This glossary contains explanations of certain terms used in this Listing Document in connection with our Company and/or the Group and its business. The terminology and its given meaning might correspond to usage and meaning considered standard by, or in respect of, other mining or industrial companies, but we give no assurance that it does.

alumina	aluminium oxide, the main component of bauxite, and extracted from bauxite ore in a chemical refining process. It is the principal raw material in the electro-chemical process from which aluminium is produced;
aluminium	a white metal that is obtained in the electro-chemical process of reducing aluminium oxide;
anthracite	the hardest coal type, which contains a high percentage of fixed carbon and a low percentage of volatile matter. Anthracite is the highest-ranked coal and contains 90% fixed carbon, more than any other form of coal. Anthracite has a semi-metallic lustre and is capable of burning with little smoke. Mainly used for metallurgical purposes;
austenitic stainless steel	steel that contains a significant amount of chromium and sufficient nickel to stabilize the austenite microstructure, giving it good formability and ductibility and improving its high temperature resistance. On average, austenitic stainless steel usually contains 8 to 10% nickel. It is used in a wide variety of applications, ranging from consumer products to industrial process equipment, as well as for power generation and transportation equipment, kitchen appliances and many other applications where strength, corrosion and high temperature resistance are required;
bauxite	a rock composed primarily of hydrated aluminium oxides. It is the principal ore of alumina, the raw material from which aluminium is made;
beneficiation	a variety of processes whereby extracted ore from mining is reduced to particles that can be separated into ore-mineral and waste, the former suitable for further processing or direct use;
BOF	the vast majority of steel manufactured in the world is produced using the basic oxygen furnace. Basic oxygen steelmaking is a method of primary steelmaking in which carbon-rich molten pig iron is made into steel. High purity oxygen is blown through the molten bath to lower carbon, silicon, manganese, and phosphorous content of the iron, while various fluxes are used to reduce the sulphur and phosphorous levels;
brownfield project	a mining project situated in a location which has previously been the subject of mining development, such as improvements or amendments to existing projects to increase their useful life and/or productivity;
CHPP	coal handling preparation plant;
coal	coal is a black or brownish-black solid combustible substance formed by the decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal

	(both are called hard coal), sub-bituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value;
cobalt	cobalt is a hard, lustrous, silver-gray metal found in ores, and used in the preparation of magnetic, wear-resistant, and high-strength alloys (particularly for jet engines and turbines). Its compounds are also used in the production of inks, paints, and varnishes;
coke	coal that has been processed in a coke oven, for use as a reduction agent in blast furnaces and in foundries for the purposes of transforming iron ore into pig iron;
concentration	physical, chemical or biological process to increase the grade of the metal or mineral of interest;
copper	a reddish brown metallic element. Copper is highly conductive, both thermally and electrically. It is highly malleable and ductile and is easily rolled into sheet and drawn into wire;
copper anode	copper anode is a metallic product of the converting stage of the smelting process that is cast into blocks and generally contains 99% copper grade, which requires further processing to produce refined copper cathodes;
copper cathode	copper plate with purity higher than or equal to 99.9% that is produced by an electrolytic process;
copper concentrate	material produced by concentration of copper minerals contained in the copper ore. It is the raw material used in smelters to produce copper metal;
DR	direct reduction, being the process that removes oxygen from iron ore by using natural gas or coal. The resulting product has an iron grade of 90 to 92%;
DRI	direct reduced iron, being iron ore lumps or pellets converted by the direct reduction process, used mainly as a scrap substitute in electric arc furnace steelmaking;
DWT	deadweight ton, being the measurement unit of a vessel's capacity for cargo, fuel oil, stores and crew, measured in metric tons of 1,000 kg. A vessel's total deadweight is the total weight the vessel can carry when loaded to a particular load line;
EAF	the electric arc furnace is the principal furnace type for the electric production of steel. The primary application of the electric arc furnace is for the re-melting of steel scrap; however, electric arc furnaces can be charged with limited amounts of iron scrap, pig iron and direct reduced iron;
electrowon copper cathode	refined copper cathode produced by an electrochemical process in which copper is recovered by dissolving copper anode in an electrolyte and plating it onto an electrode. Electrowon copper cathodes generally contain 99.99% copper grade;
embedded derivatives	a financial instrument within a contractual arrangement such as leases, purchase agreements and guarantees. Its function is to modify some or all of the cash flow that would otherwise be required by the contract, such as caps, floors or collars;

