to the results.

The most significant emissions:
- for GWP are CO2 and CH4
- for AP are SO2 and NOx;
- for EP are NOx
- for POCP are CO, SO2, NOx, and NMVOC.

Global Warming Potential (GWP) is mostly caused by onsite emission (A3), with a secondary role played by the production of ancillary materials/pre-products upstream materials and the production of energy needed in steelmaking (A1).

Acidification Potential (AP) and Eutrophication Potential (EP) are dominated by the extraction and processing of raw materials and the generation of electricity, steam and heat from primary energy resources, including extraction, refining and transport (A1).

Photochemical Ozone Creation Potential (POCP) is also dominated by the production of ancillary materials/pre-products upstream materials (A1).

Ozone Depletion Potential (ODP) is mostly caused by emissions from the pre-chains of power generation processes, in particular nuclear power generation (A1). In the primary BF/BOF route hard coal is used as the main energy carrier, whereas in the scrap-dominated Electric Arc Furnace (EAF) route electrical energy is the main energy source. The EAF process used for calculating the potential benefit in the end-of-life stage has high power consumption, including a proportion from nuclear power and this ultimately leads to a credit in Module D.

Abiotic Depletion (elements) is dominated by the use of non-renewable elements in the production of ancillary materials/pre-products e.g. copper and...
In general, the main contribution to primary energy in the BF/BOF route comes from the use of coal/coke as an energy and carbon source. For the EAF route, the provision of electrical energy is the main contributor.

Secondary materials are used in both steel making routes, although the BF/BOF route is mostly primary while scrap is the main input to the EAF route. Radioactive waste comes from the provision of electrical energy, especially from the share of nuclear power in the grid mix. Non-hazardous wastes include overburden and tailings. Hazardous waste for deposition is produced in small amounts during production.

7. Requisite evidence

This EPD covers semi-finished structural steel of hot-rolled construction products. Further processing and fabrication depends on the intended application. Therefore further documentation is not applicable.

7.1 Weathering performance

The rusting rate of unalloyed steel is depending on the position of the component and the conditions of the surrounding atmosphere (corrosively categories according to /EN ISO 12944-2/.

If required, the surfaces of fabricated structural components are usually protected with anticorrosion material in order to prevent any direct contact with the atmosphere. The weathering of this protection depends on the used protection system.

8. References

PCR 2013, Part A
_Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. September 2013 www.bau-umwelt.de_

PCR 2014, PART B
Requirements on the EPD for Reinforcing Steel, _Institut Bauen und Umwelt e.V., Berlin (pub.): From the range of Environmental Product Declarations of Institute Construction and Environment e.v. (IBU) 2014_

_GaBi ts Software_

_GaBi ts Documentation_

_Steel Recycling_
Steel recycling rates at a glance, 2007 Steel recycling rates; Steel Recycling Institute

_ISO 14001_
DIN EN ISO 14001:2015, Environmental management systems - Requirements with guidance for use

_ISO 9001_
DIN EN ISO 9001:2015, Quality management systems – Requirements

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**GlobeCert AB**
GlobeCert AB: accredited certification body in accordance to SS-EN ISO/IEC 17020 (A) for product certification and SS-EN ISO/IEC 17065. The testing operations naturally follow requirements in SS-EN ISO/IEC 17025. [http://www.globecert.se](http://www.globecert.se)

**CARES**
CARES: Certification Authority for Reinforcing Steels. UK Certification Authority for Reinforcing Steels, © 1998-2016

**OCAB- OCBS**
OCAB- OCBS: Organisation pour le controle des aciers pour beton (OCAB) - organisme voor de controle van betonstaal (OCBS). BELAC - Belgian Accreditation Body. [www.ocab-ocbs.com](http://www.ocab-ocbs.com)

**AFCAB**

**KIWA**
KIWA: Product certification. [http://www.kiwa.nl](http://www.kiwa.nl)

**EMPA**
EMPA: Swiss Federal Laboratories for Materials Science and Technology. [https://www.empa.ch/web/empa](https://www.empa.ch/web/empa)

**AENOR**

**ZETOM-CERT**

**SIMPTEST**
SIMPTEST: Zespół Ośrodków Kwalifikacji Jakości Wyrobów Ośrodek Usług Inżynierskich Sp. z o.o.

**http://www.simp test.pl/**

**SNIMA (IMANOR)**
SNIMA: (Institut Marocain de Normalisation) is the national standards body of Morocco and is responsible for standardization in Morocco. [www.imanor.ma](http://www.imanor.ma)

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