

Cost of Trasformation of Iron Castings €/ton

Update: 08.03.2019



ASSOFOND INDEX

Starting from 2002, the foundry process was characterized by a high level of cost inflation, mainly caused by higher prices of raw materials and energy materials.

With regard to ferrous castings, Assofond has monitored the phenomenon through the publication of the following classes of index:

- Cast iron and scrap iron (**Raw material Extra Charge**)
- Direct transformation input (**Transformation Cost**)
- Alloy elements (**Extra-alloy components for steel castings and investment casting**)

Assofond controls in a systematic way the representativeness of the index which are published with the trend of the market

Direct Transformation Inputs

In order to make available a summary index for the Direct Transformation input, Assofond has set the following composition taking as base year 2002 = 100.

Index breakdown (direct transformation inputs) Foundries using electrical furnaces

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Recarburing graphite	2.67
FeSiMg	8.00
Other materials (FeSi)	6.67
Metallic charge excluding pig iron & steel scraps	17.34
Electrical power	29.33
Natural Gas	2.67
Foundry Coke	0.00
Energies	32.00
Filters & exothermic sleeves	8.00
French sand	13.33
Core binders	8.00
Green sand binders	3.47
Other consumables (consumer prices index)	17.86
Auxiliary materials	50.66
Direct transformation inputs	100.00

Index breakdown (direct transformation inputs) Foundries using cupola furnace

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Recarburising graphite	2.67
FeSiMg	8.00
Other materials (FeSi)	6.67
Metallic charge excluding pig iron & steel scraps	17.34
Electrical power	15.76
Natural Gas	1.43
Foundry Coke	14.81
Energies	32.00
Filters & exothermic sleeves	8.00
French sand	13.33
Core binders	8.00
Green sand binders	3.47
Other consumables (consumer prices index)	17.86
Auxiliary materials	50.66
Direct transformation inputs	100.00



These compositions represent an average value observed in 2002 from a representative sample of Italian foundries. In Assofond intent, the publication of separate indexes for each component of the index would have allowed the foundry to customize individual monitoring of the overall cost of their inputs, through the whole cycle of their product (the "Cyclone") or separately for each family or, in the case of maximum detail at the product level. On several occasions, many foundries have urged Assofond to directly rollover the index basing on the index value of one ton of cast product. Up to now, Assofond has avoided to join to these requests, considering its duty to provide in a controlled, transparent and controllable way, a system of indexes that foundries can use in their specific and particular reality, to monitor the costs, with its system of management control. To make this possible and effective, it is necessary that each production process directly rollover the index, guaranteed by Assofond as representative of the market, using the weights of its cycles of work, warning that the composition tables above are only indicative and representative of the average values Foundry process sample examined. Assofond also indicated the following scheme to make the factorization of the standardized value of the product.

The value of the product Foundry casting can be broken down according to the following scheme

A	Value of the casting in €/ton
B	Pig iron and scrap €/ton
C	Alloy elements for cast iron €/t
A-B-C	Value of transformation €/ton
D	Direct transformation input €/ton
A-B-C-D	Value of the activities €/ton

Notes

A	Value of the Foundry iron casting
B	Item B is determined by the extra share of raw material
C	Item C applies to special cast iron types and is calculated on the basis of the values of the alloy elements on the international markets.
D	<p>Item D represents the total direct cost of raw materials not considered in B and C, as well as the cost of energy and of the auxiliary materials that are necessary to obtain the foundry casting. Like items B and C, these costs are subject to the market prices variations, which can be positive or negative. The commodities that make up item D - and therefore also the resulting index - depend mainly on the trend of the energy costs.</p> <p>As a matter of fact, along with the energy directly employed, it should also be considered that the cost of ferroalloys incorporates an important share of the electric power cost and that the alloying elements for cores and grounds are mainly obtained from oil product.</p>
A-B-C-D	Item A-B-C-D represents the value of the activities performed by the Foundry and by any external Suppliers. It is mainly made up by the cost of labour, by depreciation and by the remuneration of one's own capital and/or third party's capital. The trend of this item can be approximately index-linked to the Country's general inflation rate.



To the value of the product on the manufacture and any other processing activities on the castings, not including other activities such as manufacture of molds and models, internal orders, etc.. divided by net tons produced that could be shipped, then the value of the Product in € / tonne, less the cost, always in € / tonne of raw material, pig iron and scrap, as published by Assofond, divided by the yield (less than 1) due to melting and trimming losses.

