

The motivation of this study is to significantly increase the performance of the hot mix asphalt using plasma modification method. Surface of mineral filler was modified by using three different components: tungsten disulphide under peroxide ( $WS_2 - H_2O_2$ ), tungsten disulphide under water nano powders and silicon dioxide ( $SiO_2$ ). Plasma modified mineral fillers with hot mix asphalts were evaluated by Marshall Stability (MS) test. According to the results, plasma modified samples showed higher stabilities and better properties. Eco-friendly plasma modification technique provided homogenous, single step and fast processing for the modification of the asphalt materials.