

INTERCALATION AND EXPANSION OF NOVEL GRAPHITE BISULFATE COMPOUNDS

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Intercalated graphite materials allow studying chemical in confined conditions. Sulfuric acid intercalated graphite exfoliation process have been studied by Micro-Raman spectroscopy. We have found that samples treated by sodium periodate, and sodium chlorate lead to final products with the highest intercalation degree.

We have employed a simple technique based on the continuous-wave (CW) infrared (IR) laser irradiation of graphite flakes to investigate the expansion dynamics of the intercalated compounds. The laser-assisted reaction process was found to be characterized by a threshold temperature of about 140 °C followed by a fast rate of heating. The large amount of volatilized hot gases caused a violent expansion of the graphite flake. Morphological changes undergone by irradiated graphite flakes have been analyzed using thermal and visible imaging techniques in order to obtain the quantitative determination of temporal evolution of the thermal field during the heating stage and expansion of the flake.