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Methods of Rolled Metal Production's Waste Disposal

Disposal and processing of industrial waste is one of the main problems that the enterprises have to solve in the third millennium. In the rolled metal production, at the metallurgical enterprises, at the tube-rolling plants and at the machine building enterprises the oily dross and oily slime that consist of oil (5 to 30%), iron (up to 70%) and water are generated in large quantities. One of the problems of ferrous metallurgy enterprises is the processing of oily dross, not allowing it to accumulate at the territory of the enterprise.

The main area of work of oily dross application is its recurring use in the metallurgical process.

In the literary sources various methods of metallurgical production's secondary waste processing methods are given. Let's look at the ones that are the most effective at disposal of oily rolling dross. One of the methods is thermal processing of oily dross with temperature over 80°C for 24 hours followed by the separation of products in the sedimentation tanks. The drawbacks of this method are the significant duration of the process, irretrievable losses of organic materials. There is also a method of fine-dispersed oily dross disposal by processing it with used sulfuric acid solutions. However this method doesn't provide the potential to fully separate metallic fraction pulp from the oil. Nowadays the most effective method is processing by disintegrating the initial material in the rotary-pulsating-cavitation apparatus of continuous operation, followed by processing of pulp with flotation and magnetic separation. As a result the conditioned iron containing concentrate without hydrocarbon compounds is obtained. This method of implementation in the production is significantly cheaper and more effective; it will allow a considerable increase of the volume of processing and use of secondary waste of rolled metal production in the further repartition.

With rolling dross processing the enterprise gets its own iron containing resource and significantly lowers the negative impact on the environment.

Unfortunately the current volume of metallurgical production waste that is disposed with the described methods is not enough even to equalize the new arrivals. It is necessary to implement new technologies in the industry more intensively.