# Constituent Disintegration of CO2 And DMF Sonic Exfoliation of Graphite Oxide for Graphene Synthesis

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Few layer Graphene flakes were synthesized from C(gr)[NOM] disintegrated from atmospheric CO2 in the Bosch Reaction. The C(gr) was oxidized utilizing a version of the Modified Hummers Method, combining concentrated H2SO4[NOM] with Mn2O7[NOM] to intercalate the C(gr) with Carboxylic Acid functional groups. The Graphite Oxide was centrifuged at 4000 RPM (2508 RCF[NOM]) to remove any NaNO3[NOM], Mn, K and S from the oxidation process. The purified Graphite Oxide was then sonicated at 38 kHz in a solution of N,N Dimethylformamide before reduction in an HCl bath with an Al substrate. This process yielded large quantities of reduced Graphene Oxide with reasonable efficiency and time investments. The reduced Graphene Oxide samples were analyzed via Raman spectroscopy along with non-deoxygenated Graphene Oxide samples. The Raman results indicated a presence of few layer Graphene Oxide flakes, and general deficiency of property changing defects in the hexagonal lattice structure.

**Awards Won:**