04 SECTOR INFORMATION

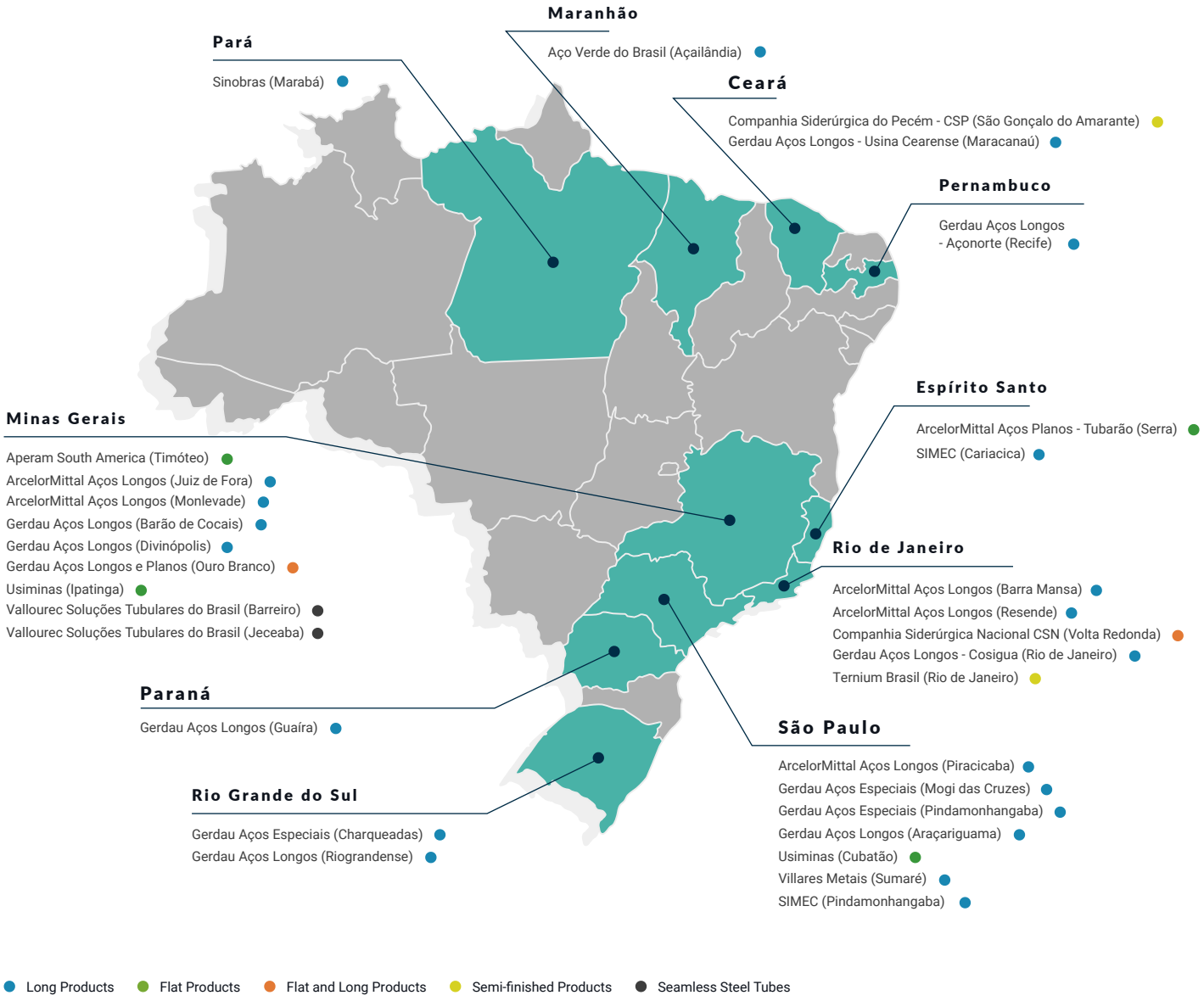
FOR THE BRAZILIAN STEEL INDUSTRY

INDUSTRIAL PARK AND LOCATION OF STEEL MILLS

Brazil's steel industrial park consists of 31 steel mills (15 integrated and 16 semiintegrated / mini-mills). There are 12 business groups with an installed capacity of 51 million t of crude steel per year. The Brazilian steel industry has steelworks located in 10 Brazilian states, with the largest concentration found in the Southeast Region.