Subtracting than the value of the alloy elements for cast iron, always in € / tonne, as well as from official prices, such as the LME (London Metal Exchange). For alloy elements mean, for example, copper and / or tin for pearlitic pig iron, copper, nickel, molybdenum, manganese, chromium, etc.. for alloyed cast iron. The prices reported by the official prices will be divided by a coefficient (less than 1) which takes into account not only the melting and trimming losses, but also the losses due to the full recycling of gating, whose size is highly variable, even in relation the volumes produced by each composition.

What remains is called "Value of Transformation", which can be divided into direct Transformation Input (Consumption of materials other than pig iron and scrap and alloy, Energies) and the so-called "Value of the activities ".



The term "Value of the Activities", by its very definition of the balance, is the residual sum of the following three components:

- External services (B7 of the EEC Balance Sheet, excluding the electrical power driving force)
- Labour cost (B9 of the EEC Balance Sheet)
- Balance, the EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) from Operating Business, containing, in addition to net income, Tax, Financial Operating Results, Depreciation and Amortization, also the costs for the fruition of goods and other operating charges .

The consumption of materials other than pig iron and alloy elements are divided into two classes: the Metallic charge excluding pig iron and steel scraps and auxiliary materials.

The first are precisely identified, both as nature and as weight of the rollover on the product, as they come into all the products involved in the process with a weight that is sufficiently uniform, within the same family of castings.

The so-called auxiliary materials contain a very large amount of codes, which are differentiated by size, quantity used, very dependent on the geometry and thickness of the casting and the final quality desired on individual product.

For this reason, the rollover should be made at the product level. At the aggregate level of management control of the information is difficult to manage, for the purposes of internal control efficiency.

An agreement to simplify things

Assofond decided to adopt here a simplified version of their model, indexing Auxiliary Materials for Various Consumption (general inflation).

We feel that this convention leads to an underestimation of inflationary dynamics, including the Auxiliary Materials commodities characterized by a major energy components in the form of impact of transport (the case of sand) and energetic materials (binders and catalysts).

By analyzing the time series of the past, it is clear that the inflationary trend of the auxiliary materials could be estimated with an index composed in equal parts by an index of general inflation (consumer prices index) and an energy index.

However we decide to use the only consumer prices index, even with the declared intention to push efficiency to the foundries in relation to the supply system.

Time scheduling

The starting date of the new model of the indexes is fixed in the middle of 2002 year, with a monthly update as usual for Assofond index.