Fe unit	a measure of the iron grade in the iron ore that is equivalent to 1% iron grade in one metric ton of iron ore;
ferroalloys	ferroalloys are alloys of iron that contain one or more other chemical elements. These alloys are used to add these other elements into molten metal, usually in steelmaking. The principal ferroalloys are those of manganese, silicon and chromium;
gold	a precious metal sometimes found free in nature, but usually found in conjunction with silver, quartz, calcite, lead, tellurium, zinc or copper. It is the most malleable and ductile metal, a good conductor of heat and electricity and unaffected by air and most reagents;
grade	the proportion of metal or mineral present in ore or any other host material;
greenfield project	a mining project situated in a location which has not previously been the subject of mining development;
hard metallurgical coal	metallurgical coking coal with the required properties to produce a stronger or harder metallurgical coke;
hematite ore	hematite is an iron oxide mineral, but also denotes the high-grade iron ore type within the iron deposits;
hematitinha	a lump ore originated from our Southern System with the coarsest particle size in the range of 6.35 mm to 19 mm in diameter, varying from 75 to 90% between different mines and ores, that is only sold in the Brazilian domestic market;
in-situ moisture	the natural water content of coal reserves on the basis of sampling for the purposes of the relevant reserves determinations;
iridium	a dense, hard, brittle, silvery-white transition metal of the platinum family that occurs in natural alloys with platinum or osmium. Iridium is used in high-strength alloys that can withstand high temperatures, primarily in high-temperature apparatus, electrical contacts, and as a hardening agent for platinum;
iron ore pellets	agglomerated ultra-fine iron ore particles of a size and quality suitable for particular iron making processes. Our iron ore pellets range in size from 8 mm to 18 mm;
itabirite ore	itabirite is a banded iron formation and denotes the low-grade iron ore type within the iron deposits;
kaolin	a fine white aluminium silicate clay derived from rock composed chiefly of feldspar, which is used as a coating agent, filler, extender and absorbent in the paper, paint, ceramics and other industries;
kt	thousand metric tons;
lump ore	iron ore or manganese ore with the coarsest particle size in the range of 6.35 mm to 50 mm in diameter, but varying slightly between different mines and ores;
manganese	a hard brittle metallic element found primarily in the minerals pyrolusite, hausmannite and manganate. Manganese is essential

	to the production of virtually all steels and is important in the production of cast iron;
metallurgical coal	a bituminous hard coal with a quality that allows the production of coke. Normally used in coke ovens for metallurgical purposes;
methanol	an alcohol fuel largely used in the production of chemical and plastic compounds;
mineral deposit(s) or mineralised material(s)	a mineralised body that has been intersected by a sufficient number of closely spaced drill holes and/or underground or surface samples to support sufficient tonnage and grade of metal(s) or mineral(s) of interest to warrant further exploration-development work;
Mt	million metric tons;
Mtpy	million metric tons per year;
MW	megawatts;
nickel	a silvery white metal that takes on a high polish. It is hard, malleable, ductile, somewhat ferromagnetic, and a fair conductor of heat and electricity. It belongs to the iron-cobalt group of metals and is chiefly valuable for the alloys it forms, such as stainless steel and other corrosion-resistant alloys;
nickel matte	an intermediate smelter product that must be further refined to obtain pure metal;
nickel pig iron	a low-grade nickel product, made from lateritic ores, suitable primarily for use in stainless steel production. Nickel pig iron typically has a nickel grade of 1.5 to 6% if produced from blast furnaces and 10 to 25% if produced from electric furnaces, with iron accounting for most of the balance. Nickel pig iron can also contain chrome, manganese, and impurities such as phosphorus, sulphur and carbon;
ntk	net ton (the weight of the goods being transported excluding the weight of the wagon) kilometre;
open-pit, open-cast or open-cut mining	method of extracting rock or minerals from the earth by their removal from the surface. Open-pit, open-cast or open-cut mines for extraction of ore are used when deposits of commercially useful minerals or rock are found near the surface; that is, where the overburden (surface material covering the valuable deposit) is relatively thin or the material of interest is structurally unsuitable for underground mining;
Order-in-Council Leases	leases of mining lands in the Canadian province of Manitoba made under Manitoba provincial regulation 100/56 filed on 19 December 1956;
oxides	compounds of oxygen with another element. For example, magnetite is an oxide mineral formed by the chemical union of iron with oxygen;
P205	phosphoric acid, which is the main input for the production of phosphate fertilizers;

