Co-grinding of waste pellets in a vertical roller mill with coal

The application of vertical roller mills for the comminution of coal in pulverized fired power plants, cement plants or pulverized coal injections plants at steelworks is state of the art and well established. Due to the ambition to reduce the carbon dioxide emissions to decrease/slow the global warming the substitution of coal with carbon neutral fuels in processes which require combustion is expedited all over the world – especially in industrial nations.

Typically the operating companies are trying to achieve CO_2-neutral substitution without big changes of the equipment to minimize the impact on the complete existing process and the related challenges of a complex overhaul. In case of pulverized fuel preparation they intend to use the existing pulverizers like vertical roller mills for the preparation of the fuel instead of installing mills especially for 2nd fuel preparation and the necessary downstream equipment. Hence co-grinding is an obvious and reasonable option for the fuel preparation.

LOESCHE as a supplier of vertical roller mills has performed various trials to analyze the impact of co-grinding on mill capacity, particle size distribution of main and 2nd fuel and the ideal mill parameters. Subsequently to understand and determine the comminution of the 2nd fuel inside the grinding bed. Recently the focus of these trials was the co-grinding of coal/pet coke with waste pellets because the request by operating companies to use refuse derived fuels in a vertical roller mill increased. These trials were mostly performed on LOESCHE´s test center mill but as well on an industrial in a cement plant.

The trials have shown that co-grinding waste pellets reduces the mill capacity as predicted because of their lower bulk density which has a direct effect used in an air-swept mill. On the other hand they have shown that a comminution effect is visible and measurable in comparison to the original particle size of the waste before pelletizing.