

ABSTRACT

PREPARATION METHOD AND PRODUCTION SYSTEM FOR HEXAFLUOROBUTADIENE

Disclosed are preparation method and production system for hexafluorobutadiene, and the preparation method includes the following steps: step (1), the organic solution of trifluoroethylene bromide and the zinc powder are respectively successively fed into a first reactor and a second reactor equipped with an initiator, zinc powder and an organic solvent, so as to obtain a solution of trifluorovinylzinc bromide. Then, the reaction solution enters a settling device for separating excess zinc powder to obtain a solution of trifluorovinylzinc bromide containing no zinc powder, and the excess zinc powder is filtered and recycled; step (2), introducing the obtained trifluoroethylene zinc bromide solution and a pre-prepared composite catalyst solution into a third reactor to perform a coupling reaction to obtain a crude hexafluorobutadiene; and step (3) purifying the crude hexafluorobutadiene product obtained in the previous step to achieve a purity level of $\geq 99.9\%$. The present disclosure has the advantages of high conversion rate of trifluorobromoethylene, low cost of coupling composite catalyst, mild reaction conditions, high product purity, and high safety.

FIG. 1