

The invention concerns a method for preparing a polycrystalline halide block, of formula $A_eLn_fX_{(3f+c)}$, wherein Ln represents one or more rare earth(s), X represents one or more halogen atom(s) selected among Cl, Br or I and A represents one or more alkali(s) such as K, Li, Na, Rb or Cs, e may be nil, being not more than 3f and f being not less than 1, with low water and oxyhalide content. Said method comprises the following steps: heating a mixture of at least one compound containing at least one Ln-X bond and a sufficient amount of NH^+X^- to obtain the desired oxyhalide content, said step resulting in a melt including the rare earth halide, said heating step being followed by a cooling step, the heating step, after reaching 300°C never falling below 200°C before the melt is obtained. The resulting blocks enable growth of very pure single crystals with remarkable scintillating properties.