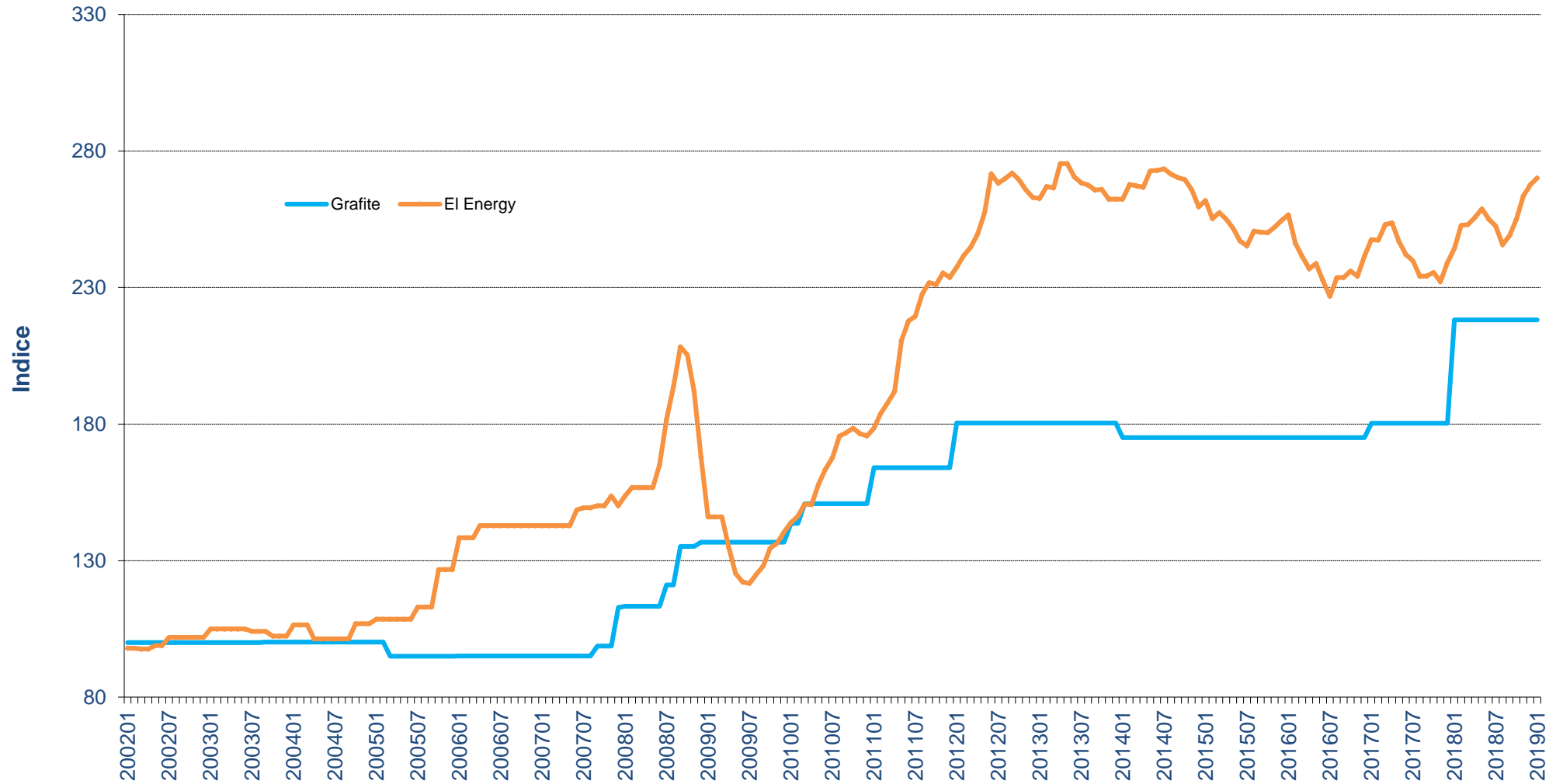


News

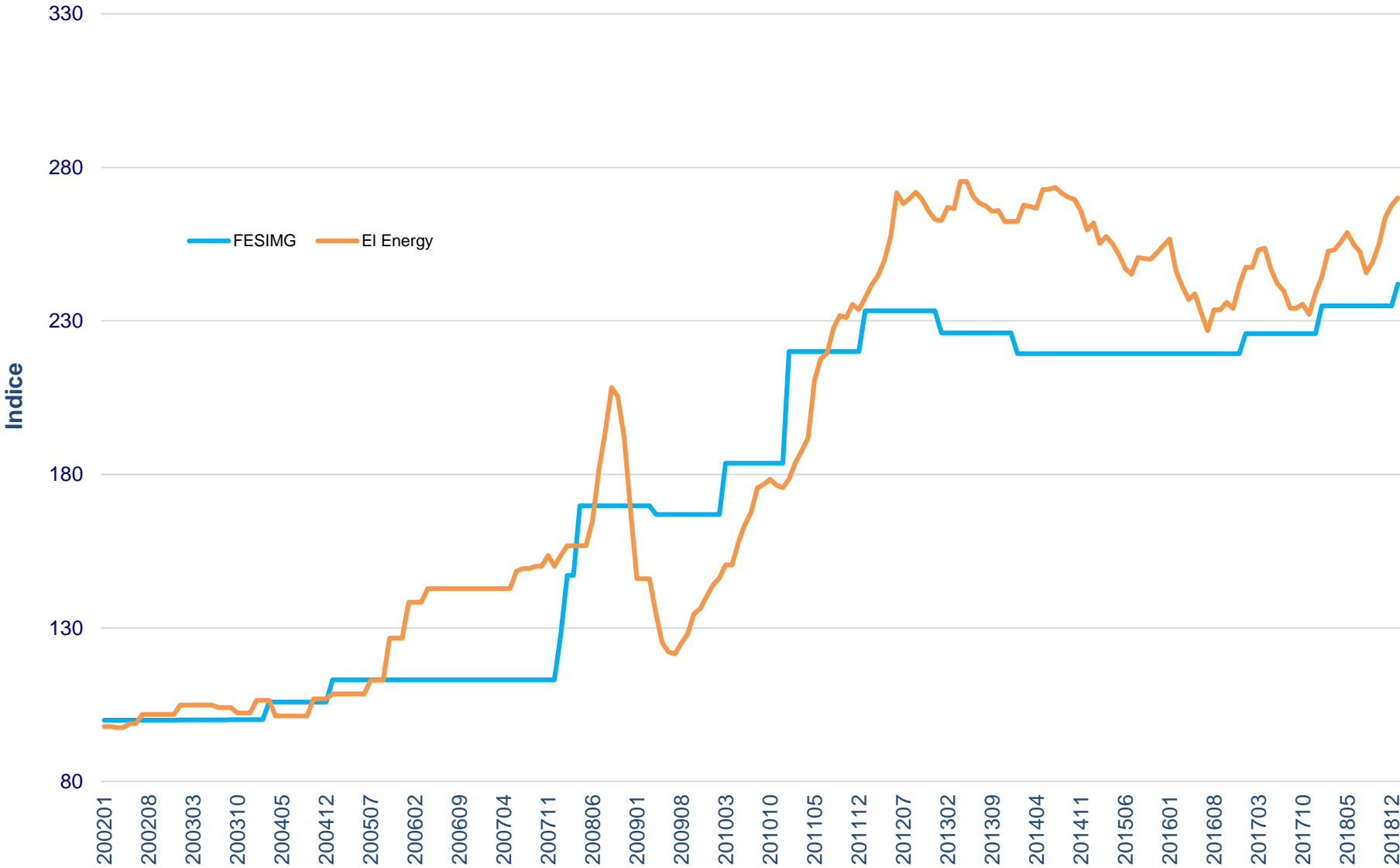
- Compared with the Direct Transformation Input index we can find following three news:
Underestimation of Auxiliary Materials trend
- An easy evaluation of the effect of inflation on the castings providing the data directly in Euro / tonne
Aggregation of the inflationary component into two big categories, depending on the nature of the drivers of inflation:
 - Energy Commodity and Energies, energetic driver.
 - Activities and Auxiliary Materials, general inflation driver.