Steel Production Park

31 steel mills (15 integrated and 16 mini-mills), administered by 12 different groups



Source: Brazil Steel Institute
Note: Taking all Brazilian steel mills with a capacity for crude steel production in 2020/2021 into consideration. In 2018/2019, there were 32 steel mills located in 11 Brazilian states.

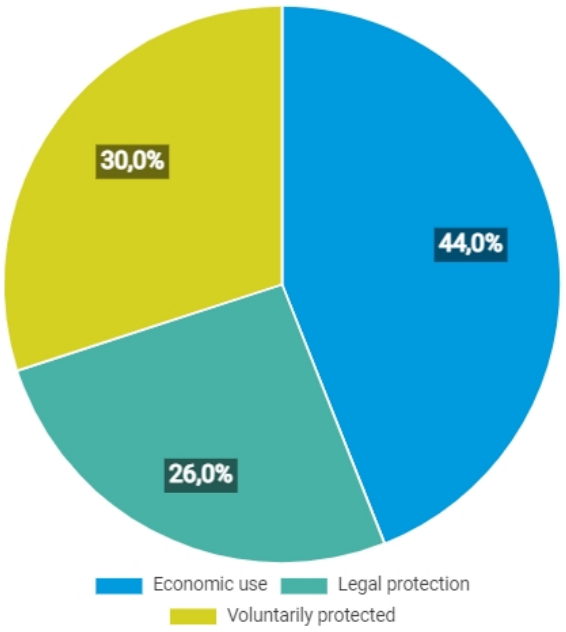
Regional distribution of crude steel production

Brazil's Southeast Region was responsible for producing 27 million tons of steel in 2020, representing 86% participation in the national steel market. Minas Gerais continues to be the state with the highest concentration of production, with 31.2% of the national market in 2020.

State	2018 (10^3 t)	Participation %	2019 (10^3 t)	Participation %	2020 (10^3 t)	Participation %
Minas Gerais	10.594	29,9	10.408	32,0	9.803	31,2
Rio de Janeiro	10.406	29,4	8.750	26,9	9.189	29,3
Espírito Santo	7.304	20,6	6.599	20,3	5.405	17,2
Ceará	3.089	8,7	2.977	9,1	2.855	9,1
São Paulo	2.382	6,7	2.265	6,9	2.613	8,3
Rio Grande do Sul	779	2,2	671	2,1	668	2,1
Pará	344	1,1	345	1,1	330	1,1
Maranhão	279	0,8	338	1,0	321	1,0
Pernambuco	230	0,6	216	0,6	231	0,7
BRAZIL	**35.407**	**100**	**32.569**	**100**	**31.415**	**100**

Source: Brazil Steel Institute.
Note: Includes entire Brazilian steel industrial park

Industrial Areas (2018 - 2020)



Source: Brazil Steel Institute.
Note: Taking data from 10 associated business groups responsible for 98% of the crude steel production in 2018 into consideration. Taking data from 10 associated business groups responsible for 89% of the crude steel production in 2019 into consideration. Taking data from 10 associated business groups responsible for 85% of the crude steel production in 2020 into consideration.

PRODUCTS AND MARKETS

The Covid-19 pandemic, which began in 2020, affected industrial production around the world. However, despite the crisis caused by the pandemic, the global steel sector closed off the year with a relatively small increase of 0.2% relative to the previous year. Global production in 2020 reached 1877 million tons of crude steel in 2020, ahead of 1874 million tons in 2019 and 1826 million tons in 2018.

In 2020, Brazil saw a drop in crude steel production relative to previous years: 31.4 million tons of crude steel were produced within Brazil's national territory compared to 32.6 million tons in 2019 and 35.4 million tons in 2018. Our nation is the ninth-ranked steel producer in the world, a ranking led by China. Brazil is the leader in steel production in Latin America, singlehandedly responsible for more than 55% of the region's total production.

