

BOOK OF ABSTRACTS

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RECEPTION FERROTUNGSTEN FROM RAW MATERIALS WITH LOW CONTENT OF TUNGSTEN AND TUNGSTEN SCRAP UNDER PRESSURE

Golovchenko N.^{*1}, Bayrakova O.², Ksandopulo G.I.², Aknazarov S.Kh.²

¹ Kazakh National University named Al-Farabi

² Institute problem of combustion

*teya86@mail.ru

One important practical and theoretical issue is the effect of temperature and external pressure on the extraction of recoverable items in the ingot. Due to the aluminothermic combustion oxides when the combustion temperature exceeds the boiling point of aluminum, the explosive process thus there is a variation of the reacting mixture and the metal loss due to evaporation of oxides. Increased pressure in the system leads to an increase in the rate of reaction, which is important in obtaining ferrotungsten from raw materials with low content of tungsten oxide. Upon receipt of ferrotungsten under pressure as a secondary raw material used tungsten scrap of different origin: the production of waste electric lamps (a mixture of tungsten and molybdenum wire) ferrotungsten scrap and pure tungsten scrap. For selection of optimum process conditions were different versions of experiments. Varied the number of downloads of charge to vary the pressure and process time. Excessive pressure during combustion to a certain magnitude of its value leads to an acceleration of the combustion process, in our case the maximum pressure leads to an acceleration of 7 atm. At a pressure of 9 atm the burning rate begins to decline. For best results when the alloy is obtained by a uniform at a pressure of 11-13 atm, the burning rate 50-72 seconds. The scaling factor having an impact on the course metallothermic process. As the ever increasing burden and isothermal, so you can reduce the amount of warming up supplements. The experiments were conducted in a sealed crucible. Ignition was performed by electro impulse. System pressure 8.7 atm, the burning time of 120-150 seconds. It was found that the increase in grain size tungstate reduces the yield of the alloy by reducing the surface of the reactants and the increase in heat loss. Perfected compositions of the charge for ferrotungsten the desired composition of the raw materials with low content of tungsten alloys are obtained.

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