The following three charts explain why the different raw materials can be renamed Energetic Materials.

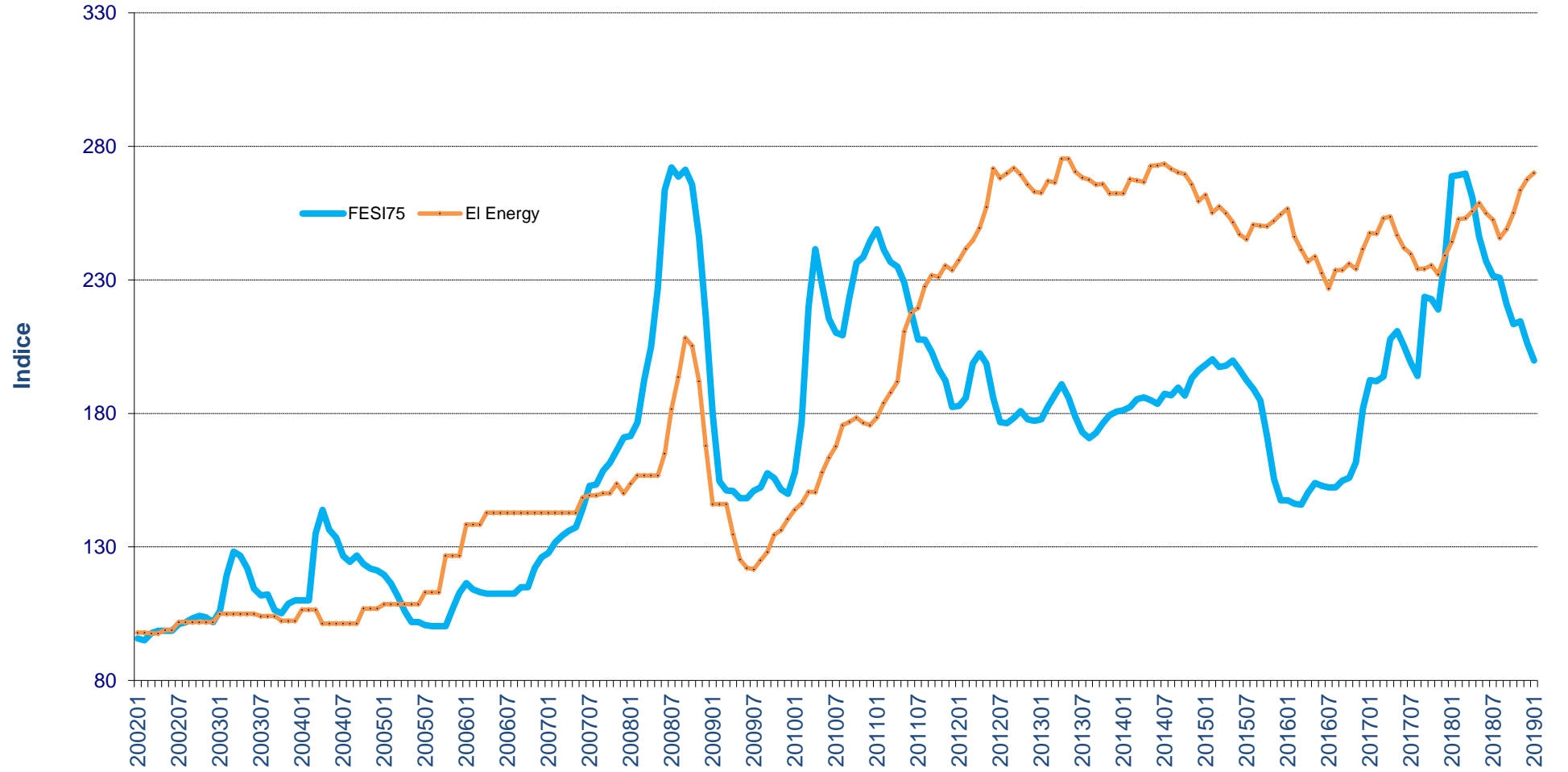
Electrical power Vs Recarburising graphite



Electrical power Vs FeSiMg



Electrical power Vs FeSi75



Value of the Product Structure

Each Foundry should represent the / structures / and the value of the product, applying to it Assofond Index and using the results to verify the positive deviations (efficiencies) and / or negative (inefficiencies) of its management.

