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Sm₇F₁₂Cl₂: Synthesis and Crystal Structure of a New Fluoride-Rich Samarium(II) Fluoride Chloride

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Red rod-shaped single crystals of Sm₇F₁₂Cl₂ (CSD-2126941) with a length up to 0.3 mm were obtained after heating up a mixture of Sm, SmF₃ and NaCl (as flux) in a sealed niobium capsule to 850 °C and cooling down the product with 5 °C/h after four days.

Sm₇F₁₂Cl₂ crystallizes in the Ba₇F₁₂Cl₂-type structure with $a = 1004.52(7)$ pm, $c = 394.75(3)$ pm and $Z = 1$ (space group: P-6) analogous to Eu₇F₁₂Cl₂.

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