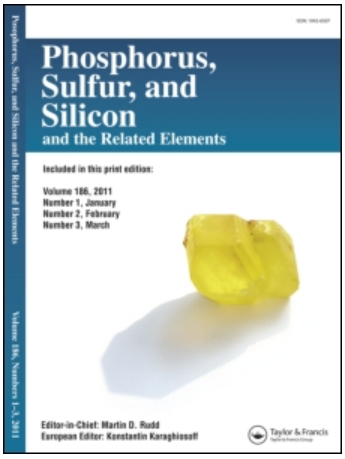

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High-Temperature Interaction of Condensed Phosphates with Oxoacid Salts Oxides, Halogenides, Sulphides, Nitrides and Metals

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HIGH-TEMPERATURE INTERACTION OF CONDENSED PHOSPHATES WITH OXOACID SALTS, OXIDES, HALOGENIDES, SULPHIDES, NITRIDES AND METALS

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Melted condensed phosphates (CP) having high chemical activity, interact with oxoacid salts, halogenides, sulphides, oxides and nitrides as well as with metals, steels and alloys. Lithium and sodium sulphate destruct CP evolving O_2 and SO_2 into a gasous phase. In the reaction products di-, tri- and tetraphosphate solid and polymer anions have been revealed by paper-chromatography analysis. Increasing the temperature and the contact of sulphate, both the mean value of phosphate molecular mass and viscosity of metals decreased. Interacting with CP carbonates dissociated to form CO_2. Lithium nitrate dissociated at 443 K, sodium and potassium nitrates at 593 and 663 K respectively. Potassium sulphate decreases the mean molecular mass $(KPO_3)_n$ less than twofold, potassium nitrate does it more than 10 times under similar conditions. In the series Li_2TeO_6-Li_2SO_4-Li_2CrO_4 potassium chromate reacted actively with $(LiPO_3)_n$ to form chromium (III) monophosphate, a valuable binding material and catalyst. Interacting with Cr_2S_3 MnS, NiS, Cu_2S_4 FeS, melted condensed phosphates stimulated the formation on sulphur, SO_2 and P_4. In solid melts metal phosphides have been found as well a mono-, di- and tetrapolyphosphates. Condensed phosphate reactions with Mg_3N_2, AlN and TiN resulted in evolving PN, N_2 and P_4 into gaseous phase.