Assofond provide one of these possible representations, the so-called Cyclone 2002: 1000-500 on a project in which the reference value of Transformation ABC in 2002 is equal to 1000 € / ton, the said value being divided into two equal parts:

- D: Direct Transformation Input $IDT * 1.000 = 50\% = 500 \text{ € / tonne}$
- A - B - C - D: Value of the Activities $VA = 50\% * 1.000 \text{ VA} = 500 \text{ € / tonne}$

As we shall see, taking as reference value € 1.000 / t does not take away the generality of application of the tables, while the weights of the division into two components IDT and VA represent a special case, however, sufficiently representative.

The composition of the IDT, above mentioned for the electric furnace and cupola furnace represent a particular case, is sufficiently representative.

The choices made are necessary to achieve a single synthetic indicator in € / ton, warning that all is ok and it is easy, as indexes of primary Assofond IDT are well-known, customize, per Foundry, Castings Family, Product Code.

Assofond is available to provide any customization that may be required.

Structure of the Product Value

In order to perform the calculations, you need the following information relating to a balance on an annual basis in any year since 2002:

Electrical power	€/Mwh
Natural gas	€/kNmc
Coke	€/ton
Graphite	€/ton
FeSi45Mg	€/ton
FeSi75	€/ton
Net product/casting	%
Reject	%
Net sales/casting	%
Electrical power	kwh/gross ton cast
Natural gas	Nmc/ gross ton cast
Natural gas TT	Nmc/net ton treated
Coke	kg/ gross ton cast
Quote of pig iron for ductile iron on total of pig iron for ductile iron +scrap	%
Quote of Bales of deep drawing steel scrap 30X30 for Foundry on total of pig iron +scrap	%
Quote of hematite pig iron on total of hematite pig iron+scrap	%
Quote of steel scrap for steel makers on total of pig iron+steel scrap	%
Total loss for foundry	%
Quote of graphite on the weight of bales deep drawing scrap	%
Quote FeSi45Mg on gross weight	%
Quote of FeSi75 and other Ferro-alloy in FeSi75 equivalent on gross weight	%
Weight of Activities in the Value of Transformation	%

Structure of the Product Value

This is the pattern of the Transformation of the structure of value, according to the schemes described above.

Transformation value 2002:1000-500 in 2002

		El. Furn.	Cupola
A-B-C Value of transformation €/ton	€/ton	1000	1000
D Direct transformation inputs	€/ton	500	500
Recarburising graphite	€/ton	13,35	13,35
FeSiMg	€/ton	40,00	40,00
Other materials (FeSi)	€/ton	33,35	33,35
Metallic charge excluding pig iron steel scraps	€/ton	86,70	86,70
Electrical power	€/ton	146,65	78,80
Natural Gas	€/ton	13,35	7,15
Foundry coke	€/ton	0,00	74,05
Energies	€/ton	160,00	160,00
Auxiliary materials	€/ton	253,30	253,30
D Direct transformation inputs	€/ton	500,00	500,00
A-B-C-D Value of the activities (balance of A-B-C)	€/ton	500,00	500,00
Recarburising graphite	weight	2,67	2,67
FeSiMg	weight	8,00	8,00
Other materials (FeSi)	weight	6,67	6,67
Metallic charge excluding pig iron steel scraps	weight	17,34	17,34
Electrical power	weight	29,33	15,76
Natural Gas	weight	2,67	1,43
Foundry coke	weight	0,00	14,81
Energies	weight	32,00	32,00
Auxiliary materials (balance to 100)	weight	50,66	50,66
Direct transformation inputs	weight	100,00	100,00

- **The green boxes represent input data. What is used here are those chosen for the synthetic indicator Assofond. In the same green boxes you can enter different data, in the case of customizations.**

Electrical Furnace – Components of the Value of Transformation €/t - 2002 = 1.000-500**Manufacturing, Energy commodities + Energies, Transformation DTI + Activity - (Year 2019)**

