## Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL INFORMATION</td>
<td>3</td>
</tr>
<tr>
<td>SALES STRUCTURE AND MAIN CUSTOMERS</td>
<td>4</td>
</tr>
<tr>
<td>ENVIRONMENT PROTECTION</td>
<td>5</td>
</tr>
<tr>
<td>CERTIFICATION AND MEMBERSHIP</td>
<td>6</td>
</tr>
<tr>
<td>LOCATION</td>
<td>7</td>
</tr>
<tr>
<td>GENERAL VIEW</td>
<td>8</td>
</tr>
<tr>
<td>PRODUCTION CAPACITY</td>
<td>9</td>
</tr>
<tr>
<td>OWN RAW MATERIAL SOURCE</td>
<td>10</td>
</tr>
<tr>
<td>PROCESS OF MANGANESE ALLOYS PRODUCTION</td>
<td>11</td>
</tr>
<tr>
<td>PROCESS OF FERRONICKEL PRODUCTION</td>
<td>16</td>
</tr>
<tr>
<td>PRODUCTS SPECIFICATION</td>
<td>21</td>
</tr>
<tr>
<td>KEY SUCCESS FACTORS</td>
<td>22</td>
</tr>
<tr>
<td>TOP MANAGEMENT PROFILE</td>
<td>23</td>
</tr>
<tr>
<td>CONTACTS</td>
<td>24</td>
</tr>
</tbody>
</table>
Company Skopski Leguri DOOEL (hereinafter: SL) is one of the fastest growing manufacturers of ferroalloys in Macedonia. The plant is a major exporter of ferroalloy production in the European Union, Balkans, USA, Turkey, the Middle East and CIS countries. Years of experience in the metallurgical market, combined with high quality products have allowed the plant to get the reputation of a reliable partner that can meet the demands of its customers. The main specialization of the plant is the production of manganese ferroalloys and ferronickel.

SL is located in Eastern Europe, in Skopje - Republic of Macedonia. The plant was built in the industrial zone of the city of Skopje and its production began in 1967 as part of the metallurgical complex "Rudnica and Zhelezarnitsa"

Since the buying of the plant in January 2005 significant funds were invested in reconstruction of furnaces, production facilities and infrastructure that were necessary for starting the production. In 2006, SL has been reconstructed for production of manganese ferroalloys (ferromanganese and ferrosilicomanganese). In 2008, the project for production of ferronickel was developed with its implementation in 2011.

Today SL is successfully developing a business that annually increases the production volumes and product range. The plant aims to increase its production through the use of new technologies and the introduction of new capacity.

Much attention is paid to protect the environment through energy efficient implementation of modern technologies.
The main consumers of manganese ferroalloys are steelmaking and casting producers, who use them for alloying and steel deoxidation in order to improve its properties such as resistance to heavy load, abrasion resistance (durability), etc.

Our clients include such global leaders as: **ArcelorMittal, Duferco S.A., Mechel, Voestalpine, Metinvest, ISD, US Steel, Celsa S.A., Feralpi Siderurgica S.p.A, Izmir Demir Celik San. A.S., Sidenor S.A. and others.**

Our marketing strategy involves the sale of products directly to end users in terms of increasing profitability and building long-term relationships with customers. It includes the diversification of the country and sales region, which is very important due to risk diversifying.

Long-term strategy predicts further vertical integration, strategic partnerships and the construction of warehouses in key regions in close proximity to major customers: **USA (Pittsburgh / Nola), Europe (Rotterdam, Genoa), MENA (Istanbul / Iskenderun, Jebel Ali), Ukraine (Odessa).**
ENVIRONMENT PROTECTION

One of the main priorities in the development of the plant is to protect the environment, to implement international standards for managing the environmental impact that is confirmed by received integrated environmental license A.

One of the main missions of the plant about environmental management is the consistent and systematic improvement of the environment through the implementation of the operating cycle of low-waste and resource-saving processes.

Production facilities of the plant are equipped with the gas cleaning systems of wet and dry gas cleaning stations, reducing the content of harmful substances to the standards required by law.

Plans for plant development include the construction of energy-saving installations.

