**Microwave radiation absorption in heat-resistant basalt-based composites**

**I.V. Korotash, S.S. Polishchuk\*, and E.M. Rudenko**

G.V. Kurdyumov Institute for Metal Physics of National Academy of Science of Ukraine,  36 Vernadsky Str., Kyiv 03142, Ukraine

\*Corresponding author email: serg.polis7@gmail.com

**Abstract.** Basalt fiber (BF)/nickel and BF/graphite composites having various filler concentrations were prepared using mechanical alloying followed by simple press and sintering. Microwave absorption properties of the basalt-based composites in the frequency range 1.5-2.1 GHz were investigated. It is shown that the absorption of microwave radiation significantly depends on the properties and concentrations of the fillers. It has been established that the optimal concentration of both the fillers (non-magnetic graphite or magnetic nickel), providing maximum microwave absorption (MA), for both the composites is about 30 wt%. The maximum MA in BF/graphite composites is found to be 1.5-2 times higher than for BF/nickel composites. At the same time, at low filler concentrations (less than 30 wt%), the MA in BF/nickel composites is significantly larger than for corresponding BF/graphite composites.