

Ferroalloys market of Russia and CIS.

Monopolization of the market. Threat for market.



Market overview

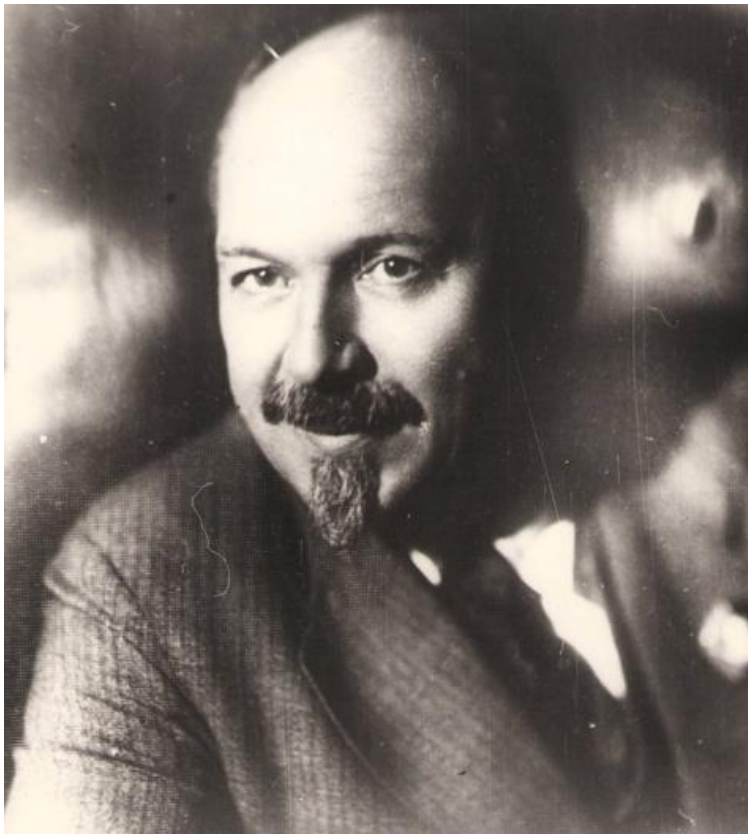
- General situation
- Mn alloys
- Si alloys
- Cr alloys



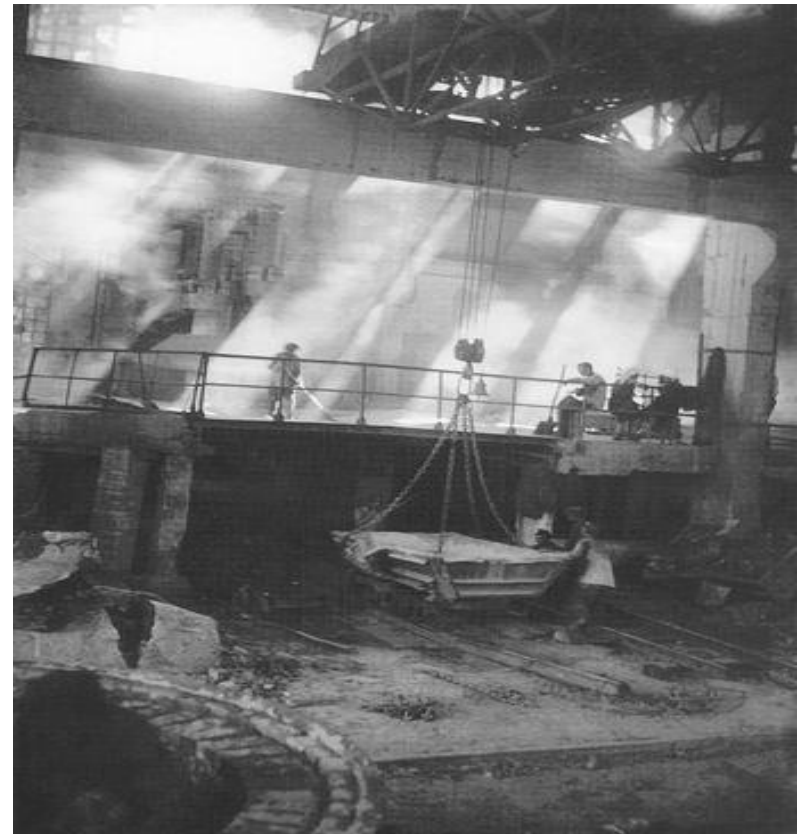
Ferroalloys market of Russia and CIS.