The gases produced in the production process will be directed to the gas-generator plant for electricity production.
CERTIFICATION AND MEMBERSHIP

- Certification:
  - July 2010 - UKAS ISO 9001:2008 Certificate (Quality Management System) by Bureau Veritas Certification
  - October 2010 - UKAS ISO 14001:2004 Certificate (Environmental Management System) by Bureau Veritas Certification
  - October 2010 - OHSAS 18001:2007 Certificate (Occupational Health and Safety Management System) by Bureau Veritas Certification

- Membership:
  - IMnI - International Manganese Institute
  - Euroalliages - Association of European ferroalloy producers.

In July 2011, the plant successfully passed the first international audit and received confirmation of all certificates of Bureau Veritas.

REACH (European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals)
November 2010 - registration of basic chemical elements (Mn, Ni, Fe, Si, C) according to REACH in the European Chemicals Agency (ECHA).
SL is located in R. Macedonia, Skopje. Macedonia is one of the fastest developing countries in South-Eastern Europe, future members of EU. It has a business-oriented government, a stable macroeconomic and monetary environment, as well as a stable credit ratings: Fitch affirms Macedonia at BB+ (stable credit rating 2015) - Fitch BB. According to the World Bank's Doing Business 2016 Report, Macedonia is 2nd in Starting a Business, 12th in Ease Of Doing Business and the 7th in Paying Taxes. The country has a free trade zone with EU, EFTA, CEFTA, Turkey and Ukraine, and no import duties for USA and Canada markets, which provides access to more than 650 million customers. Macedonia has a strategic location at the intersection of 2 Pan-European corridors: Corridor VIII (Durrës - Elbasan - Skopje - Sofia - Plovdiv - Burgas - Varna) and Corridor X (Salzburg - Ljubljana - Zagreb - Beograd - Niš - Skopje - Veles - Thessaloniki). The plant has a adventitious location and the direct rail link with the Port of Thessaloniki, Greece, about 235 km from the plant.

Shipping Logistics:

- **Two Pan-European corridors:**
  «East-West Corridor VIII»
  «North-South transport corridor X»
- **Highways:** 9, 205 km
- **Railways:** 900km
- **Two international airports:**
  Skopje, Ohrid
- **International ports:**
  Thessaloniki (Greece): 250 km
  Durrës (Albania): 300 km
GENERAL VIEW

- Ready to start
- Possible to start (with partial repair)
- Under reconstruction

1. Stock Yard
2. Sinter plant
3. Rotary kilns
4. Smelting Workshop
5. Finished goods warehouse
PRODUCTION CAPACITY

At the present time the plant is fully prepared to launch two production lines:

1. One for smelting manganese alloys (silicomanganese hereinafter SiMn and high-carbon ferromanganese hereinafter HCFeMn),
2. One for smelting nickel ferroalloys (hereinafter FeNi).

Each of production lines includes Electric Arc Furnace (hereinafter - EAF), which will be ready to start in 60 days after decision on financing:

EAF No. 1 – up to 3 000 tons of nickel (FeNi) per year (ready for switch on)
EAF No. 4 – up to 55 000 tons of SiMn or HCFeMn per year (ready for switch on)
EAF No. 2 and EAF No. 3 – up to 40 000 tons of SiMn or HCFeMn each (possible to start with partial repair)

In future, the development concept of the plant involves the reconstruction of all existing production lines, providing increase in capacity, installation of wet gas cleaning, two belt-type casting machines and construction of energy-saving section with «MAN Diesel & Turbo» equipment:

EAF No. 5 - to 90 000 tons SiMn or HCFeMn per year (reconstruction plan, stage 1);
EAF No. 4 - up to 90 000 tons SiMn or HCFeMn per year (reconstruction plan, stage 2);
EAF No. 2 - 9 000 tons nickel FeNi per year (reconstruction plan, stage 3);
EAF No. 3 - to 90 000 tons SiMn or HCFeMn per year (reconstruction plan, stage 4).

The plant specialists are constantly studying international experience on introduction of new technological ideas and solutions that aimed at improving the efficiency and competitiveness in the global market.
In May 2013 a contract was signed on concession for exploitation of manganese ore deposit Stogovo for period of 30 years, with possibility of extension for another 30 years. Manganese ore deposits Stogovo is located in the south-western part of Macedonia, 140 km from Skopje.

The project is currently in the stage of completion of the access road to the mine (length 13.5 km, completed 80%) and from the 2nd half of 2016 the mine will be ready for exploitation. Reserves in Stogovo consist of two types of ore - mainly oxide and mixed ores with manganese content above 23% for the purposes of direct use in the metallurgy (without enrichment) and mixed carbonate manganese ore containing 16% -23% for the purposes of use in the metallurgy with pre-enrichment.