Indicator	Unit.	2018	2019	2020
Global Crude Steel Production	10^6 t	1.826	1.874	1.877
Europe	10^6 t	209	196	179
Economic use	10^6 t	167	157	139
Other European countries	10^6 t	42	39	40
CIS	10^6 t	101	100	100
North America	10^6 t	100	101	84
USA	10^6 t	87	88	73
Canada	10^6 t	13	13	11
Latin America	10^6 t	66	61	56
Brazil	10^6 t	35	33	31
Other countries	10^6 t	31	28	25
Africa	10^6 t	18	17	17
Egypt	10^6 t	8	7	8
Other countries	10^6 t	10	10	9

Middle East	**10^6 t**	43	44	45
Asia	**10^6 t**	1.283	1.348	1.390
China	**10^6 t**	929	995	1.065
India	**10^6 t**	109	111	100
Japan	**10^6 t**	104	99	83
Other countries	**10^6 t**	141	142	142
Oceania	**10^6 t**	6	7	6

Source: worldsteel. Source for Latin American countries: ALACERO
Note: Data corresponding to crude steel production made by countries associated with World Steel Association.

Indicator	Unit.	2014	2015	2016	2017	2018	2019	2020
Crude Steel	**10^3 t**	33.897	33.258	31.642	34.778	35.407	32.569	31.415
Domestic Sales	**10^3 t**	21.709	18.173	16.828	17.247	18.920	18.799	19.462
Apparent Consumption of Steel Products	**10^3 t**	25.606	21.295	18.520	19.523	21.207	20.977	21.449

Source: Brazil Steel Institute / Min. of Economy / Secex.
Note: Includes the entire Brazilian steel industrial park.

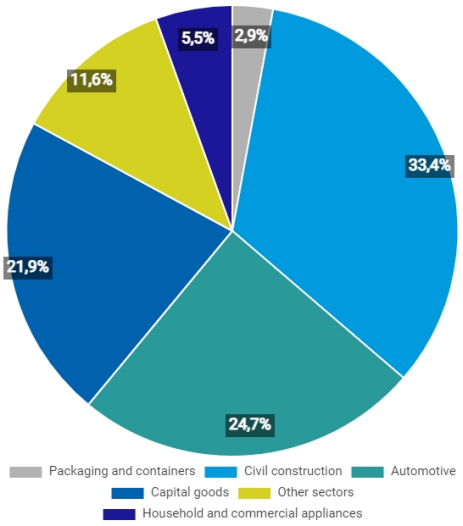
In 2018, domestic sales increased 9.7% in comparison to the previous year, up to 18.9 million tons. In 2019, ahead of a domestic market that was close to stagnation, domestic sales dropped 0.6%, while in 2020, with a recovery in the economy beginning in the 2nd half of the fiscal year, domestic sales reached the highest levels seen since 2014.

During the three-year period from 2018 to 2020, the apparent consumption of national steel products consisted of, on average, 90% domestic sales and 10% imported products. In 2020, apparent consumption also reached the highest level seen since 2014.

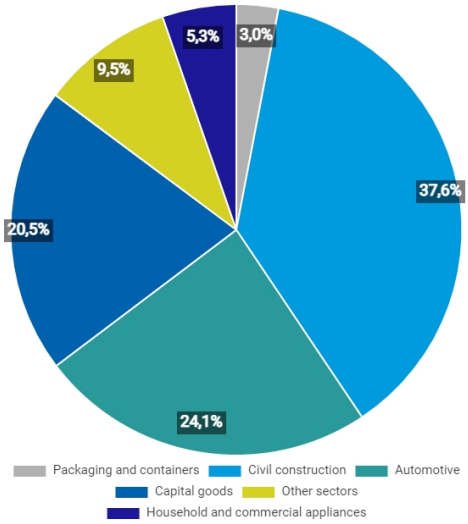
The main steel-consuming sectors in Brazil - civil construction, capital goods, the automotive industry, and manufacturers of household appliances - together represented 82.1% of consumption in 2020 and 82.2% in 2019. In 2018, these sectors consumed 80.0% of the steel products in Brazil.

Civil construction set itself apart once again as the main consumer sector for steel products, presenting the biggest increase in participation in apparent consumption. Between 2018 and 2019, this sector's consumption increased by 4.2 percentage points and by 3.6 points between 2019 and 2020.

