

The way steel is hardened

Ukraine's mining and metallurgical industry embraces some 400 enterprises and organizations of various ownership forms. It consists of companies involved in ferrous and non-ferrous metallurgy, mining, by-product coke production, refractory, tube, and metalware sub-industries.

Enterprises of Ukrainian mining and metallurgic industry include:

- 15 iron and steel works and plants;
- 3 ferroalloy plants;
- 14 mining enterprises;
- 12 by-product coke plants and the respective production at Mittal Steel Kryvyi Rih;
- 13 refractory producing plants;
- 20 metal ware plants;
- 15 tube producers; and
- 3 enterprises (base) of non-ferrous metallurgy.

The segment of Ukrainian ferrous metallurgy is represented by 15 large enterprises – iron and steel works and plants. They account for some 98% of national steel production and 100% of pig iron output.

Domestic metallurgy is mostly oriented at production of flat rolled products (plates and rolled metal), which account for some 55% of production facilities. The rest are enterprises producing long products. There are also capacities for production of rolled alloy steel (DneproSpetsStal metallurgical plant).

Production dynamics by Ukrainian metal mills in 2000-2005, mn tons							
Products	2000	2001	2002	2003	2004	2005	8 months of 2006
Cast iron	25.69	26.36	27.63	29.52	31.05	30.77	21.67
Steel	31.40	33.10	34.04	36.93	38.73	38.63	27.01
Rolled steel	22.46	25.25	30.16	32.31	33.38	33.37	23.88

Ukraine has advantageous geopolitical location. It is located rather close to the three most important world markets – the European Community, Turkey, and Russia, which consume aggregate 40% of Ukrainian metal products. Besides, the country has access to Azov and Black seas, which gives wider opportunities for exports of domestic ferrous metals not only to neighbor regions, but also to Southeastern Asia, Middle East, and America.

Ukraine is a large producer of ferrous metals and ranks the seventh in the world following China, Japan, the USA, Russia, Republic of Korea, and Germany. In 2005, the country accounted for 4.32% of world output of pig iron (30.77 mn tons were produced) and 3.51% of global steel production (output was 38.63 mn tons).

Place of Ukraine's ferrous metallurgy in world steel and cast iron production, mn tons						
Products	2000	2001	2002	2003	2004	2005
Steel production						
World production	847.4	850.0	902.9	945.1	1035	1100
Ukraine	31.40	33.10	34.04	36.93	38.73	38.63
Ukraine's share, %	3.75	3.94	3.82	3.97	3.74	3.51
Cast iron production						
World production	577.0	579.0	611.6	657.3	713.04	711.2
Ukraine	25.69	26.36	27.63	29.52	31.05	30.77
Ukraine's share, %	4.45	4.56	4.51	4.5	4.35	4.32

Most of rolled products by Ukraine's metallurgical mills were certified by world leading centers. For example, most of output of Azovstal, Zaporozhstal, and Ilyich Iron & Steel Works of Mariupol (shipbuilding, boiler, and construction steel) is certified by Lloyd's Register of Shipping (United Kingdom), TUV (Germany), American Bureau of Shipping (USA), Russian Marine Register, and other organizations. Wire rod and rebars, which correspond to European and American standards, are produced by Mittal Steel Kryvyi Rih (former Krivorozhstal).

Not only Ukraine boasts developed metallurgy, but also has rich natural deposits and extensive facilities for production of metal raw stock essential in metal making.

Raw stock basis of Ukrainian metallurgy is composed of considerable natural reserves of iron and manganese ores, coking coal, fluxes, refractory clays, and other mineral materials. With domestic natural deposits, Ukraine's ferrous metallurgy can be provided with all types of strategic raw stock, foremost, iron ore materials (sinter ore, concentrate, and pellets), and coke.

The country also owns some 20% of global manganese ore reserves and is one of the world largest producers of coking and steaming coal (is in top ten world largest producers). Annual output of coking coal is nearly 40 mn tons.

Ukraine's production of main raw stock materials for steel production, mn tons							
Products	2000	2001	2002	2003	2004	2005	8 months of 2006
Production of commodity iron ore	55.8	55.3	59.4	62.9	65.5	68.5	47.9
Production of coke	19.36	19.37	18.59	20.85	21.9	18.8	10.93
Production of ferroalloys	1.401	1.406	1.403	1.604	1.840	1.485	0.89
Scrap metal stocking	11.08	9.91	9.03	7.73	7.5	7.7	4.77

Ukrainian metallurgy is export oriented to high extent and dependent on foreign market conjuncture. Powerful production facilities of Ukraine's metal mills provide for complete saturation of domestic market with rolled products. The portion of internal supplies within rolled metal distribution doubled from 15.6% in 2000 to 30.3% in 2005 as a result of higher demand at internal market.

Positive tendencies of Ukraine's expanding presence on the world market have facilitated recently. Products of leading Ukrainian enterprises have equally high quality as output of world leaders.

The largest producers with powerful technological and technical basis are more actively promoting Ukraine's rolled metal with higher added cost to foreign commodity markets. As a result, by-article pattern of Ukraine's ferrous metal export has been improving. As compared to 1999, the portion of semi-products within rolled metal export structure (in physical terms) dropped from 44.1% to 34.4% in 2005, and raw stock materials – from 35 to 11.5% in the light of respective growth of rolled metal portion.

Commodity structure of Ukraine's ferrous metal export in 2005 looked as follows:

- raw stock materials (cast iron, ferroalloys, scrap metal) – 11.5%, or 3.31 mn tons;
- semi-products (square and tube billets, slabs) – 34.4%, or 9.67 mn tons;
- flat products (H/R, C/R, and galvanized flat products, rolled products, heavy plate) – 33.4%, or 9.62 mn tons;
- long products (wire rod, re-bars, sections) – 20.8%, or 5.47 mn tons.

Ferrous metal export from Ukraine in 2000-2005, mn tons							
Products	2000	2001	2002	2003	2004	2005	8 months of 2006
Raw stock materials	7.66	6.22	5.86	3.93	5.14	3.31	2.04
Semi-products	9.33	9.19	10.36	10.12	10.45	9.67	8.36
Flat section	6.76	7.31	7.81	8.05	9.37	9.62	6.76
Long products	6.13	6.67	6.39	6.72	6.778	5.97	3.95
TOTAL	29.88	29.39	30.42	28.83	31.74	28.79	21.13

In 2006-2010, Ukraine's ferrous metallurgy will be developing by the following scenario. Thanks to reconstruction and partial upgrade, steel production facilities in the short run will expand up to 44-44.5 mn tons, or by 9-12%. Their growth rate will be determined by ultimate level of national ferrous metallurgy production. In 2010 as compared to 2005, steel output should increase from 38.62 mn tons to 44 mn tons (or +14%), and rolled products – from 33.37 mn tons up to 35 mn tons (+5%).

In medium term overview, priority role will be held by domestic consumption, which will be related to high growth rates of metal consuming industries – machine building, construction, shipbuilding, and automobile making. Domestic consumption volumes are forecast to grow as high as by 30-40% by 2010 reaching ultimate 11-12 mn tons. Meanwhile, internal market can be perceived as a reserve to consumer excessive metal products in case of falling demand by foreign markets.