Grigorovich K.P.
-first ferroalloy man in Russia



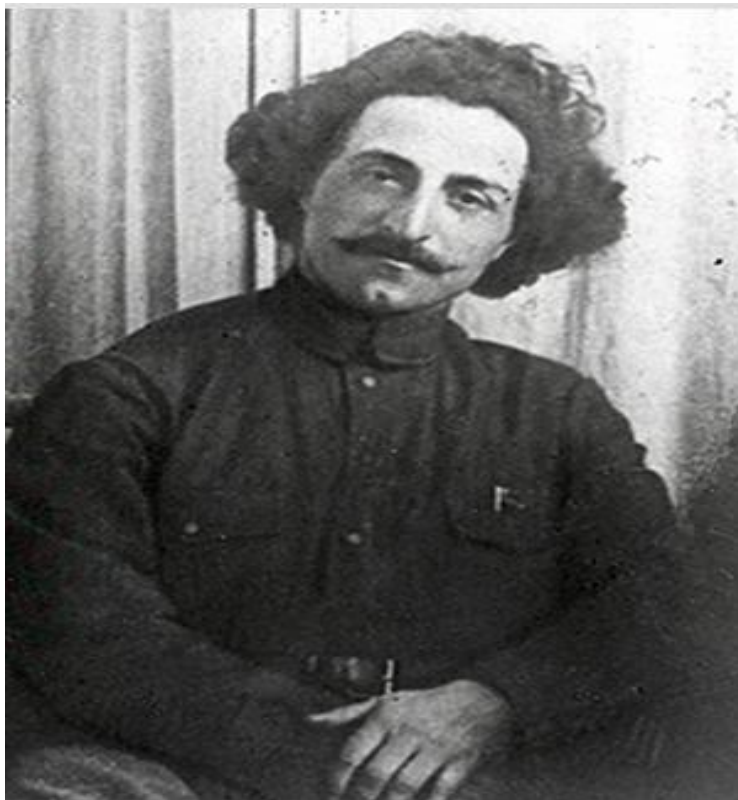
**First melting in 1931-1935 on
Chemk**



Ferroalloys market of Russia and CIS

History of CHEMK

Sergo Ordzhenikidze



Ivan Tevosian



Spetstal in 1931

CHEMK

Electrostal

Serp I Molot

Red October

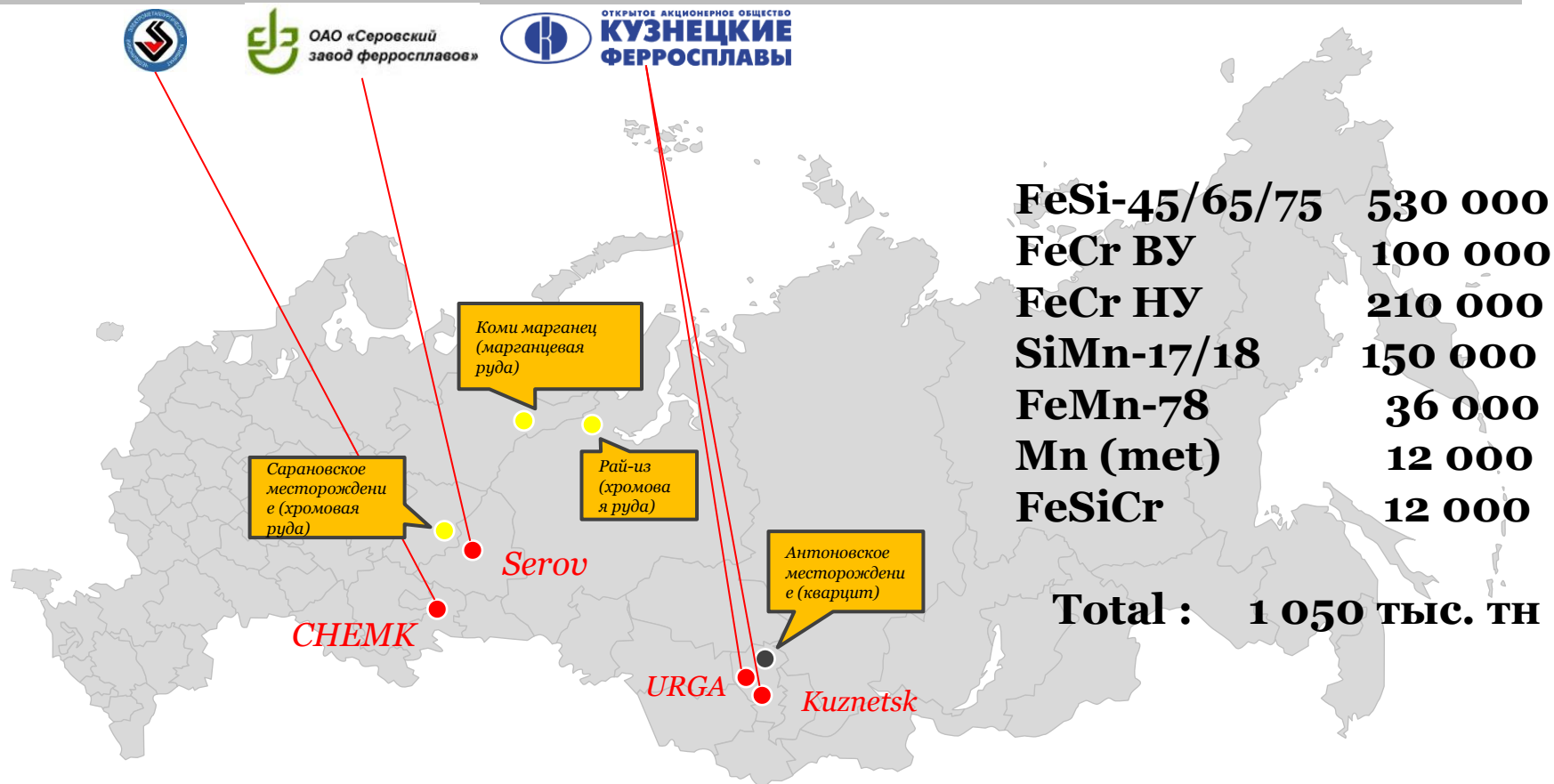
Zlatoust

Ferroalloys market of Russia and CIS

Группа ЧЭМК сегодня



Capacity of CHEMK and production-resources base база



Ferroalloys market of Russia and CIS

Largest companies in CIS

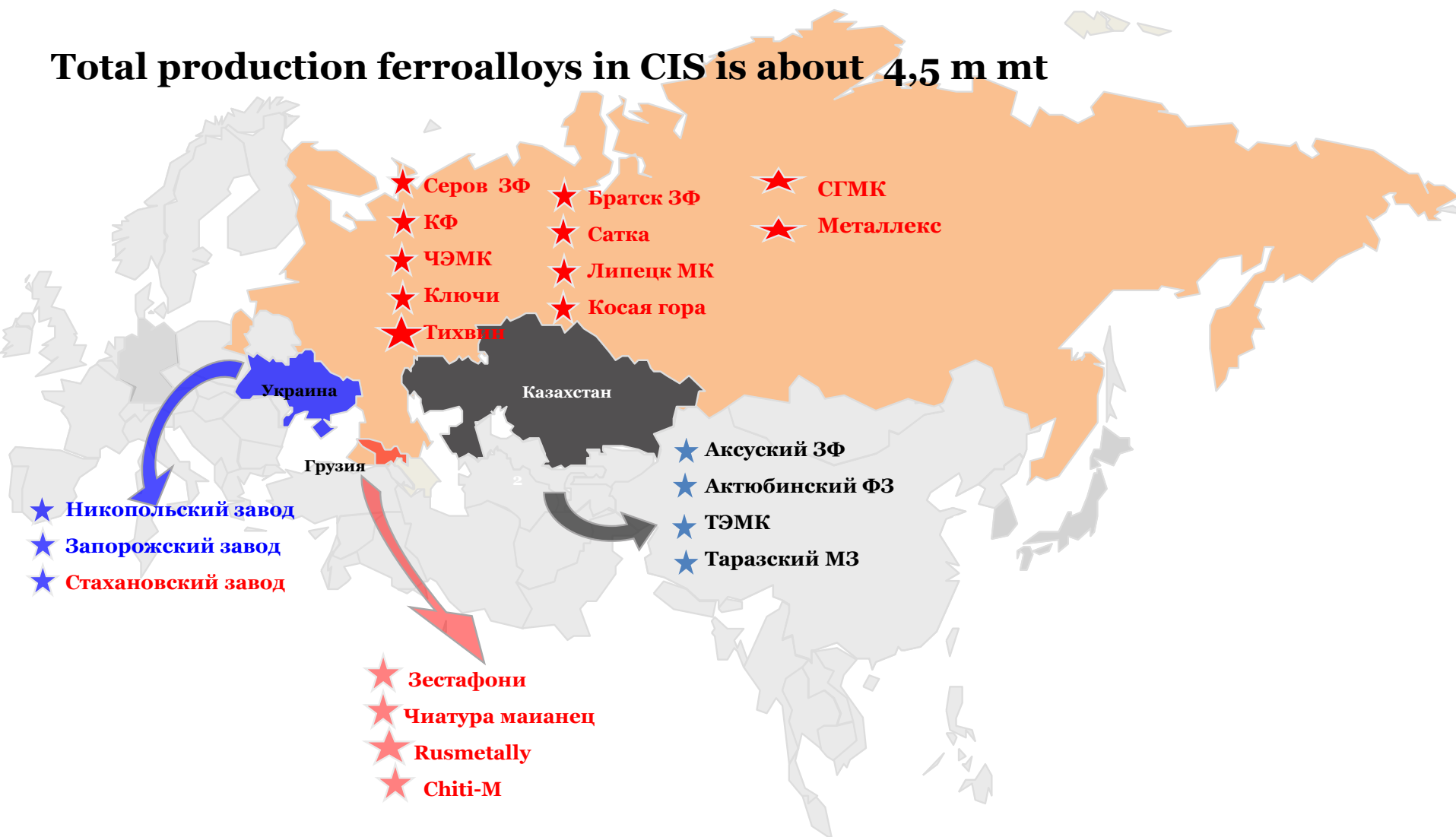
Production of Ferroalloys, mt

	ERG 	Chemk 	Privat 
FeCr HC	1 500 000	100 000	--
FeCr LC	90 000	210 000	--
SiMn	150 000	150 000	690 000
FeMn-78	--	36 000	180 000
FeSi	24 000	530 000	80 000
Total	1 764 000	1 050 000	950 000



Ferroalloys market of Russia and CIS

Total production ferroalloys in CIS is about 4,5 m mt



Ferroalloys market of Russia and CIS



Production ferroalloys in the world in 2015 г. (т.тн)

	China	SAR	CIS	India	EU	USA	ROW	Total
FeSi	4 860	78	734	127	440	84	693	7 016
SiMn	7 700	134	990	1480	488	114	1 194	12 100
FeMn	1 993	690	380	427	560	12	1 038	5 100
FeCr	3 200	3 524	2020	900	670	0	1 086	11 400
Total	17 753	4 426	4 124	2 944	2 158	210	4 011	36 340

Ferroalloys market of Russia and CIS



Ferroalloys industry of CIS on the background of world ferroalloys industry. Production in th.mt

	Russia	CIS	World
FeCr HC	220 000	1 720 000	10 730 000
FeCr LC	200 000	300 000	730 000
SiMn	190 000	990 000	12 100 000
FeMn	200 000	380 000	5 100 000
FeSi	654 000	734 00	7 016 000
Total	1 490 000	4 124 000	36 340 000
%%	3,98	11,5	100%

