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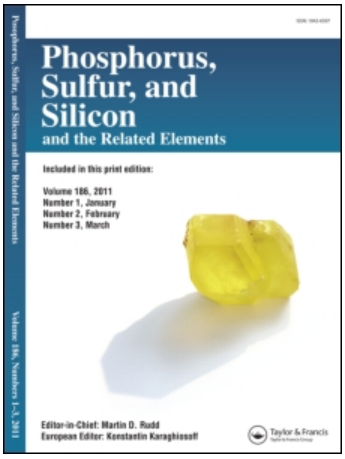

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Preparation of Phosphate Glass Containing Imino Groups by Using Sodium Cyclo-Tri-μ-imidotriphosphate

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PREPARATION OF PHOSPHATE GLASS CONTAINING IMINO GROUPS BY USING SODIUM CYCLO-TRI-μ-IMIDOTRIPHOSPHATE

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Phosphate glass is prepared at a temperature lower than that of the preparation of other oxide glasses. Phosphate glass can contain many kinds and amounts of modifire oxides, but chemical durability of the glass is inferior to other oxide glasses. To improve the defect of the glass, preparation of phosphate glass containing nitrogen was studied under nitrogen or ammonia. In this study, the preparation of phosphate glass containing nitrogen was carried out in air by using sodium cyclo-tri-μ-imidotriphosphate as a source material. Phosphate glass containing nitrogen was able to be produced easily by removing water of crystallization in the source material. Phosphate glass containing nitrogen was produced by heating the source material at 700°C and nitrogen content of the glass was 6%. The solubility of the glass decreased very much in comparison with phosphate glass not containing nitrogen. The glass was almost insoluble in a 5% sodium hydroxide solution. According to IR analysis, it was found that the glass contained nitrogen as imino groups. The phosphate glass may be an useful substance to environmental treatment because the glass can contain a lot of heavy metals and high level radioactive wastes in it.

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