

The first acidless pickling (aka EPS processing) line in Russia from Red Bud Industries

In 2018, Red Bud Industries put in operation an acidless pickling line for steel coils at the Metall Profil Company's facility in the Moscow Region.



Hot rolled steel strip after EPS pickling

In the flat rolled steel industry, acid pickling is used to remove mill scale from the surface of hot rolled coils to prepare them for further processing. Mill scale is comprised of iron oxides which form as a result of interaction between the hot steel surface and oxygen in the air. This occurs during the hot rolling process and subsequent cooling of the strip. The hydrochloric acid of acid pickling chemically reacts with the oxides, removing them from the strip. But the acid has a negative impact on the environment and personnel health, and it also poses difficulties for the processor – storage, handling and disposal of harmful chemicals. In addition, acid pickling may, in some cases, deteriorate the mechanical properties of the steel.

A process known as slurry blasting has been developed as an alternative to acid pickling. This process is called EPS (Eco Pickled Surface) and was developed in the USA by The

Material Works, Ltd., a processor of flat rolled steel. The EPS process is a direct replacement of traditional acid pickling for all grades of flat rolled steel products. The EPS technology is eco-friendly and produces a clean, scale-free, corrosion-resistant surface without using any hazardous chemicals. Here is how EPS works: In the slurry blasting process, angular grit is mixed with normal water to create the slurry solution. The slurry is pumped into rotating turbine wheels which propel it onto the surface of steel strip. The turbine wheels continuously 'blast' the slurry against a moving steel strip, thus removing scale. Worn grit and removed scale are discharged from the system and can be disposed of as steel scrap. The slurry also contains an additive which makes the steel resistant to corrosion, so it does not require the customary application of oil to protect the surface.

Red Bud Industries is a US manufacturer of coil processing equipment that supplies EPS processing lines as complete solutions for eco-friendly acidless pickling of hot rolled strip. With almost 60 years in business and hundreds of steel processing systems installed worldwide, Red Bud Industries has developed a reputation as a reliable, competent supplier. Therefore, when Metall Profil Company decided to establish a pickling process in their production facility, they chose Red Bud Industries and EPS technology. Metall Profil's Chief Technology Officer, Mr. Alexander Guk, said, "Red Bud Industries was a responsible partner throughout the project implementation process. We had a positive experience with them handling the technical aspects of the project, as well as fulfilling all of the contractual obligations and resolving commercial matters."

Metall Profil Company is a leading manufacturer of light gage roofing and wall panels with 20 years of experience and numerous production facilities across Russia and the CIS. The Metall Profil EPS pickling line was officially put into operation in 2018. Its major advantage is it has no adverse effects on the environment, and this allowed placement of the line in Metall Profil's facility near Moscow.

Also, the EPS line has a smaller footprint and less complicated technology than an acid pickling line of the same capacity. The heart of the line is the EPS 'cell' which consists of a chamber containing the turbine wheels and a matched water filtration system. Depending on the customer's production needs, the line can be equipped with several EPS cells – for example,

Steel coils before (front) and after (rear) EPS pickling



Metall Profil's EPS pickling line has two cells.

The Red Bud Industries' equipment runs non-stop around the clock, achieving its stated design capacity. The quality of the steel strip surface after EPS processing is superior to acid pickled strip. This has been observed by Metall Profil specialists and confirmed by representatives of leading Russian steel mills who had the chance to observe the line in operation and inspect the product.

In Mr. Guk's opinion, EPS-processed strip steel has numerous advantages for further downstream processing of the steel. He states that it also provides for higher quality of finished products made from the steel. In addition, as mentioned above, EPS-processed coils do not need oiling and can be stored indoors for months without rusting. This helps to cut costs and simplify subsequent processing. Mr. Guk confirms: "Our Red Bud Industries' EPS Coil Line has totally lived up to our expectations."

Red Bud Industries manufactures the EPS processing lines to pickle steel strip in both coil and sheet configurations. An EPS Coil Line normally includes a Coil Stage and Load System, Coil Car, Uncoiler, Scale Breaker, EPS Cells (the number of cells is determined by the capacity requirements) with Filtration System, Automatic Line Speed Control, an Air Drying Unit, Recoiler, and Exit coil discharge units. The length of a two-cell line is

The Metall Profil EPS line for environmentally friendly pickling

40 meters with length of each EPS cell being about meters. Line speed is 25 m/min with one EPS cell and approximately double that with two cells.

If the customers requests, the EPS line can be equipped with electrostatic oiler in case the processed material needs to be transported or cannot be stored indoors. In addition, an in-line strip welder or stitcher can be included for joining the ends of coils so the line can operate in a nearly continuous mode. Other available options include a Roller Leveler for strip shape correction, banding units for processed coils, an Edge Trim device with Scrap Choppers, and a system for real time strip inspection while processing.



Red Bud Industries, Inc.
Tel: +1 (618) 282-3801
www.redbudindustries.com



ТЕХНОЛОГИИ ЭФФЕКТИВНОГО ПРОИЗВОДСТВА
Weber Comechanics Ltd.
Tel: +7 (495) 925-88-87
www.weber.ru