Ferroalloys market of Russia and CIS



World competition on the world market

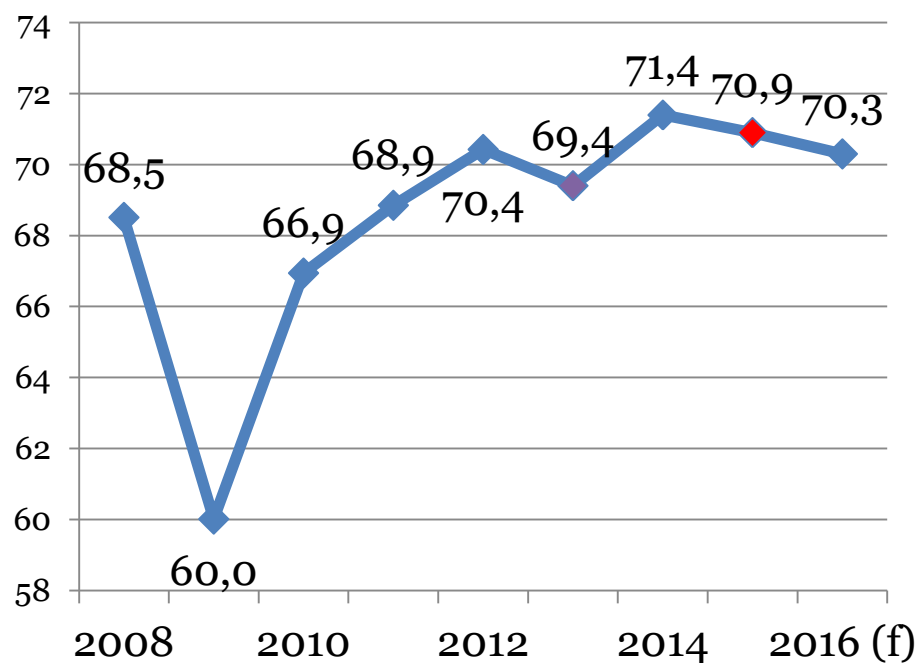
country	Production, mt	Consumption, mt	overproduction, mt	%%
CIS	4 124 000	1 087 000	3 037 000	279%
India	2 917 000	1 817 000	1 100 000	60%
China	19 060 000	18 500 000	560 000	3%
EU	2 158 000	3 796 000	-	-
USA	210 000	1 194 000	-	-
Japan	300 000	1 540 000	-	-

Ferroalloys market of Russia and CIS

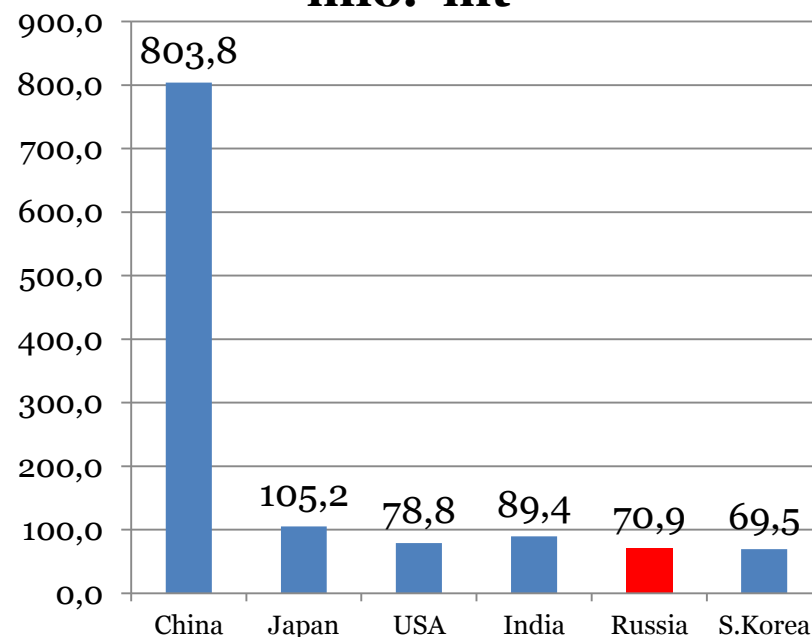


Steel production in, 2015

**Производство стали в РФ,
млн. тн**



Largest world steel producers, mio. mt



Ferroalloys market of Russia and CIS



Steel industry in Russia

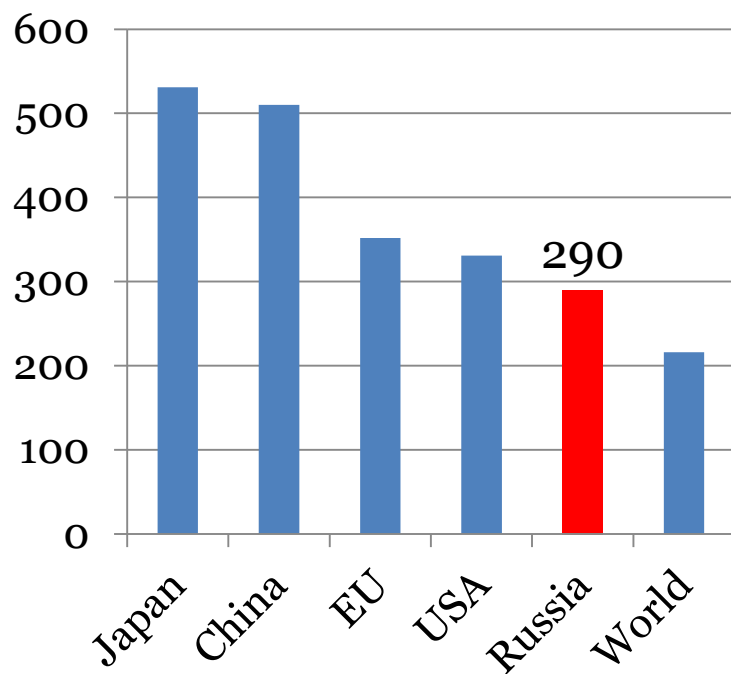
	2012	2013	2014	2015	%%
Evraz	11 524	11 795	11 793	11 356	80%
MMK	12 161	11 917	12 989	12 195	
Severstal	10 558	10 683	11 216	11 517	
NLMK	12 183	12 400	12 804	12 882	
Metalloinvest	5 619	4 682	4 508	4 521	
Mechel	4 990	4 346	3 971	4 130	
TMK	2 750	2 700	2750	2750	6%
ChTPZ	800	850	850	850	
OMK	900	900	900	900	
Others	8 894	8 968	9672	9 797	14%
Total	70 379	69 241	71 453	70 898	100%

