The conversion of methane into methanol is one of the great challenges in the photocatalysis. In this investigation WO$_3$/TiO$_2$ photocatalysts was synthesized by sodium borohydride (NaBH$_4$) method. The tungsten concentration was studied in the range of 5 to 20 atomic ratio. XRD results revealed a TiO$_2$ anatase phase and WO$_3$ peaks near the background noise. However, WO$_3$ presence has been highlighted by Raman spectroscopy, indicating the existence of both orthorhombic and amorphous phase. The photocatalyst experiments showed that all materials enable the methanol production in UVC irradiation, and only the materials with WO$_3$ content produced the alcohol in white light irradiation. The high conversion was observed for WO$_3$(10)/TiO$_2$(90) with 3.5 mmol h$^{-1}$. The conversion of methane to methanol was most promising using WO$_3$(10)/TiO$_2$(90) due high conversion and no other products observed in FTIR spectra.

**Keywords:** methane into methanol, WO$_3$/TiO$_2$ photocatalysts, photo-reactor.