ENGINEERING FOR A NEW SINTER PLANT IN UKRAINE
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THE CHALLENGE
The fully integrated steel making company PJSC Yenakiieve Iron and Steel Works (EMZ) decided to improve its production and environmental situation by building a new sinter plant according to the highest standards, equipped with highly efficient offgas cleaning and de-dusting facilities. To achieve these targets, Primetals Technologies was selected as a supplier. The project was split into three stages: basic engineering, selected detail engineering, and procurement and construction. While the first two stages have already been completed to the client’s complete satisfaction, the third stage can only be realized after the political situation has stabilized.

THE SOLUTION
In order to achieve high productivity and the required sinter quality, the sinter plant is designed with the latest Primetals Technologies developments to produce sinter according to the highest standards, equipped with highly efficient offgas cleaning and de-dusting facilities. To achieve these targets, Primetals Technologies was selected as a supplier. The project was split into three stages: basic engineering, selected detail engineering, and procurement and construction. While the first two stages have already been completed to the client’s complete satisfaction, the third stage can only be realized after the political situation has stabilized.

THE CUSTOMER
Name. PJSC YENAKIEVE Iron & Steel Works
Location. Enakievo, Donetsk, Ukraine
PJSC YENAKIEVE Iron & Steel Works is one of the leading Ukrainian fully integrated steel making companies being a part of Metinvest Group Metallurgical Division. Yenakiieve Steel produces a wide range of metal products: concast, billets, angles, channels, beams, shapes for ship building and engineering industry and rebars for construction sector. The overall steel production of Yenakiieve Iron & Steel Works results to 2,5Mt/year.

THE SOLUTION
In order to achieve high productivity and the required sinter quality, the sinter plant is designed with the latest Primetals Technologies developments to produce sinter for high performance of the blast furnace and ensure a low environmental impact from the sinter offgas. The plant is equipped with the following unique Primetals Technologies:
- IMGS® Intensive mixing and granulation system
- Grate-wings pallet cars
- Selective waste-gas recirculation system
- Ignition furnace with a roof burner system
- Circular dip rail cooler with grate-wings cooler troughs
- MEROS® off-gas cleaning system
- Secondary plant de-dusting (PT pulse-jet filter)

SCOPE OF SUPPLY
- Process and plant engineering
- Basic engineering (including input for approval by Ukrainian authorities)
- Selected detail engineering

ACHIEVED RESULTS
- Low environmental impact (major improvement over current emission levels)
- High sinter quality
- High performance
- Improved efficiency
- Maximum system and plant availability at low maintenance costs
- High flexibility in raw material selection

PLANT TECHNICAL FEATURES
- Sintering area 450 m²
- Cooling area 440 m²
- Off gas volume to stack ca. 594,000 Nm³/h
- Recirculation-gas volume ca. 530,000 Nm³/h
- Hot air from cooler ca. 92,000 Nm³/h
- Screening and crushing Cascade chute, roller crushe, screens
- Off gas cleaning MEROS® - soda process
- Plant de-dusting PT pulse-jet filter
- Fuel for the ignition furnace Mixed gas (natural gas 99Vol% + BF gas 1Vol%)

PRODUCTION DATA
- Sinter production 4.3 mtpy
- Discharge temperature after cooler ≤ 130°C
- Under-size (< 5 mm) max. 5%
- Over-size (> 50 mm) max. 5%
- TI (ISO) ≥ 70%

EMISSION DATA
- Dust ≤ 20 mg/Nm³ (dry)
- SO₂ ≤ 500 mg/Nm³ (dry)
- NO₂ ≤ 300 mg/Nm³ (dry)
- PCCD/F ≤ 0.1 mg/Nm³ (dry)
- Plant de-dusting efficiency ≤ 20 mg/Nm³ (dry)
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