

IMPROVING THE QUALITY OF ALUMINUM ALLOYS

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When melting aluminum alloys, degassing the melt in a periodic mode is most effective. But furnaces operating in batch mode have a low efficiency, which leads to an increase in production costs. Therefore, for processing the liquid melt, a combined version of continuous remelting and periodic degassing treatment is proposed. In production conditions, processing of the liquid melt after remelting in crucible furnaces was used. Although the quality of the resulting melt became higher, this had a negative impact on the cost of production. Recently, processing of the melt after remelting in gas furnaces has become more common [1]. To ensure the efficiency of the process, processing is carried out in batches in a periodic manner. For this purpose, a liquid melt accumulator is used, which also serves for degassing. Figure 1 shows a diagram of a gas furnace that allows the melt to be processed by periodic degassing [2].

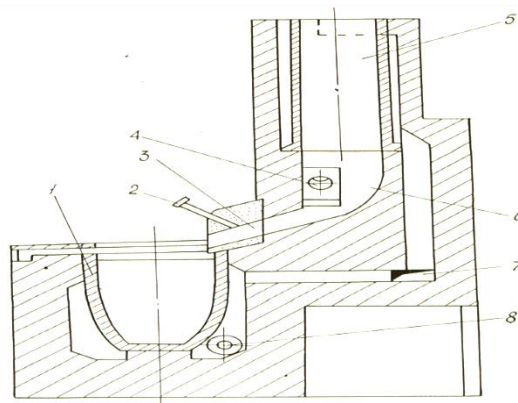


Figure 1. Gas furnace for melting and cleaning aluminum alloys: 1- furnace crucible for cleaning and accumulation of liquid metal; 2 – gas burner; 3 – transition channel; 4 – upper burner; 5 – furnace shaft; 6 – shaft guide; 7 – fire-resistant packing; 8 – lifting mechanism.

Based on the results of the analyzes carried out on the processing of aluminum alloys and the experimental studies carried out, the following conclusions can be drawn [3,4]:

1. It is more effective to clean aluminum alloys by degassing.
2. It is more expedient to degas the aluminum melt in a periodic mode, which increases the degree of purification by 10-12%.
3. It is economically profitable to melt aluminum alloys in gas furnaces, which allows increasing efficiency by 8-10%.



4. The most optimal method for cleaning aluminum alloys is degassing the melt in the crucible accumulator of a gas furnace during continuous melting mode.

References

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