	Auxiliary materials general inflation	Activities	Manufacturing	Energies & Energy commodities	Symple transformation	Auxiliary materials extra	Transformation IDT + Activities
201901	319,96	631,58	951,55	615,67	1.567,22	59,82	1.627,04
201902							
201903							
201904							
201905							
201906							
201907							
201908							
201909							
201910							
201911							
201912							

Electrical Furnace – Components of the Value of Transformation €/t - 2002 = 1.000-500**Energy commodities, Energy commodities + Energies - (Year 2018)**

	Graphite	FeSiMg	FeSi75	Energy commodities	El. Power	Natural Gas	Coke	Energies	Energies & Energy commodities
201801	29,12	93,97	89,67	212,76	358,25	23,94	-	382,19	594,95
201802	29,12	93,97	89,80	212,89	370,66	23,91	-	394,58	607,47
201803	29,12	93,97	89,98	213,07	371,23	22,94	-	394,16	607,24
201804	29,12	93,97	86,94	210,04	375,01	22,99	-	398,00	608,04
201805	29,12	93,97	82,08	205,17	379,56	24,33	-	403,89	609,06
201806	29,12	93,97	79,05	202,15	373,96	25,52	-	399,49	601,63
201807	29,12	93,97	77,20	200,29	370,39	26,32	-	396,71	597,00
201808	29,12	93,97	76,97	200,07	360,34	27,04	-	387,38	587,45
201809	29,12	93,97	73,63	196,72	365,22	28,79	-	394,00	590,73
201810	29,12	93,97	71,17	194,26	374,04	30,23	-	404,27	598,53
201811	29,12	93,97	71,52	194,61	386,58	29,81	-	416,38	611,00
201812	29,12	93,97	68,88	191,97	392,54	28,10	-	420,64	612,61

Electrical Furnace – Components of the Value of Transformation €/t - 2002 = 1.000-500**Manufacturing, Energy commodities + Energies, Transformation DTI + Activity - (Year 2018)**

	Auxiliary materials general inflation	Activities	Manufacturing	Energies & Energy commodities	Symple transformation	Auxiliary materials extra	Transformation IDT + Activities
201801	317,77	627,26	945,03	594,95	1.539,97	67,95	1.607,93
201802	317,77	627,26	945,03	607,47	1.552,49	66,69	1.619,19
201803	318,40	628,49	946,89	607,24	1.554,13	66,29	1.620,41
201804	318,40	628,49	946,89	608,04	1.554,93	65,03	1.619,95
201805	319,33	630,35	949,68	609,06	1.558,74	60,01	1.618,75
201806	319,96	631,58	951,55	601,63	1.553,18	57,39	1.610,57
201807	320,90	633,44	954,34	597,00	1.551,34	55,84	1.607,18
201808	322,15	635,91	958,06	587,45	1.545,51	55,03	1.600,54
201809	320,59	632,82	953,41	590,73	1.544,13	56,04	1.600,18
201810	320,59	632,82	953,41	598,53	1.551,94	52,82	1.604,77
201811	319,96	631,58	951,55	611,00	1.562,54	53,23	1.615,77
201812	319,65	630,97	950,61	612,61	1.563,22	53,43	1.616,65

Electrical Furnace – Components of the Value of Transformation €/t - 2002 = 1.000-500**Energy commodities, Energy commodities + Energies - (Year 2002- 2018)**

	Graphite	FeSiMg	FeSi75	Energy commodities	El. Power	Natural Gas	Coke	Energies	Energies & Energy commodities
2002	13,35	40,00	33,35	86,70	146,65	13,35	-	160,00	246,70
2003	13,36	40,05	38,10	91,51	152,65	13,79	-	166,44	257,95
2004	13,37	41,99	42,06	97,42	152,56	13,54	-	166,11	263,52
2005	12,79	45,26	35,54	93,59	167,50	14,92	-	182,42	276,01
2006	12,69	45,27	38,46	96,43	207,83	18,02	-	225,85	322,28
2007	13,01	45,27	49,33	107,61	215,73	22,65	-	238,38	345,99
2008	16,29	65,01	77,17	158,47	256,00	27,68	-	283,68	442,15
2009	18,26	67,08	51,45	136,78	196,33	23,89	-	220,22	357,01
2010	19,97	72,37	72,32	164,66	239,97	24,00	-	263,97	428,63
2011	21,90	88,04	72,22	182,15	311,58	29,79	-	341,37	523,53
2012	24,09	93,32	61,74	179,15	380,17	35,57	-	415,74	594,88
2013	24,09	90,44	59,91	174,44	392,27	35,64	-	427,91	602,35
2014	23,37	87,73	62,35	173,44	393,53	33,64	-	427,16	600,60
2015	23,37	87,73	62,00	173,09	370,47	27,22	-	397,69	570,78
2016	23,37	87,73	51,57	162,66	349,32	20,53	-	369,85	532,51
2017	24,07	90,36	69,47	183,89	355,08	21,94	-	377,02	560,91
2018	29,12	93,97	79,74	202,83	373,15	26,16	-	399,31	602,14