palladium	a silver-white metal that is ductile and malleable, used primarily in automobile-emissions control devices, jewellery, electrical and chemical applications;
pellet feed	ultra-fine iron ore (less than 0.15mm) generated by mining and grinding, which is aggregated into iron ore pellets through an agglomeration process;
pelletising	iron ore pelletising is a process of agglomeration of ultra-fines produced in iron ore exploitation and concentration steps. The three basic stages of the process are: (i) ore preparation (to get the correct fineness); (ii) mixing and balling (additive mixing and ball formation); and (iii) firing (to get ceramic bonding and strength);
phosphate	a phosphorous compound, which occurs in natural ores and is used as a raw material for primary production of fertilizer nutrients, animal feeds and detergents;
pig iron	product of smelting iron ore usually with coke and limestone in a blast furnace;
platinum	a dense, precious, grey-white transition metal that is ductile and malleable and occurs in some nickel and copper ores. Platinum is resistant to corrosion and is used in jewellery, laboratory equipment, electrical contacts, dentistry, automobile emissions control devices, flat panel televisions and hard disk drives;
platinum group metals or **PGMs**	consist of platinum, palladium, rhodium, ruthenium, osmium and iridium, of which osmium has no industrial application and no economic value, while platinum and palladium have the greatest economic value;
potash	a potassium chloride compound used as simple fertilizer and in the production of mixture fertilizer;
precious metals	metals valued for their colour, malleability, and rarity, with a high economic value driven not only by their practical industrial use, but also as investments. The widely-traded precious metals are gold, silver, platinum and palladium;
primary nickel	nickel produced directly from mineral ores;
probable (indicated) reserves	subject always to the full terms of its definition for the purposes of the reports summarised in Appendix III to this Listing Document, reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation;
proven (measured) reserves	subject always to the full terms of its definition for the purposes of the reports summarised in Appendix III to this Listing Document, reserves for which (a) quantity is computed from dimensions revealed in outcrops, trenches, working or drill holes; grade and/or quality are computed from the results of detailed sampling and (b) the sites for inspection, sampling and measurement are

	spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well-established;
pulverised coal injection or **PCI**	type of coal with specific properties ideal for direct injection via the tuyeres of blast furnaces. This type of coal does not require any processing or coke making, and can be directly injected into the blast furnaces, replacing lump cokes to be charged from the top of the blast furnaces;
recovery rate	the percentage of valuable constituent derived from an ore, a measure of mining or extraction efficiency;
reserves	subject always to the full terms of its definition for the purposes of the reports summarised in Appendix III to this Listing Document, part of a mineral deposit that could be economically and legally extracted or produced at the time of the reserve determination;
rhodium	a hard, silvery-white, durable metal that has a high reflectance and is primarily used in combination with platinum for automobile-emission control devices and as an alloying agent for hardening platinum;
run-of-mine or **ROM**	ore in its natural (unprocessed) state, as mined, without having been crushed;
ruthenium	a hard, white metal that can harden platinum and palladium used to make severe wear-resistant electrical contacts and in other applications in the electronics industry;
seaborne market	comprises the total ore trade between countries using ocean bulk vessels;
secondary or scrap nickel	stainless steel or other nickel-containing scrap;
silver	a ductile and malleable metal used in photography, coins and medal fabrication, and in industrial applications;
sinter feed	(also known as fines) iron ore fines with particles in the range of 0.15 mm to 6.35 mm in diameter. Suitable for sintering;
sintering	the agglomeration of sinter feed, binder and other materials, into a coherent mass by heating without melting, to be used as metallic charge into a blast furnace;
slabs	the most common type of semi-finished steel. Traditional slabs measure 10 inches thick and 30 to 85 inches wide (and average 20 feet long), while the output of the recently developed "thin slab" casters is two inches thick. Subsequent to casting, slabs are sent to the hot-strip mill to be rolled into coiled sheet and plate products;
stainless steel	alloy steel containing at least 10% chromium and with superior corrosion resistance. It may also contain other elements such as nickel, manganese, niobium, titanium, molybdenum, copper, in order to improve mechanical, thermal properties and service life. It is primarily classified as austenitic (200 and 300 series), ferritic (400 series), martensitic, duplex or precipitation hardening grades;

stainless steel scrap ratio	the ratio of secondary nickel units (either in the form of nickel-bearing, stainless steel scrap, or in alloy steel, foundry and nickel-based alloy scrap) relative to all nickel units consumed in the manufacture of new stainless steel;
thermal coal	a type of coal that is suitable for energy generation in thermal power stations;
TOE	tons of oil equivalent;
troy ounce	one troy ounce equals 31.103 grammes; and
underground mining	mineral exploitation in which extraction is carried out beneath the earth's surface.