Proved reserves in Stogovo (9.036 MIO tons) ensure functioning of the mine for 59 years. There are four fields allocated in the deposit (from west to east - Uzhinita, Babyn Srt, Kara Dere and Vrbyansko), at a distance of 0.5 km to 1.5 km from each other.

Mining operations will be carried out with minimal open pit surface stripping ratio 0.45 - 1.35 m3/t, providing a relatively low mining cost. Using own mine, in the first stage will reduce purchases of Mn ore at 25-30%, and will also reduce the cost of the finished product (SiMn).

Planning own raw materials base, other question arises. It is about obtaining a concession for deposit of quartzite, which is an integral part of the structure of raw materials in the production of silicomanganese.
PROCESS OF MANGANESE ALLOYS PRODUCTION

Technological scheme of manganese alloys production

1. Stock Yard
   - Acceptance of raw materials, storage
   - Preparation and transportation
   - Quality control

2. Sinter Plant
   - Production of agglomerate
   - Transportation of charge materials to EAF No. 4

3. Smelting Workshop
   - Production of manganese alloys
   - Tapping and casting in molds
   - Weighing
   - Transportation to the warehouse

4. Finished Goods Warehouse
   - Crushing and screening
   - Preparation for shipment
   - Quality control
   - Shipment of finished products
All raw materials (ore, coke, quartzite, limestone) necessary for the production arrives at the Stock Yard, which is providing acceptance, and preparation of all raw materials. Plant may take any fractional composition of raw materials because equipment if the Stock Yard allows crushing and screening. Quantity control of received raw materials is made on certified rail and truck scales. Sampling for quality control of arriving raw materials is made directly when unloading by Quality Control Department in accordance with ISO standards, then analyses in the Plant Laboratory follows, with periodic monitoring by an independent certified laboratory.

Stock Yard Equipment:

- Covered storage for coke consisting of 144 bunkers with a total capacity of 15,000 tons
- Cone crusher (140 t/h) with 15 radial bunkers with a total capacity of 1,000 tons
- Jaw crusher (150 t/h) for crushing reusable scraps and slag
- Two overhead hopper cranes, with carrying capacity 30 tons
- Open warehouse for storage of raw materials, the total capacity of 400,000 tons
- System of belt-type conveyors with a total length of 13.5 km and a capacity of 600 t/h with remote control system
After preparation of manganese ore it goes in Sinter Plant, designed by the French company DELLATTRE LEVIER / CRESOT-LOIRE.

Sintering machine Dwight-Lloyd is designed with production capacity of 35 t/h (240 000 tons sinter per year), with total length of 45.8 meters.

The principle of operation of agglomeration is sintering ore fines using heat from the combustion of liquid fuel and coke fines under vacuum.

It should be underlined that not many ferroalloy producers have Sinter plants as part of the factory.

Having a sintering plant gives SL the opportunity to use cheaper (compared to fraction 10-80mm) ores, as fraction 0-10 mm, which cannot be used directly in the production of ferroalloys without any prior preparation (agglomeration, briquetting, pelletizing) due to high losses in the production process.
Prepared raw materials (sinter, coke, quartzite or limestone) through the belt conveyors and the weighing device are passed to the smelting department which includes a EAF with transformers power of 45 MVA (EAF No.4), two casting cranes with a load capacity of 125 tons and a ladle lining section.

EAF No.4 is intended for the production of manganese alloys: ferrosilicomanganese and high-carbon ferromanganese with annual production capacity of 55,000 tons.

The furnace is equipped with a wet gas cleaning system «Tajzen» (two units per furnace). Metal obtained by the melting process and ore reduction is tapped from the furnace in lined ladles and with a crane is casting into molds that are installed on the railway platforms.

Quality control of manganese alloys is performed by sampling directly when casting, followed by analysis in Plant Laboratory.

After metal in the molds is cooled, it is weighed and transported to Finished Goods Warehouse.
Finished Goods Warehouse, includes two crushing and screening complex DSC-1 (30 t/h) and DSC-2 (80 t/h) with a total annual production capacity of 350,000 tons, it also includes two overhead cranes with capacity of 16 and 20 tons, packaging equipment and storage areas. Storing platforms can accommodate up to 15,000 tons of finished products and have concrete bunkers for separate storage of ferroalloys, depending on the quality and range.

