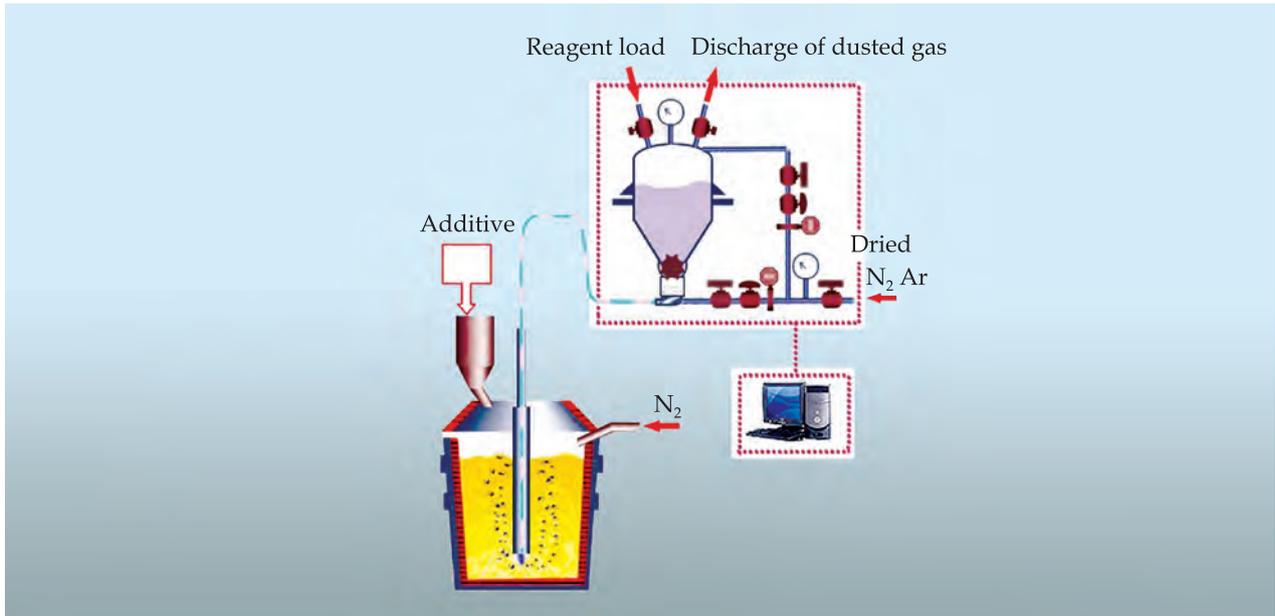


## TECHNOLOGY FOR REFINEMENT AND DESULFURIZATION OF CAST IRON BY GRANULAR MAGNESIUM IN LADLES



Desulfurization process scheme

### Specification

|   |         |
|---|---------|
| Refined reagent recovery, %                     | ≥95     |
| Reagent consumption, kg/ton of cast iron        | 0.2–0.7 |
| Cast iron desulfurization, %                    | 99      |
| Sulphur content in cast iron after treatment, % | ≤0.001  |
| Cast iron temperature loss, °/min               | 0.5–0.8 |

### Areas of Application

The technology is designed to obtain low-sulfur and refined cast iron before its melting or cast iron products (ingots, pigs, castings)

### Stage of Development. Suggestions for Commercialization

IRL8, TRL8  
Technology, specifications and working drawings, control systems, main components of complexes for cast iron off-furnace treatment in ladles of various dimension type (4–350 tons)

### IPR Protection

IPR3

### Advantages

The key difference of the proposed technology from the world analogs is the most favorable conditions for saturating the cast iron with magnesium and the further mass exchange between magnesium lysed in cast iron and melt sulfur. The technology parameters provide a high concentration of magnesium in carrier gas (over 20 kg/m<sup>3</sup>), required injection rate, and distribution of refining environment in the melt. The costs are less by USD 3–5 /ton cast iron than that of world analogs

### Contact Information

*Oleksii Ye. Merkulov*, Iron and Steel Institute of Z.I. Nekrasov of the NAS of Ukraine;  
+38 056 790 05 15, e-mail: office.isi@nas.gov.ua