Ferroalloys market of Russia and CIS

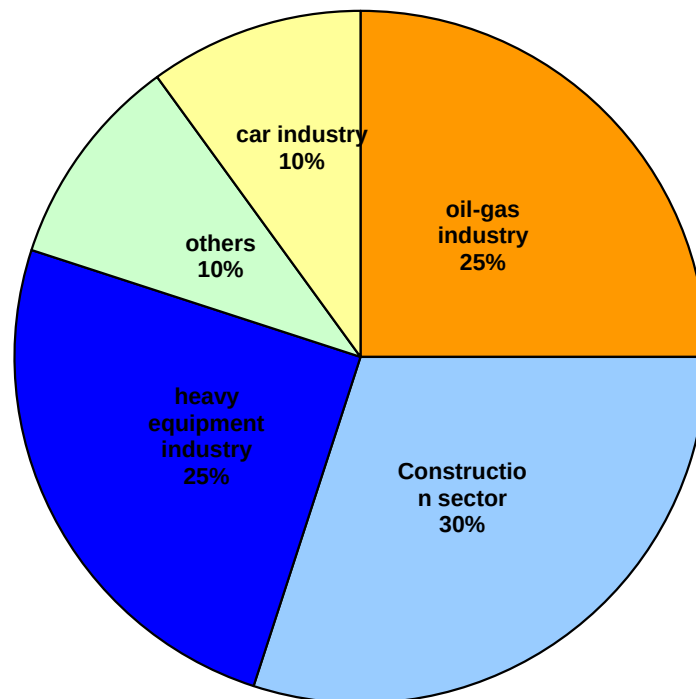


Steel consumption in Russia

Steel consumption per capita kg/person



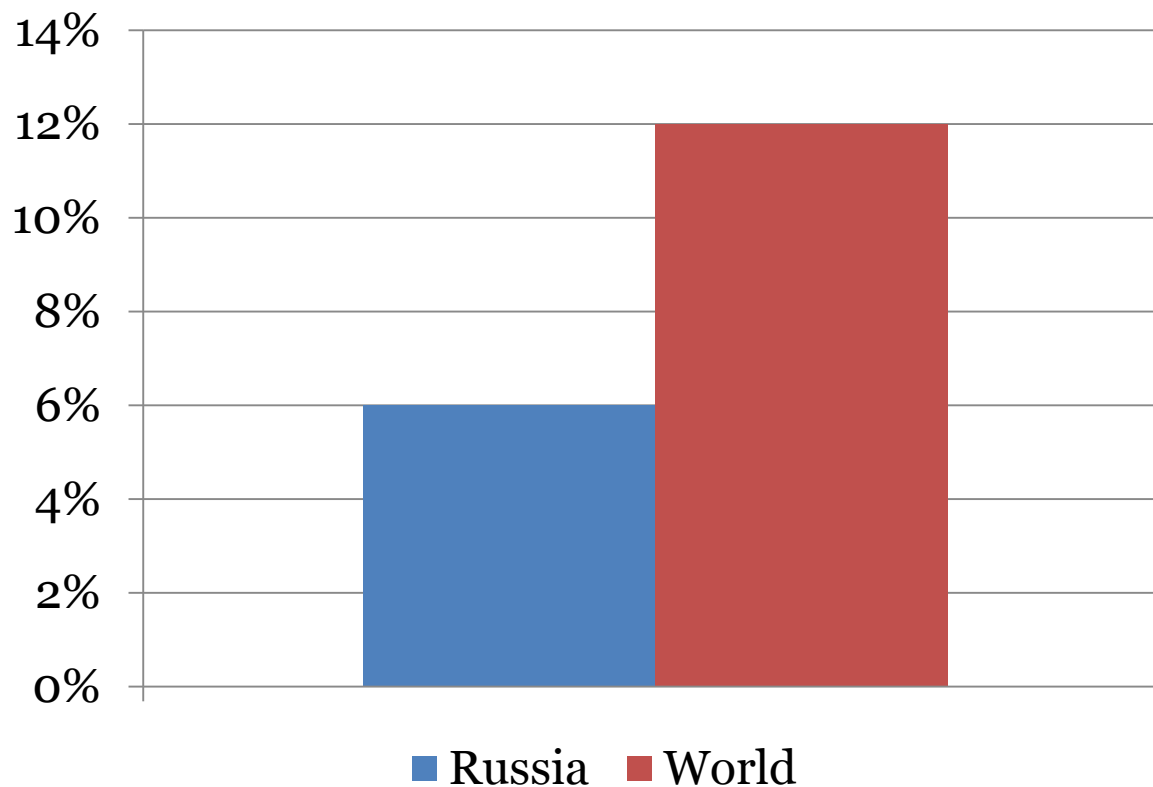
Structure domestic consumption of steel products in economic of Russia



Ferroalloys market of Russia and CIS



**Share of special and alloys steel in total steel production,
%%**



Ferroalloys market of Russia and CIS



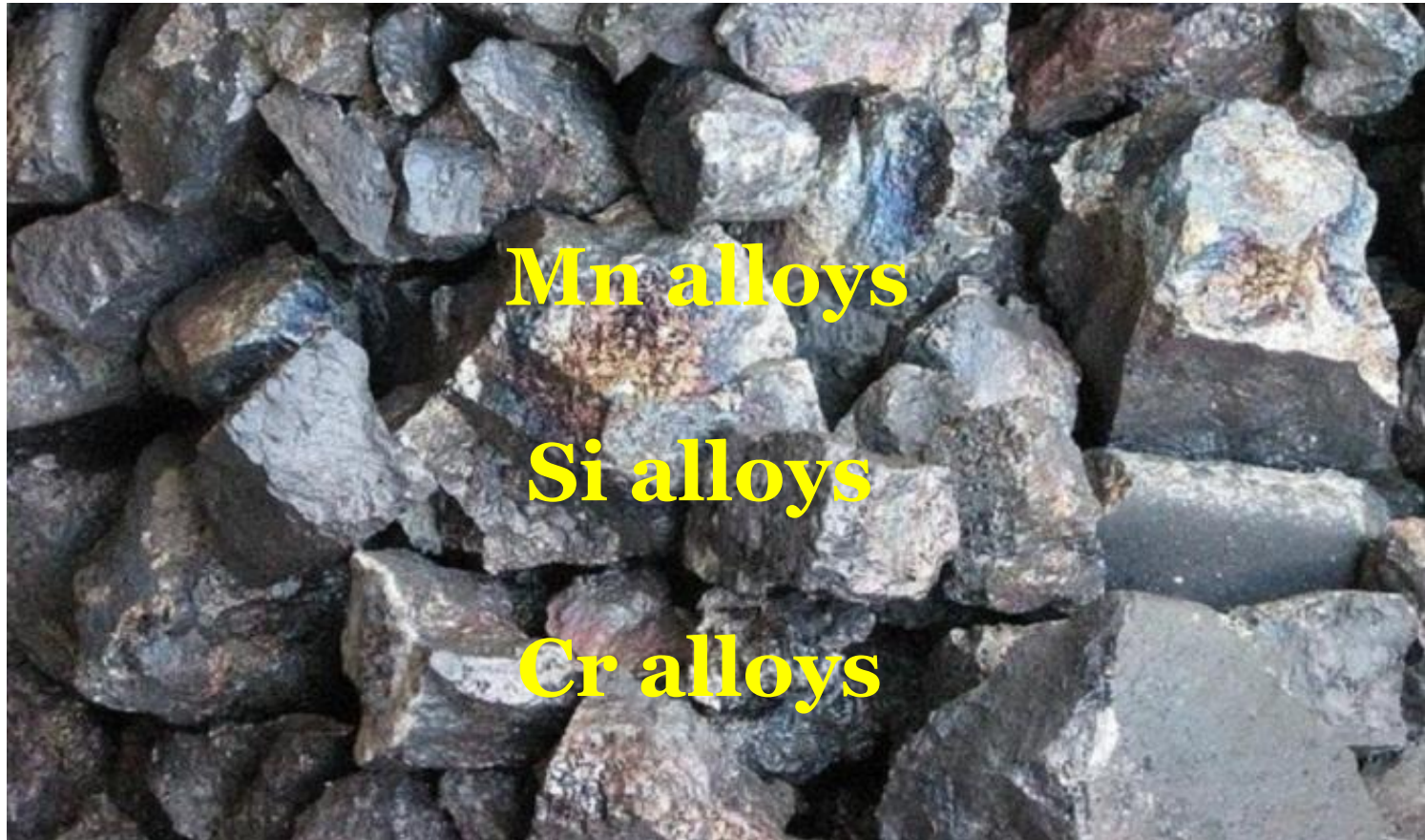
	 Production ferroalloys in Russia., th.mt									
	CHemk	Tihvin	Bratsk	NKMK	SGMK	Kluchi	CHEMK	Kosaya Gora	Satka	Total
FeSi	530		88	23,5			12			653,5
SiMn	150				45,5					195,5
FeCr HC	170	56,2								226,2
FeCr LC	210					3,9				213,9
FeMn	48							60	95	203
Total	1 050 (75%)	56,2	88	23,5	45,5	3,9	12	60	95	1490

Ferroalloys market of Russia and CIS



 Consumption ferroalloys in Russia, th.mt					
'000 mt	2012	2013	2014	2015	Consumption kg/mt steel
FeSi	203	196	182	165	2,35
SiMn	488	446	456	440	6,3
FeMn	157	151	153,9	160	2,3
FeCr	67	62	61	60	0,9
Total	957	835	832	802	11,8
Average consumption ferroalloys in the world				20 kg /mt steel	

Ferroalloys market of Russia and CIS



Ferroalloys market of Russia and CIS



Differences in Manganese Alloys

	HC FeMn	SiMn	Refined FeMn
Application	Extensively used in manufacturing normal steel and high-carbon steel	Mainly used as the compound steel-making deoxidization agent and alloying agent to produce steel	Important material for manufacturing stainless steel, heat resistant steel and electric welding electrodes
Production	85% produced in BF by integrated plants. Mini-mills use EAF for smelting.	Produced in EAF only either by mini-mills (75%) or integrated steelmakers.	Produced from HC FeMn via OBC route or SiMn via electrothermic route
Specification	- Mn 70-82% - C 8.0% max - Si 2.0% max - P 0.5% max - S 0.03% max	- Mn 57-75% - C 0.1-3.5% min - Si 10-35% - P 0.05-0.35% max - S 0.03% max	- Mn 75-85% - C 0.1-2.0% max - Si 2.0% max - P 0.15-0.35% max - S 0.03% max

- SiMn has a more diverse range of applications than FeMn and accounts for 59% of the global output of manganese alloys - SiMn is able to reduce oxygen from steel. This property makes SiMn a suitable substitute for FeSi in oxidation during the steelmaking process when the FeSi price is relatively higher than that of SiMn