**Technological scheme:**

- Cooled metal, fraction 350-500 mm is loaded in bunkers
- Primary crushing on a jaw crusher to a fraction 150-200 mm
- Secondary crushing to fractions 50-80 mm
- Screening on a vibrating screen with 3 rows of screens 3, 10 and 50 (80) mm
- Getting fractions 0-3 mm, 3-10 mm, 10-50 mm and 50-80 mm. Preparation for shipment (packaging), quality control.
PROCESS OF FERRONICKEL PRODUCTION

Technological scheme ferronickel production

1. Stock Yard
   - Acceptance of raw materials, storage
   - Preparation and transportation
   - Quality control

2. Rotary Kiln
   - Production of calcine
   - Transportation of charge materials to EAF No. 1

3. Smelting Workshop
   - Production of ferronickel
   - Tapping metal and slag
   - Slag granulation

4. Installation for FeNi granulation
   - Ferronickel granulation
   - Packing in soft containers
   - Quality control
   - Shipment of finished products

SKOPSKI LEGURI DOOEL
... guarantee for your success
PROCESS OF FERRONICKEL PRODUCTION - STOCK YARD

All raw materials (nickel ore, coke/anthracite, limestone) necessary for ferronickel production arrives at the Stock Yard, which is providing acceptance, storage and preparation (crushing and screening) of all raw materials. Quantity control of received raw materials is made on certified rail and truck scales. Sampling for quality control of arriving raw materials is made directly when unloading by Quality Control. Department in accordance with ISO standards, then analyzes in the Plant Laboratory follows, with periodic monitoring by an independent certified laboratory.

Stock Yard Equipment:

- Covered storage for coke consisting of 144 bunkers (3 rows with 48 bunkers) with a total capacity of 15,000 tons.
- Hammer crusher (250 t/h) for nickel ore crushing.
- Two overhead hopper cranes, with carrying capacity 30 tons.
- Open warehouse for raw materials, the total capacity of 150,000 tons.
- System of belt-type conveyors with a total length of 13.5 km and a capacity of 600 t/h with remote control system.
② Prepared nickel ore, anthracite and limestone comes to calcining in the **Rotary Kiln (RK)** which is designed for getting “calcine” for the production of ferronickel.

Capacity of one RK is 35 t/h (250 000 tons per year). RK has belt conveyors; it is 96 meters long and has a diameter of 4.2 meters. It also has oil burner (planned replacement of a combined burner with 4 fuels (produced by Fives Pillard), warm charge bunker and steam generator for heating oil).

The length of the rotary kiln allows reaching pre-reduction of Ni, which further reduces the power consumption in EAF (for one ton of ferronickel).

RK has a gas cleaning system consisting of cyclones and bag filters.
Prepared calcine in RK, temperature up to 900°C is transferred in the Smelting Workshop on EAF No. 1. EAF No.1, with transformer capacity of 34.5 MVA for the production of ferronickel is constructed for an annual output of 3,000 tons of pure nickel.

The furnace is equipped with 9 storage bunkers, lined with refractory material, charge tubes for feeding material into the melting area of the furnace and wet gas cleaning system. Tapping of metal and slag is separated. Ferronickel slag is granulated under running water and is transported through special channels in two concrete pools.
Ferronickel tapping is in lined preheated ladles and is transferred to casting.

Casting of metal (ferronickel) is made on a section for granulation with a capacity of 35 t/h.

This section for granulation has own pump station with a closed water cycle, as well as its own hydraulic unit.

There is collecting bunker for granulated metal in the end.

After cooling, ferronickel is packed in soft big-bags or containers.
### PRODUCTS SPECIFICATION

**Ferrosilicomanganese SiMn**

<table>
<thead>
<tr>
<th>Element</th>
<th>Standard</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mn</td>
<td>65% min</td>
<td>66-67%</td>
</tr>
<tr>
<td>Si</td>
<td>15% min</td>
<td>16%</td>
</tr>
<tr>
<td>C</td>
<td>2,0 max</td>
<td>1.2-1.7%</td>
</tr>
<tr>
<td>P</td>
<td>0.1 – 0.5%</td>
<td>0.15-0.25%</td>
</tr>
<tr>
<td>S</td>
<td>0.03% max</td>
<td>0.02%</td>
</tr>
</tbody>
</table>

