

# EFFECTS OF MECHANICAL ACTIVATION ON SELF-PROPAGATING HIGH-TEMPERATURE SYNTHESIS (SHS) OF POROUS NITINOL

Ho Ky Thanh, Tran Van Dung, Nguyen Dang Thuy'

## TÓM TẮT:

This present work introduces the research on the effects of mechanical active time on Self-propagating High-temperature Synthesis (SHS) of porous Nitinol (NiTi). The experimental results showed that the pre-heating temperature which was necessary for the occurrence of SHS reaction strongly decreased with the increasing of mechanical active time (in the range of 0 to 2.0 hours). With the absence of mechanical activation or the mechanical active time less than 1.0 hour, no reaction occurred although the pre-heating temperature and ignited temperature were relative high ( $T_p = 600^\circ\text{C}$  and  $T_{ig} = 2000^\circ\text{C}$ ). However, when the mechanical active time increased in the range of 1.5 to 2.0 hours, the reaction between Ni and Ti occurred. Depending on the pre-heating temperature, the reaction occurred at simultaneous mode ( $T_p \geq 550^\circ\text{C}$ ) or self-sustained mode ( $T_p < 500^\circ\text{C}$ ).