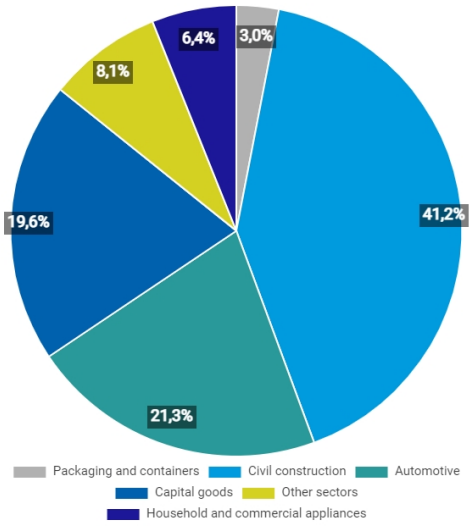
Distribution of apparent consumption by sector - 2018



Distribution of apparent consumption by sector - 2019



Distribution of apparent consumption by sector – 2020



Source: Brazil Steel Institute / Ministry of Economy.
Note: Includes entire Brazilian steel industrial park.

PERFORMANCE OF COMPANIES IN THE SECTOR

The importance of the steel sector with regards to sustainable economic development in Brazil can be measured through its value added or, in other words, the wealth aggregated through the transformation of its products. In 2020, the value added generated by the steel industry achieved 36.6% growth when compared to the previous year, reaching R$ 32.1 billion.

Value added

Unit of Measurement: R$ 1.000

Description	2018	2019	2020
(A) Gross Revenue	104.867.122	100.931.863	108.735.282
(B) Inputs Acquired by Third Parties	(72.310.266)	(77.446.944)	(76.657.418)
(C) Gross Value Added (A - B)	**32.556.857**	**23.484.919**	**32.077.864**
(D) Retention	(3.787.440)	(3.938.252)	(4.383.591)
(E) Company-produced Net Value Added (C - D)	**28.769.417**	**19.546.667**	**27.694.273**
(F) Transfers	7.283.487	7.618.331	12.011.033
Equity Result	3.935.449	5.442.340	8.145.156
Equity Result	3.348.038	1.882.088	3.333.759
Other	-	293.903	532.118
(G) Distributable Value Added (E + F)	**36.052.903**	**27.164.998**	**39.705.306**

Value added

Unit of Measurement: R$ 1.000

Description	2018	2019	2020
Distribution of Value Added:	**36.052.903**	**27.164.998**	**39.705.306**
Distribution of Value Added:	6.868.318	6.989.211	7.410.595
LABOR REMUNERATION (Personnel and Costs)	10.700.031	6.962.058	11.642.953
GOVERNMENT REMUNERATION (Taxes, Fees and Contributions)	6.828.057	7.538.780	8.992.318
FINANCER REMUNERATION	11.656.498	5.674.949	11.659.440

Source: Brazil Steel Institute.
Note: Taking data from 9 associated business groups responsible for 77% of the crude steel production in 2018 into consideration. Taking data from 9 associated business groups responsible for 76% of the crude steel production in 2019 into consideration. Taking data from 9 associated business groups responsible for 75% of the crude steel production in 2020 into consideration.

INTERNATIONAL TRADE

In international trade, exports fell over the three-year period to the lowest level since 2014. The main reason was the prioritization of market supply responsible for 90% of the demand for steel produced in Brazil.

Indicator	Unit.	2018	2019	2020
Exports	**10^3 t** **10^6 US$ FOB**	**13.945** **8.873**	**12.805** **7.308**	**10.538** **5.271**
Semi-finished Products	10^3 t 10^6 US$ FOB	9.195 5.045	8.643 4.184	7.715 3.212
Flat Rolled Steel Products	10^3 t 10^6 US$ FOB	2.505 1.775	2.171 1.375	1.398 855
Rolled Long Steel Products	10^3 t 10^6 US$ FOB	1.724 1.378	1.743 1.437	1.220 945
Other	10^3 t 10^6 US$ FOB	521 675	248 312	205 259
Imports	**10^3 t** **10^6 US$ FOB**	**2.407** **2.610**	**2.365** **2.463**	**2.037** **2.172**
Semi-finished Products	10^3 t 10^6 US$ FOB	173 105	211 115	79 51
Flat Rolled Steel Products	10^3 t 10^6 US$ FOB	1.433 1.258	1.292 1.088	1.195 1.002
Rolled Long Steel Products	10^3 t 10^6 US$ FOB	454 553	505 608	441 560
Other	10^3 t 10^6 US$ FOB	347 694	357 652	322 559

Source: Min. of Economy / SECEX

STEEL PRODUCTION PROCESS

In Brazil, there are two technological routes for steelmaking: the integrated route and the semi-integrated route. The first route brings together the three basics of production: reduction, refining, and casting. Semi-integrated steelworks omit the reduction phase.

