The Phase Investigation of Mo + 2(1 - x)Si + 2xAl Compounds

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Abstract: X-ray powder diffraction data for Mo$_{2.85}$Al$_{1.91}$Si$_{4.81}$ are presented here. The new Mo$_{2.85}$Al$_{1.91}$Si$_{4.81}$ compound was successfully prepared, using the self-propagating high-temperature synthesis (SHS) technique. The starting atomic mixture of reactant powders was Mo + 2(1 - x)Si + 2xAl with 0.2 ≤ x ≤ 0.5. The final powder compound obtained by the SHS technique was determined to be in x = 0.2; Mo(Si, Al)$_2$ and in 0.3 ≤ x ≤ 0.5; Mo$_{2.85}$Al$_{1.91}$Si$_{4.81}$. respectively X-ray powder diffraction pattern of Mo$_{2.85}$Al$_{1.91}$Si$_{4.81}$ was recorded using an X-ray powder diffractometer and CuKα radiation that have been analyzed by automatic indexing programs. Mo$_{2.85}$Al$_{1.91}$Si$_{4.81}$ was found to be hexagonal.

Keywords: Mo + 2(1 - x)Si + 2xAl. SHS. Mo$_{2.85}$Al$_{1.91}$Si$_{4.81}$. 