**Size, mm:** 10-80, 10-50, 3-10, 0-3

**Packing and shipping:** in bulk, big-bags or containers

**Quantity per month:** 4000 - 4500 tons

**Ferromanganese FeMn**

<table>
<thead>
<tr>
<th>Element</th>
<th>Standard</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mn</td>
<td>75% min</td>
<td>76-77%</td>
</tr>
<tr>
<td>Si</td>
<td>2% max</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>C</td>
<td>7,0 max</td>
<td>6.7%</td>
</tr>
<tr>
<td>P</td>
<td>0.1 - 0.3%</td>
<td>0.1 - 0.2%</td>
</tr>
<tr>
<td>S</td>
<td>0.03% max</td>
<td>0.02%</td>
</tr>
</tbody>
</table>

**Size, mm:** 10-80, 10-50, 3-10, 0-3

**Packing and shipping:** in bulk, big-bags or containers

**Quantity per month:** 4000 - 4500 tons

**Ferronickel FeNi**

<table>
<thead>
<tr>
<th>Ni,%</th>
<th>Co,%</th>
<th>Si,%</th>
<th>C,%</th>
<th>P,%</th>
<th>S,%</th>
<th>Cu,%</th>
<th>Fe,%</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-15</td>
<td>1.5</td>
<td>3.2</td>
<td>2.5</td>
<td>0.1</td>
<td>0.3</td>
<td>0.04</td>
<td>balance</td>
</tr>
</tbody>
</table>

**Size, mm:** 4-30

**Packing and shipping:** in bulk, big-bags or containers

**Quantity per month:** 3000 - 3500 tons
KEY SUCCESS FACTORS

- The company operates on the ferroalloys market more than 9 years, reliable customer base;
- Highly qualified management team with solid experience in ferroalloys production;
- Lowest taxes in Europe; liberalized electricity market;
- Company has favorable location and it is close to ports: Thessaloniki, Greece and Durres Albania, all-season navigation;
- Own manganese ore reserve of 9.036 MIO tons;
- Low cost and high skilled work force;
- Working according ISO 9001:2008, ISO 14000 and OHSAS 18000 standards, and having REACH certificate for quality;
- Company is member of IMI (International Manganese Institute) and Euroalliages;
- Excellent and well established sales network, above 90 % of contracts get final consumers;
- Dynamic development of infrastructure and access to several main European corridors (corridors VIII and X);
- Macedonia has Free Trade Agreement with CEFTA, EFTA, Ukraine, Moldavia and Turkey, and no import duties for USA and Canada markets;
TOP MANAGEMENT PROFILE

Denis Kornienko – CEO
Education: Zaporizhia State Technical University, Faculty: Engineering-Physical (ferrous and nonferrous metallurgy)
Specialty: Engineer of Metallurgy
Zaporizhia State Engineering Academy, Faculty: Economics of enterprises, Specialty: Economist (postgraduate degree)
Experience: 14 years in ferroalloys business (in Skopski Leguri since 2006, last position: CFO) PJSC “Zaporozhye Ferro Alloys Plant”, Zaporozhye, Ukraine (31 furnaces; annual production 430,000 mt)
last position: Deputy Head of production department Foreign Investment Council (Economic Chamber of Macedonia) Vice president 2010 -2012

Aneta Vasileva – Mirchovska – CFO
Education: Faculty of Economy, Ss. Cyril and Methodius University, Skopje, Macedonia
Certificate for authorized accountant
Experience: 10 years in finance (in Skopski Leguri since 2007, last position: Head of budget and analysis department)
Electricity materials and equipment trading company “Elektroelement”, Skopje, Macedonia
last position: Financial analyst
Accounting company “EKO-ES” PPY, Skopje, Macedonia

Viktor Belan – CTO
Education: Zaporizhia State Engineering Academy, Specialty: Engineer of Metallurgy
Experience: 49 years in ferroalloys business (in Skopski Leguri since 2011)
PJSC “Zaporozhye Ferro Alloys Plant, Zaporozhye, Ukraine
last position: Deputy CTO

Vadim Melnik – Development and Maintenance Manager
Education: Donbas Mining and Smelting Institute, Alchevsk, Ukraine, Specialty: mechanical equipment in metallurgical plants
Experience: 19 years in ferroalloys business (in Skopski Leguri since 2011)
JSC Stakhanovskiy zavod ferosplavov, Stakhanov, Ukraine (8 furnaces; annual production 250,000 mt)
last position: Deputy chief engineer for equipment repair