Ferroalloys market of Russia and CIS

Mn alloys



Henry Bessemer

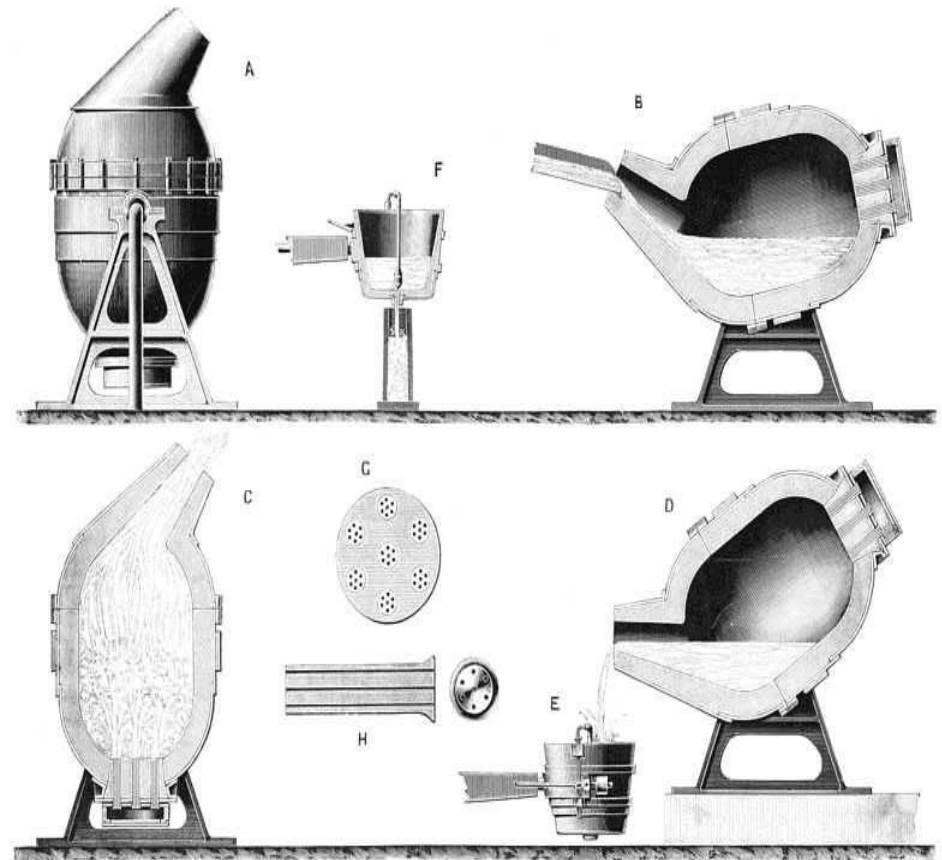


FIG. 43. THE FIRST FORM OF BESSEMER MOVEABLE CONVERTER AND LADLE

Ferroalloys market of Russia and CIS

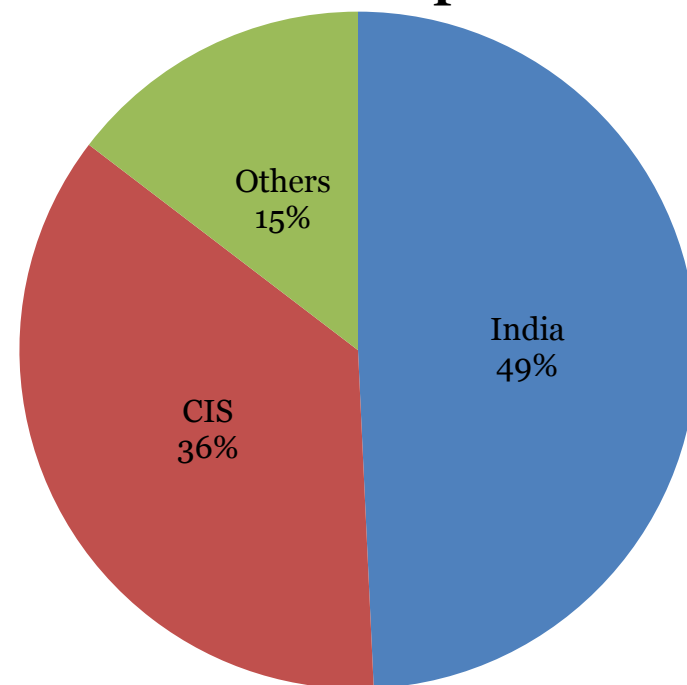
Mn alloys



World production of Mn alloys, 000' mt

	Production	Consumption	Export	Import
China	7 700	7570	17	--
India	1 916	1 185	731	-
CIS	1 370	834	536	-
EU	1 048	1 656	-	608
Japan	306	721	-	415
USA	126	568	-	442
Others	3869		200	
Total	17 200	17300	1484	1465

World export



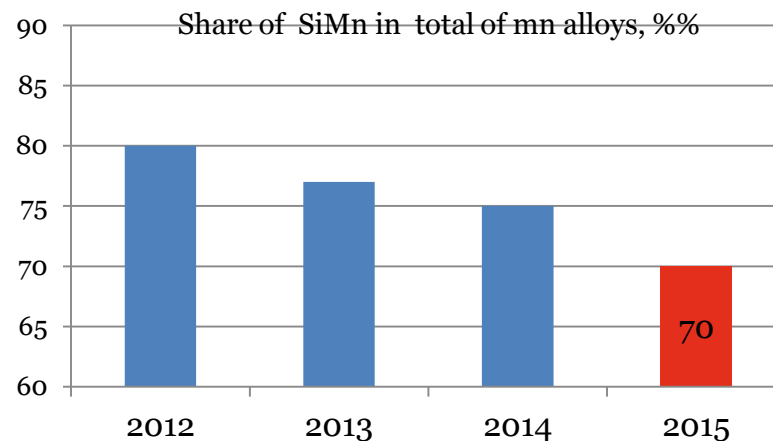
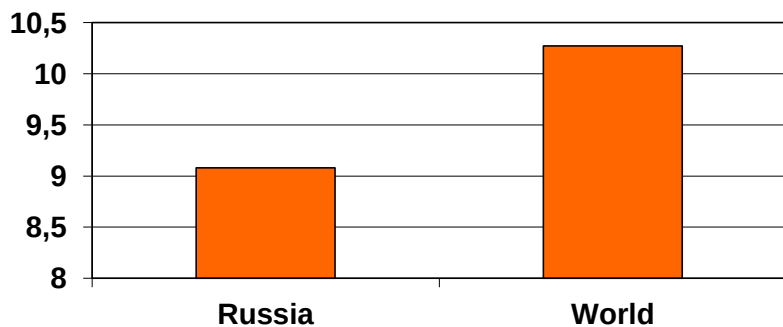
Ferroalloys market of Russia and CIS

Mn alloys



	Consumption Mn ferroalloys in Russia , mt/year					kg/mt steel
	2011	2012	2013	2014	2015	
SiMn	470 000	488 000	446 00	456 000	440 000	6,48
FeMn-78	140 000	142 000	151 200	140 000	150 000	2,35
LC-MC FeMn	12 500	15 000	19 500	13 900	13 000	0,25
Summ	622 500	645 000	631 700	609 900	603 000	9,08

