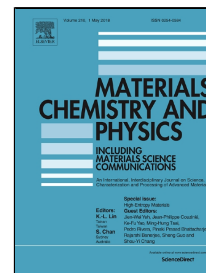


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Improved sintering characteristics, microstructural evolution and microwave dielectric properties of $0.6\text{Nd}[(\text{Zn}_{0.7}\text{Co}_{0.3})_{0.5}\text{Ti}_{0.5}]\text{-O}_3\text{-}0.4(\text{Na}_{0.5}\text{Nd}_{0.5})\text{TiO}_3$ ceramics with V_2O_5 addition



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**Improved sintering characteristics, microstructural evolution
and microwave dielectric properties of $0.6\text{Nd}[(\text{Zn}_{0.7}\text{Co}_{0.3})_{0.5}\text{Ti}_{0.5}]$
 $-\text{O}_3-0.4(\text{Na}_{0.5}\text{Nd}_{0.5})\text{TiO}_3$ ceramics with V_2O_5 addition**

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Abstract: The mixed oxide route was applied to prepare $0.6\text{Nd}[(\text{Zn}_{0.7}\text{Co}_{0.3})_{0.5}\text{Ti}_{0.5}]\text{O}_3$ $-0.4(\text{Na}_{0.5}\text{Nd}_{0.5})\text{TiO}_3$ (NZCT–NNT) ceramics with different amounts of V_2O_5 and the sintering behavior, [microstructural](#) evolution and microwave dielectric properties of the as-prepared ceramics were investigated in detail. The results showed that a solid solution formed in the investigated compositional range and no secondary phase was detected [within the detection limit of in-house analysis facility](#). Small amounts of V_2O_5 could significantly promote the densification of the NZCT–NNT ceramics by acting as a sintering aid, resulting in a [decrease](#) of about 170 °C in the sintering temperature. The V_2O_5 addition could also improve the microstructure and the microwave dielectric properties of the NZCT–NNT ceramics. The NZCT–NNT ceramics with 1.5 wt% V_2O_5 exhibited excellent microwave dielectric properties of dielectric constant $\epsilon_r = 50.29$, quality factor $QF = 68640$ GHz and temperature

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