Integrated steel plants produce steel using iron one, which is transformed into pig iron using a reducing agent. In order to manufacture pig iron in its blast furnaces, integrated steel mills use coke (a type of fuel derived from coal), or charcoal, as a reducer.

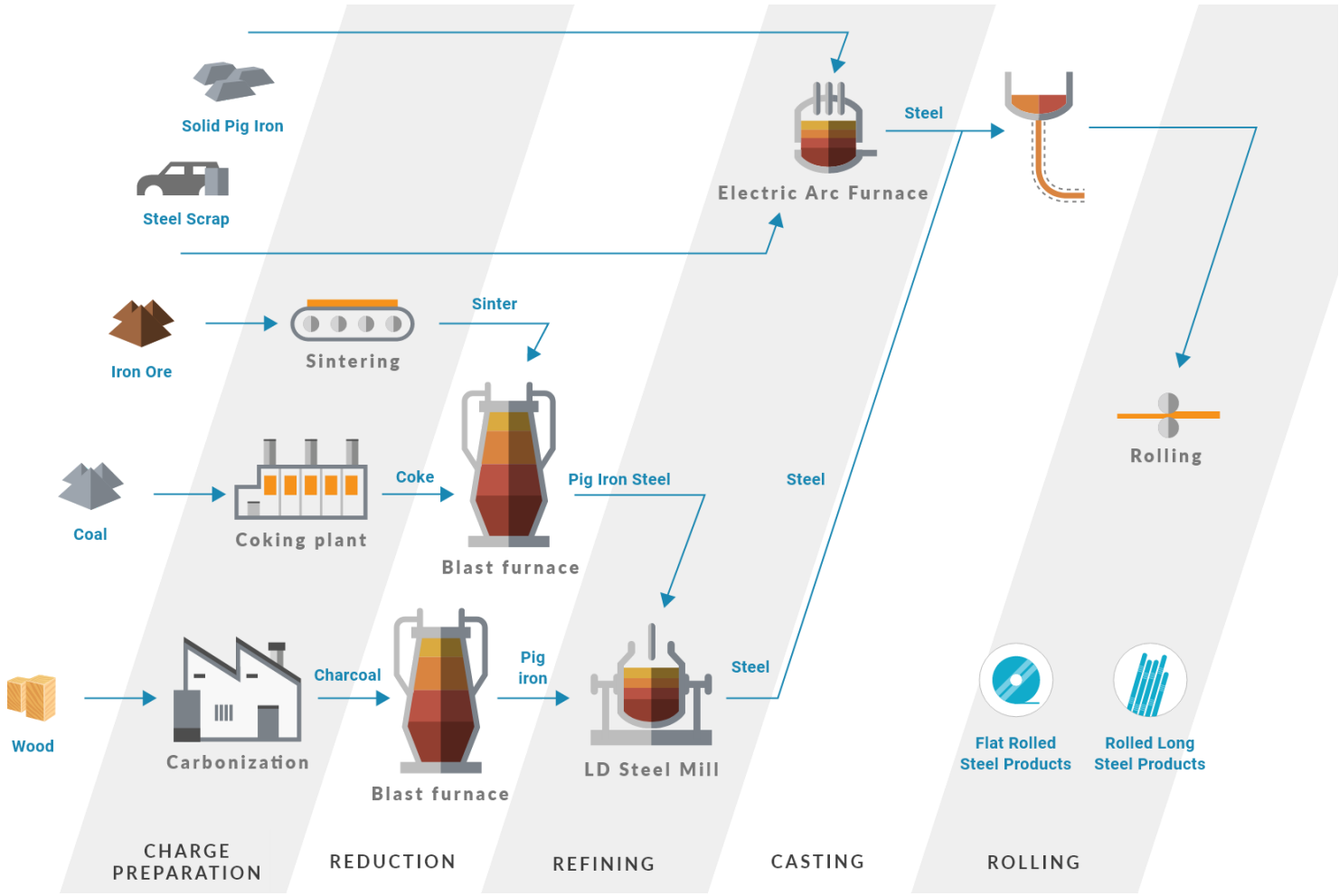
The Brazilian steel industry introduced a pioneering initiative in which charcoal is used as a reducing agent for iron ore in blast furnaces in order to reduce the carbon footprint associated with steel production. A reduction in greenhouse gas emissions due to the planting of forests is a feature that sets Brazil apart in relation to other steel producing countries.