Electrical Furnace – Components of the Value of Transformation €/t - 2002 = 1.000-500**Manufacturing, Energy commodities + Energies, Transformation DTI + Activity - (Year 2002-2018)**

	Auxiliary materials general inflation	Activities	Manufacturing	Energies & Energy commodities	Symple transformation	Auxiliary materials extra	Transformation IDT + Activities
2002	253,30	500,00	753,30	246,70	1.000,00	-	1.000,00
2003	259,42	512,08	771,50	257,95	1.029,45	0,41	1.029,86
2004	264,33	521,76	786,09	263,52	1.049,61	0,90	1.050,51
2005	268,98	530,95	799,93	276,01	1.075,94	16,24	1.092,19
2006	274,26	541,37	815,63	322,28	1.137,91	19,73	1.157,64
2007	279,24	551,20	830,43	345,99	1.176,43	25,55	1.201,98
2008	288,37	569,22	857,59	442,15	1.299,74	29,61	1.329,35
2009	290,32	573,08	863,39	357,01	1.220,40	27,51	1.247,91
2010	294,83	581,98	876,80	428,63	1.305,43	27,66	1.333,09
2011	303,00	598,10	901,09	523,53	1.424,62	28,98	1.453,60
2012	311,97	615,81	927,78	594,88	1.522,66	28,45	1.551,11
2013	315,63	623,03	938,66	602,35	1.541,01	27,79	1.568,80
2014	316,29	624,35	940,64	600,60	1.541,25	28,27	1.569,51
2015	315,75	623,28	939,03	570,78	1.509,81	24,01	1.533,82
2016	313,15	618,13	931,28	532,51	1.463,80	26,24	1.490,04
2017	316,28	624,32	940,60	560,91	1.501,52	55,61	1.557,12
2018	319,62	630,91	950,54	602,14	1.552,68	59,15	1.611,82

Cupola – Components of the Value of Transformation €/t - 2002 = 1.000-500

Manufacturing, Energy commodities + Energies, Transformation DTI + Activity - (Year 2019)

	Auxiliary materials general inflation	Activities	Manufacturing	Energies & Energy commodities	Symple transformation	Auxiliary materials extra	Transormation IDT + Activities
201901	319,96	631,58	951,55	709,48	1.661,03	59,82	1.720,85
201902							
201903							
201904							
201905							
201906							
201907							
201908							
201909							
201910							
201911							
201912							

Cupola – Components of the Value of Transformation €/t - 2002 = 1.000-500**Energy commodities, Energy commodities + Energies - (Year 2018)**

	Graphite	FeSiMg	FeSi75	Energy commodities	El. Power	Natural Gas	Coke	Energies	Energies & Energy commodities
201801	29,12	93,97	89,67	212,76	192,50	12,82	264,89	470,21	682,97
201802	29,12	93,97	89,80	212,89	199,17	12,81	277,03	489,00	701,89
201803	29,12	93,97	89,98	213,07	199,47	12,28	277,03	488,78	701,86
201804	29,12	93,97	86,94	210,04	201,51	12,31	277,03	490,84	700,88
201805	29,12	93,97	82,08	205,17	203,95	13,03	283,90	500,87	706,05
201806	29,12	93,97	79,05	202,15	200,94	13,67	283,90	498,51	700,65
201807	29,12	93,97	77,20	200,29	199,02	14,10	279,32	492,44	692,73
201808	29,12	93,97	76,97	200,07	193,62	14,48	279,32	487,42	687,49
201809	29,12	93,97	73,63	196,72	196,24	15,42	279,32	490,98	687,70
201810	29,12	93,97	71,17	194,26	200,99	16,19	279,32	496,49	690,75
201811	29,12	93,97	71,52	194,61	207,72	15,96	279,32	503,00	697,61
201812	29,12	93,97	68,88	191,97	210,92	15,05	279,32	505,29	697,26

Cupola – Components of the Value of Transformation €/t - 2002 = 1.000-500

Manufacturing, Energy commodities + Energies, Transformation DTI + Activity - (Year 2018)