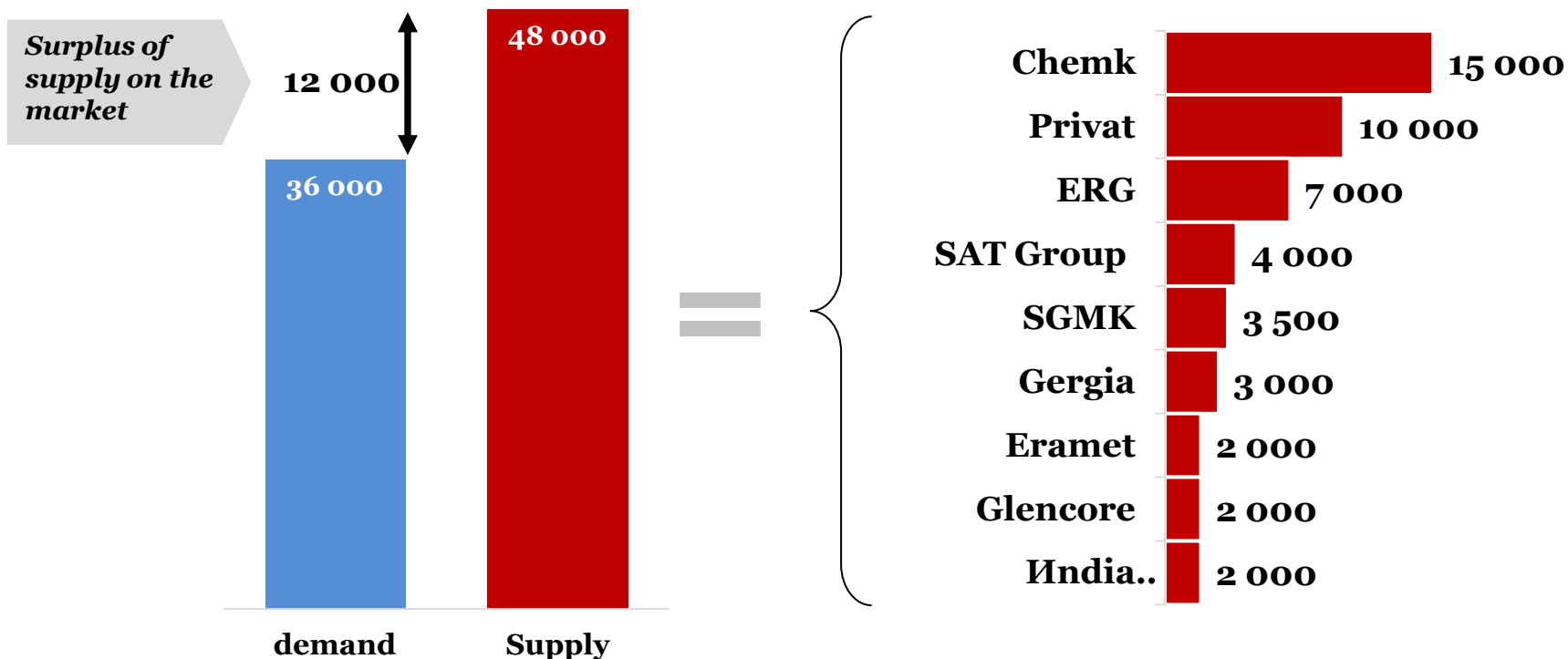
Consumption Mn alloys per 1 mt steel, kg



Ferroalloys market of Russia and CIS

Russian market of SiMn

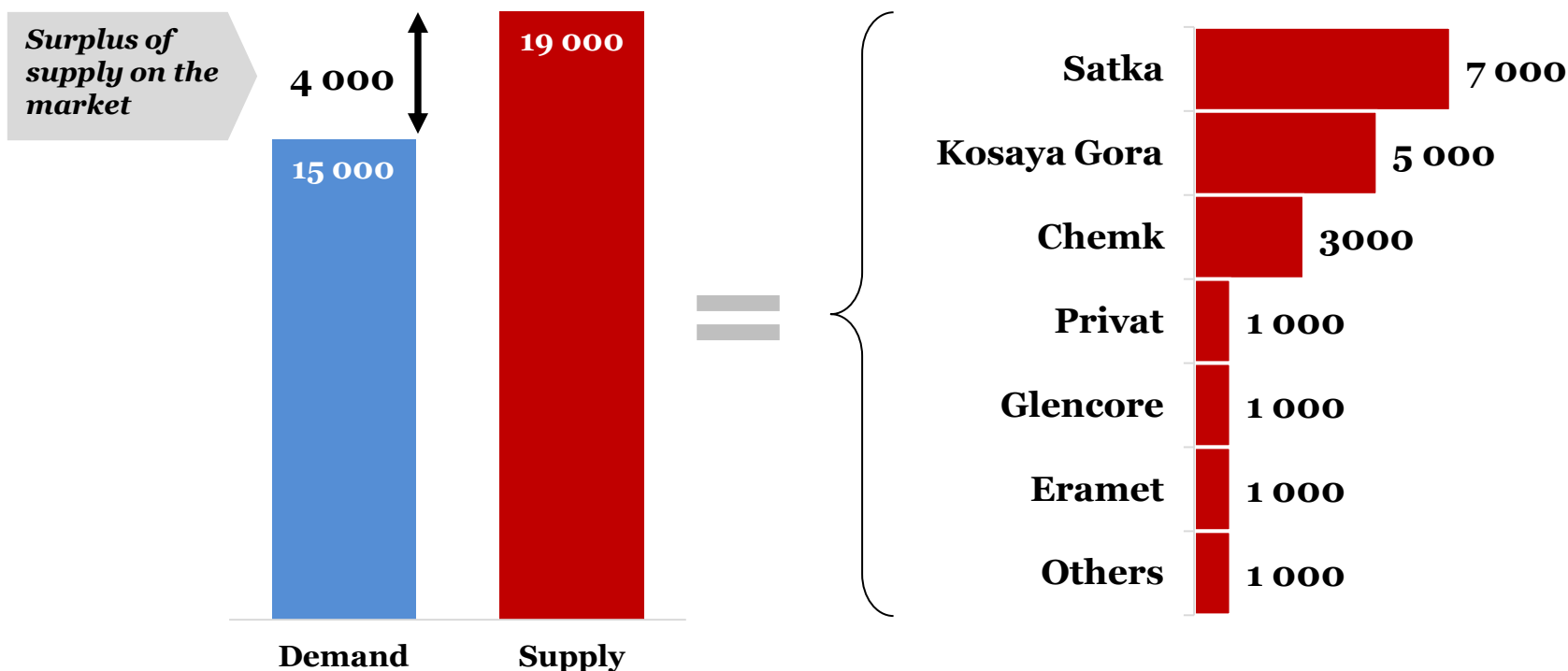
Balance and structure market supply , mt /month



Ferroalloys market of Russia and CIS

Russian market of FeMn

Balance and structure market supply , mt /month



Ferroalloys market of Russia and CIS

Ferrosilicon



	FeS-45	FeSi-65/75	FeSi without impurity
Usage	Extensively used in casting production	Mainly used as the compound steel-making deoxidization agent and alloying agent to produce steel	Is in steel-making d for eoxidization agent and alloying agent to produce steel (generally electrotechnic and rail steel
Production	100% is being produced in electro furnaces.	100% is being produced in electro furnaces.	100% is being produced in electro furnaces using special technology
Spec	- Si 42-46%% - C 0.2% max - P 0.05% max - S 0.02% max	- Si 63-76%% - C 0.1% max - P 0.04% max - S 0.02% max	- Si 63-76%% - C 0.05% max - Al 0.5% max - Ca 0,05% max - Ti-0,05%

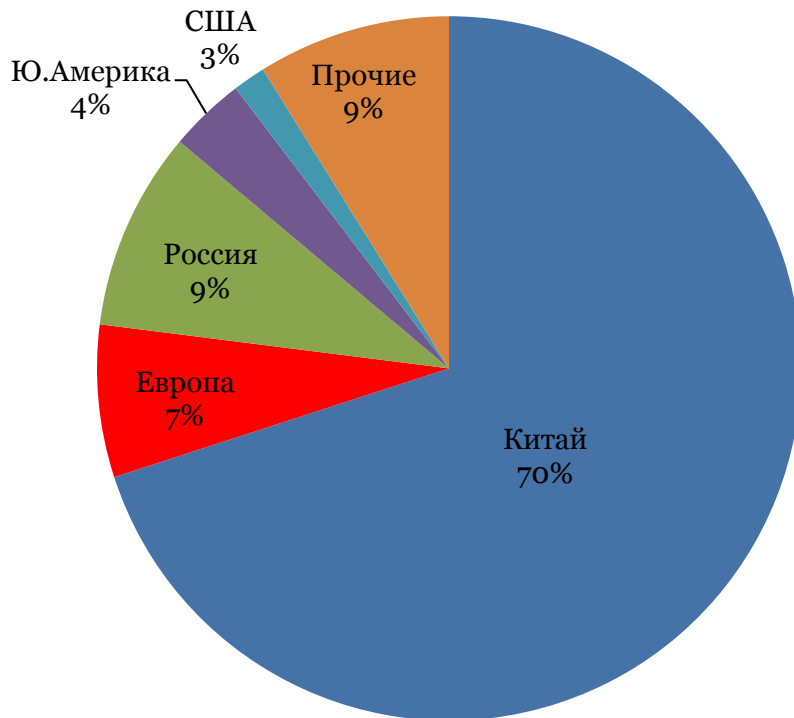
- FeSi-75 is the main speeded alloys among all FeSi. Cost of production and logistic is minimum per 1% Si