Approximately 11% of Brazilian steel is produced using charcoal as a reducing agent in blast furnaces. Due to charcoal's mechanical properties, in particular its friability, its use is only possible in smaller blast furnaces and it relies on the availability of areas for the planting of forests within an economical radius in order to supply industrial plants.

In Brazil, the integrated steelmaking route represents more than 80% of total steel production.

In semi-integrated steelmaking routes, the reduction phase is not carried out. Steel manufacturing is carried out through the fusion of a metal charge, which consists of steel scrap, pig iron and/or sponge iron in electric furnaces.

Once the steel is made, its life cycle is infinite, without presenting a loss in quality. The use of steel scrap not only allows for a reduction in the consumption of non-renewable natural resources but also a reduction in greenhouse gases generated during the production phase (production of pig iron). The production of steel using the semi-integrated route directly depends on the availability of scrap and this in turn is directly related to steel consumption in Brazil.



Production stages

Charge preparation

In order to optimize yield, the iron ore and coal are prepared in advance before being brought to the blast furnace. The iron ore must be agglomerated through means of sintering or pelletization. In the case of preparation with coal, it is necessary to remove volatile compounds by heating it in ovens (coking plants) in order to obtain coke.

Reduction

Reduction is the stage in which iron oxide (iron ore) is reduced to metallic iron in the blast furnace using special linings (refractory linings) capable of withstanding elevated temperatures (more than 1200 °C) during high heating. The materials charged in the blast furnace are transformed into pig iron, slag, and blast furnace gases. While the pig iron is used in steel production, the co-products resulting from this stage are reused.

Slag is primarily reused in the cement industry. Blast furnace gases are used in energy generation.

Refining
After the carbon content is adjusted and impurities have been removed, the pig iron is brought to an oxygen furnace in the plants in order to obtain steel. In the case of semiintegrated steel plants, the metal charge (scrap, pig iron and/or sponge iron) directly feed the electric arc furnaces in order to be fused.

Casting
There are two different casting processes available: continuous and conventional. Continuous casting is the process most commonly used around the world. In this process, steel is poured in the steel plant to be cast in continuous casting machines and molded in the form of semi-finished products such as steel plates, blooms, and billets.

In conventional casting, the steel is poured onto casting molds, solidifying into ingots. These ingots are processed into steel plates, blooms or billets using a rolling mill.

Rolling
Rolling is one of the final stages in the steelmaking process. In this stage, semi-finished products are mechanically processed in order to be transformed into steel products such as steel sheets, slabs, bars, coils, concrete reinforcing bars, wire rods and seamless steel tubes, among other products.

Classifications of Steel

There is a wide variety of forms and types of steel product that are classified according to their chemical composition and processing with regards to their final application.

With regards to chemical composition, steel can be classified into: carbon steel and specially/alloy steel.

Carbon Steel
Carbon steel is the most commonly produced and used type of steel. They are steels with a low alloy content, with a widely defined range of chemical compositions.

Special/Alloy Steel
Alloy steel or special steel have a high carbon content and their chemical composition is defined through rigid specifications. Special steel includes mechanical construction steel, stainless steel, and tool steel. This type of steel contains, in addition to iron alloys and carbon, significant proportions of other elements that capable of altering its chemical and/

or mechanical properties. The main elements that are added to this steel are: aluminum (Al), manganese (Mn), nickel (Ni), chromium (Cr), molybdenum (Mo), vanadium (V), silicon (Si), cobalt (Co) and tungsten (W), among others.

The format and type of steel products can be classified into: semi-finished, flat products, and long products.

Semi-finished products
Products originating from the continuous casting process or rolling, in the form of slabs, blooms and billets, destined for subsequent processing through rolling or hot forging.

Flat Steel Products
Steel products that result from the rolling process with a width that is greater than its thickness to an extreme degree and that are commercialized in the form of steel sheets and coils of carbon and special steel.

Long Steel Products
Steel products that result from the rolling process with transversal sections that have a polygon shape and a width that is greater than the largest dimension along its straight section to an extreme degree. Long steel products are made from carbon and special steel and include concrete reinforcing bars, wire rods, bars, profiles, seamless steel tubing, and drawn steel.