几种典型冶金熔体本构方程的实验研究

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摘　　要：　采用可变转速高温粘度计，测定了具有较好流动性的液态铝、熔融无水$Na_2B_4O_7$和熔渣等冶金熔体的表观粘度进而导出了它们的本构方程。实验中如果试验结果偏离牛顿流体的误差小于试验的整体误差，　则将试验得到的本构方程修正为牛顿流体的本构方程。讨论了由于温度变化和加入添加物等因素引起非牛顿流体的原因。

关键字：　冶金熔体　　本构方程　　流变行为　　非牛顿流体　　粘度

RHEOLOGICAL CHARACTERISTIC OF SOME METALLURGICAL MELTS

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Abstract: The rheological characteristic of metallurgical melts (Al, $Na_2B_4O_7$ and slags), which are provided with a good fluidity, was investigated by means of a modified rotational viscometer with variable speed used at high temperature, and then based upon those viscosity data, some constitutive equations for the melts invesligated were established. If the deviation between the m easurements of the melts and the Newtonian fluid was less than the total error of the experiment, the constitutive equation above was revised to be the Newtonian equations. The effect of temperature and additives on the non-Newtonian melts was also discussed.

Key words:　constitutive equation　metallurgical melts　rheological characteristic　non-Newtonian fluid　viscosity