	Auxiliary materials general inflation	Activities	Manufacturing	Energies & Energy commodities	Symple transformation	Auxiliary materials extra	Transformation IDT + Activities
201801	317,77	627,26	945,03	682,97	1.628,00	67,95	1.695,95
201802	317,77	627,26	945,03	701,89	1.646,92	66,69	1.713,61
201803	318,40	628,49	946,89	701,86	1.648,75	66,29	1.715,03
201804	318,40	628,49	946,89	700,88	1.647,77	65,03	1.712,80
201805	319,33	630,35	949,68	706,05	1.655,73	60,01	1.715,74
201806	319,96	631,58	951,55	700,65	1.652,20	57,39	1.709,59
201807	320,90	633,44	954,34	692,73	1.647,06	55,84	1.702,90
201808	322,15	635,91	958,06	687,49	1.645,55	55,03	1.700,58
201809	320,59	632,82	953,41	687,70	1.641,11	56,04	1.697,15
201810	320,59	632,82	953,41	690,75	1.644,16	52,82	1.696,99
201811	319,96	631,58	951,55	697,61	1.649,16	53,23	1.702,39
201812	319,65	630,97	950,61	697,26	1.647,87	53,43	1.701,31

Cupola – Components of the Value of Transformation €/t - 2002 = 1.000-500**Energy commodities, Energy commodities + Energies - (Year 2002- 2018)**

	Graphite	FeSiMg	FeSi75	Energy commodities	El. Power	Natural Gas	Coke	Energies	Energies & Energy commodities
2002	13,35	40,00	33,35	86,70	78,80	7,15	74,05	160,00	246,70
2003	13,36	40,05	38,10	91,51	82,02	7,39	74,05	163,46	254,97
2004	13,37	41,99	42,06	97,42	81,98	7,25	74,05	163,28	260,70
2005	12,79	45,26	35,54	93,59	90,00	7,99	74,05	172,05	265,64
2006	12,69	45,27	38,46	96,43	111,67	9,65	75,53	196,86	293,29
2007	13,01	45,27	49,33	107,61	115,92	12,13	150,86	278,91	386,52
2008	16,29	65,01	77,17	158,47	137,56	14,83	309,70	462,09	620,56
2009	18,26	67,08	51,45	136,78	105,50	12,80	209,11	327,40	464,18
2010	19,97	72,37	72,32	164,66	128,94	12,85	224,90	366,70	531,36
2011	21,90	88,04	72,22	182,15	167,42	15,96	286,41	469,79	651,95
2012	24,09	93,32	61,74	179,15	204,28	19,05	275,96	499,29	678,43
2013	24,09	90,44	59,91	174,44	210,78	19,09	262,37	492,24	666,68
2014	23,37	87,73	62,35	173,44	211,46	18,02	244,48	473,95	647,39
2015	23,37	87,73	62,00	173,09	199,06	14,58	242,23	455,87	628,96
2016	23,37	87,73	51,57	162,66	187,70	11,00	235,78	434,48	597,14
2017	24,07	90,36	69,47	183,89	190,79	11,75	271,78	474,33	658,22
2018	29,12	93,97	79,74	202,83	200,51	14,01	278,31	492,82	695,65

Cupola – Components of the Value of Transformation €/t - 2002 = 1.000-500**Manufacturing, Energy commodities + Energies, Transformation DTI + Activity - (Year 2002-2018)**

	Auxiliary materials general inflation	Activities	Manufacturing	Energies & Energy commodities	Symple transformation	Auxiliary materials extra	Transformation IDT + Activities
2002	253,30	500,00	753,30	246,70	1.000,00	-	1.000,00
2003	259,42	512,08	771,50	254,97	1.026,47	0,41	1.026,88
2004	264,33	521,76	786,09	260,70	1.046,78	0,90	1.047,69
2005	268,98	530,95	799,93	265,64	1.065,57	16,24	1.081,81
2006	274,26	541,37	815,63	293,29	1.108,92	19,73	1.128,65
2007	279,24	551,20	830,43	386,52	1.216,95	25,55	1.242,50
2008	288,37	569,22	857,59	620,56	1.478,14	29,61	1.507,76
2009	290,32	573,08	863,39	464,18	1.327,58	27,51	1.355,09
2010	294,83	581,98	876,80	531,36	1.408,17	27,66	1.435,82
2011	303,00	598,10	901,09	651,95	1.553,04	28,98	1.582,02
2012	311,97	615,81	927,78	678,43	1.606,21	28,45	1.634,65
2013	315,63	623,03	938,66	666,68	1.605,34	27,79	1.633,13
2014	316,29	624,35	940,64	647,39	1.588,03	28,27	1.616,30
2015	315,75	623,28	939,03	628,96	1.567,99	24,01	1.592,00
2016	313,15	618,13	931,28	597,14	1.528,42	26,24	1.554,66
2017	316,28	624,32	940,60	658,22	1.598,82	55,61	1.654,43
2018	319,62	630,91	950,54	695,65	1.646,19	59,15	1.705,34



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