Low- and High-Temperature Corrosion Resistance of a Dense Nanostructured MoSi$_2$ Produced by MAFAPAS

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The mechanically activated field activated pressure assisted synthesis (MAFAPAS) process was successfully used to produce dense and nanostructured MoSi$_2$ compounds. The as-prepared samples were 95 % dense with an average crystallite size of around 60 nm. Their high temperature oxidation behaviours were studied in the temperature range from 400°C to 1000°C in air under atmospheric pressure. The detrimental pest oxidation, usually observed at low temperature (400°C-600°C) with MoSi$_2$, was never observed, even after 1900 h experiment at 400 and 500°C. These preliminary results are promising for further applications at low as well as at high temperatures under oxidising atmospheres.