

CORDIERITE CERAMICS INFOUNDRY

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Abstract: Standard raw materials, kaolin and talc, were used in synthesis of cordierite ceramics. Cordierite mass corresponded to 2 MgO- 2 Al₂O₃- 5SiO₂ compositions. Sintered cordierite was used as a refractory filler in the ceramic coating for evaporative polystyrene patterns in the new casting technology, the Lost Foam process. Cordierite characterization was carried out by means of x-ray structure analysis. The characteristic temperatures for carrying out solid state reactions in the three component system of 2MgO-2Al₂O₃-5SiO₂ were determined differentially by thermal analysis in the range from ambient temperature to 1200°C. The obtained ceramic coatings were applied by the "full mould" casting method. For the purpose of realistic evaluation of possible cordierite application in the production of evaporative pattern ceramic coating, concurrent analyses with talc-based coating were carried out. Cordierite has wide application in electrothermic, electronics and engineering industries, however, it has not been used in casting yet.

Key words: cordierite ceramics, Lost Foam process, ceramic coating