Ferroalloys market of Russia and CIS

Russia on the global FeSi market

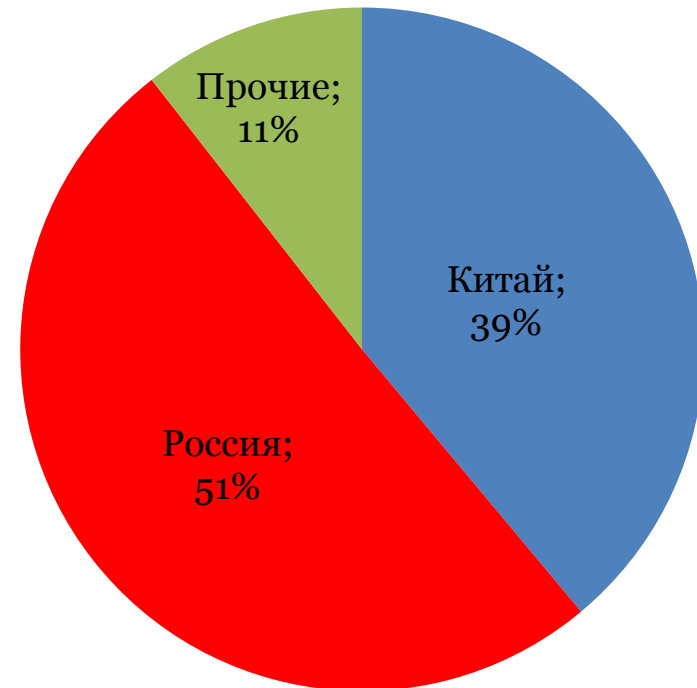


World production



Total world production is about
7,1 mio mt

World export



Total world export is about
950 000 mt

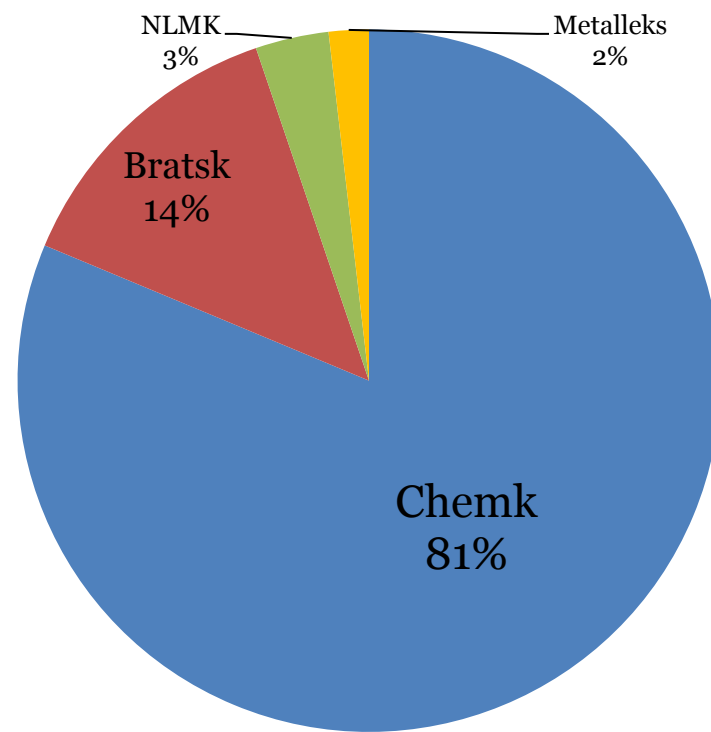
Ferroalloys market of Russia and CIS

Market of Fesi



Russian producers of FeSi

Producer	production mt
Chemk	530 000
Brats	88 000
NLMK	24 000
Metalleks	12 000
Total	653 000



Russian consumption is 165 000 mt per year or 2,35 kg/mt steel

Ferroalloys market of Russia and CIS

Ferrochrome



High Carbon C FeCr

Usage

- Extensively used in manufacturing stainless steel and using argon-oxygen decarburization

Production

- HC FeCr is produced in ore smelting electric furnaces

Spec

- Cr 60-68%
- C 9.0% max
- Si 2.0% max
- P 0.035% max
- S 0.03% max

Low carbon FeCr (FeCr 002-100)

- Extensively used in manufacturing Cr –alloys steel

- LC FeCr is produced in electric furnaces metallothermic method.

- Cr 65-72%
- C 0.02-1,00% min
- Si 1,5%
- P 0.03% max
- S 0.02% max

World production is about 10 mio mt

World production is 700 000 mt

Ferroalloys market of Russia and CIS

Ferrochrome



In 1913 Garry Brearly, experimenting with different types and properties of alloys, discovered the ability of steel with high chromium content to resist acid corrosion.

Ferroalloys market of Russia and CIS

Ferrochrome and stainless steel

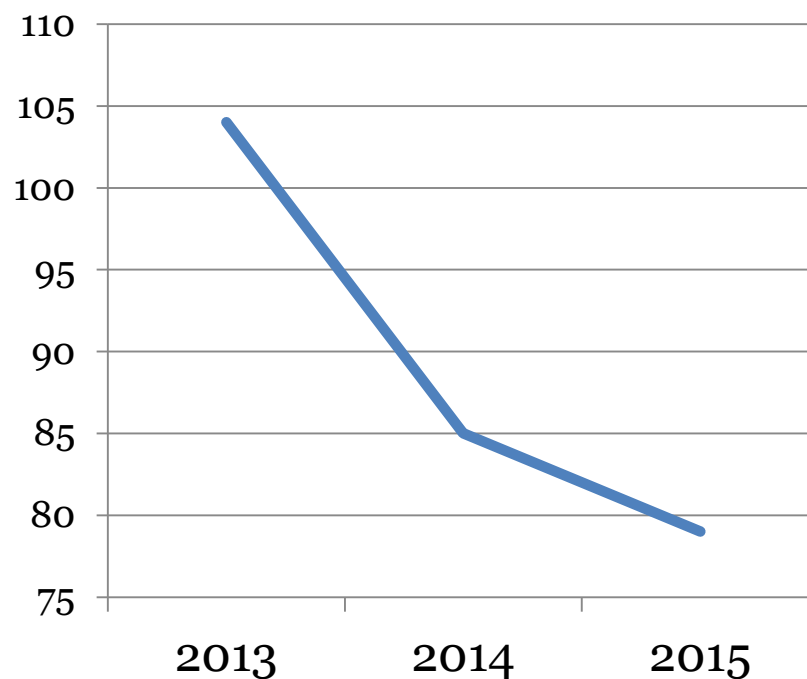


Producers stainless steel in Russia

Largest producers of SS in Russia

Предприятие	2013	2014	2015
Mechel	40 951	23 284	16 156
Red October	36 353	33 634	35 134
Zlatoust	11 152	13 793	16 715
Electrostal	10 843	10 548	8 235
Others	4 685	4020	3 476
Total	103 984	85 285	79 716

**Production SS in Russia,
000,mt**



Consumption SS in Russia is about 350 000 per year

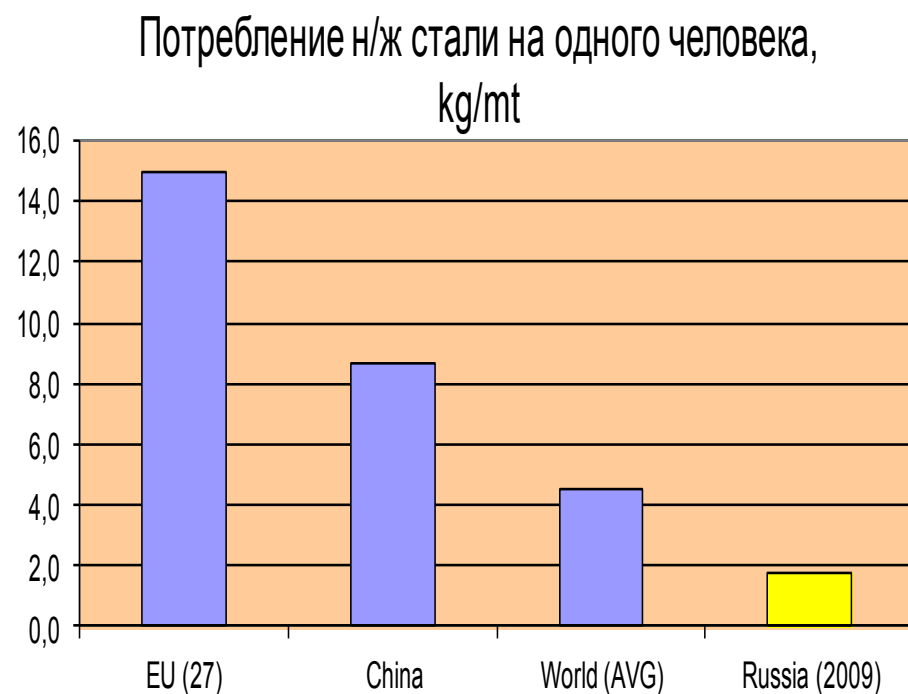
Ferroalloys market of Russia and CIS

Ferrochrome and stainless steel



Russia is lagging behind of developed countries in production and consumption of SS

Largest countries-producers of SS, 000 000'mt			
	Steel production in 2015	SS production	%%
China	798,3	21.564	2,70
Japan	105,15	3.062	2,912
EU	176,9	7,144	4,05
USA	78,8	2.783	3,5
S. Korea	69,6	2,224	3,18
Russia	70,3	0,79	0,11
World	1 566	42,19	2,69



Ferroalloys market of Russia and CIS Ferrochrome



Production HC FeCr

Company	Production, Mt	Consumption mt
Chemk	100 000	
Tihvin	60 000	
Total	160 000	45 000
ERG	1 500 000	

Total world production 10 mio mt

Production LC FeCr

Company	Production, mt	Consumption mt
Chemk	210 000	
Kluchi	3 900	
Novotroitsk	3 600	
Total	217 500	20 000
ERG	60 000	

Total world production is 700 th mt

Ferroalloys market of Russia and CIS.

Monopolization of the market. Threat for market.

SiMn

Consumption 36 тыс. тн/мес

Supply 48 тыс. тн/мес

FeMn

Consumption 15 тыс. тн/мес

Supply 19 тыс. тн/мес

FeSi

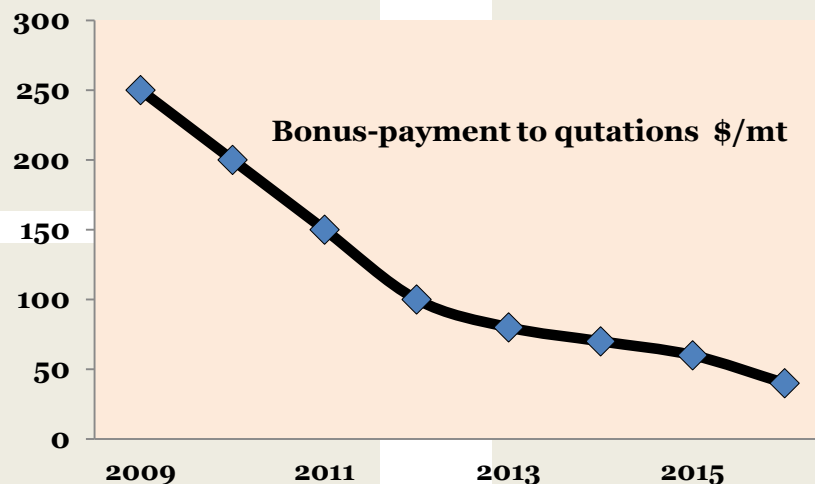
Consumption 14 тыс. тн/мес

Supply 20 тыс. тн/мес

FeCr

Consumption 4,5 тыс. тн/мес

Supply 8 тыс. тн/мес



Ferroalloys market of Russia and CIS

Monopolizm. Threats



Выводы

- Ферросплавная промышленность СНГ имеет серьезный авторитет на мировом рынке. Высокий уровень производственной базы, признанный мировой уровень достижений фундаментальной и прикладной науки в сфере ферросплавов.
ferroalloys industry of the CIS has a significant influence in the world market. High level of the production facilities, internationally acknowledged level of achievements in the fundamental and applied ferroalloys science.
- Российский рынок ферросплавов СНГ является одним из самых конкурентных в мире, где предложение значительно опережает спрос.
The Russian market of the CIS ferroalloys where the supply largely exceeds the demand is one of the most competitive in the world.
- Российский металлургический рынок в части логистики, платежеспособности и менеджмента является открытым для проникновения на него конкурентоспособных мировых компаний.
- Дальнейшее снижение цены будут лимитировано только себестоимостью производства и доставки ферросплавов у конкурентов.
The Russian metallurgical market in terms of logistics, creditworthiness and management is open for entrance of competitive world companies
- Себестоимость производства ферросплавов у крупнейших ферросплавных компаний СНГ конкурента с лучшими мировыми компаниями.
The production cost of ferroalloys offered by the largest ferroalloys producers from the CIS can compete with those of the best world producers.
- Дальнейшее изменение цены будет обусловлено экономической ситуацией на мировом металлургическом рынке, себестоимостью у конкурентов и валютными изменениями на развивающихся рынках.
The further price decrease is only going to be restricted by ferroalloys production and transportation costs of the competitors.

Ferroalloys market of Russia and CIS



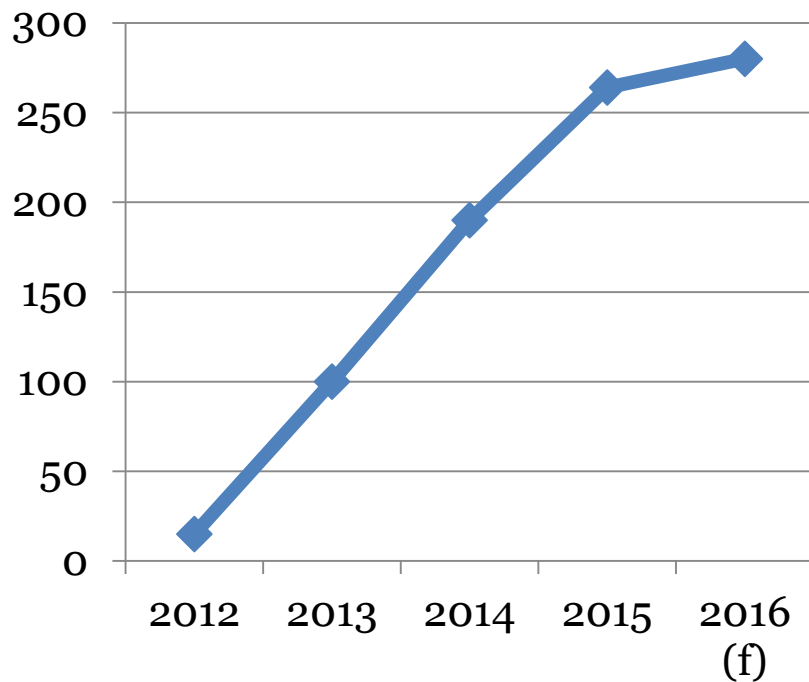
Our main products

	Наименование	Использование
	Iron ore	Сырье для производства чугуна
	Coal	Сырье для производства кокса
	Coke	Продукт для производства чугуна
	Pig iron	Продукт для производства стали
	Ferroalloys	Продукт для легирования и раскисления стали
	Cr – and Mn-ores	Сырье для производства ферросплавов

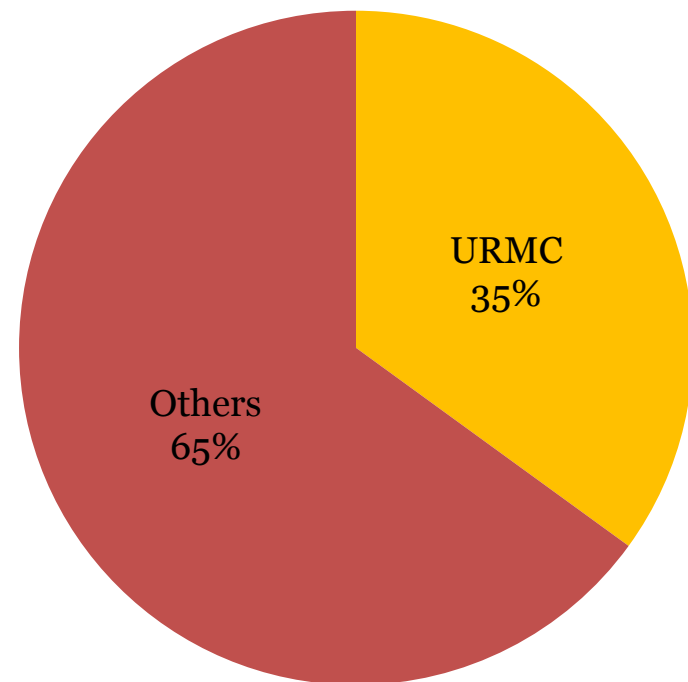
United Raw Material Company on market



**Sale of URMC to the market,
000' mt**



**Share of URMC to the market
%%**



www.urm-company.com
+7-495-780-04-65

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