PRODUCT DATA SHEET

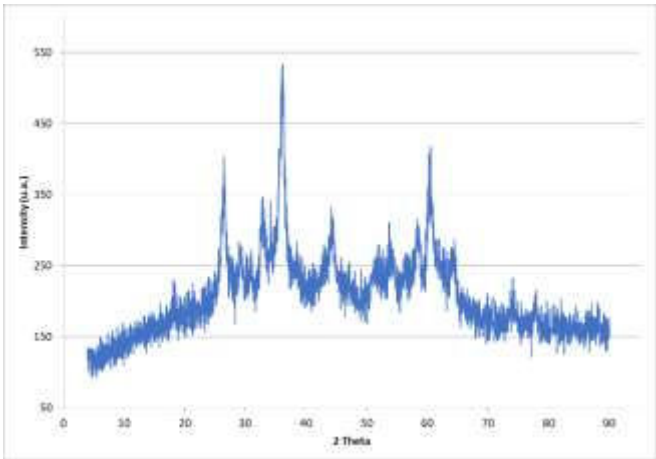
Superparamagnetic Graphene-based Nanocomposite

The nanocomposite has been synthesized by the formation of nanoparticles of manganese and iron oxides in the surface of pristine graphene nanoplatelets. This product has the following composition: Manganese Diiron Oxide46-50%, Graphene 49-51% and Volatiles <1%.

The addition of manganese and iron oxides nanoparticles synthesized with Gnanomat IP confers superparamagnetic properties to pure graphene. The nanomaterial showed interesting features in the researching of magnetic fluid hyperthermia and magnetofection applications.

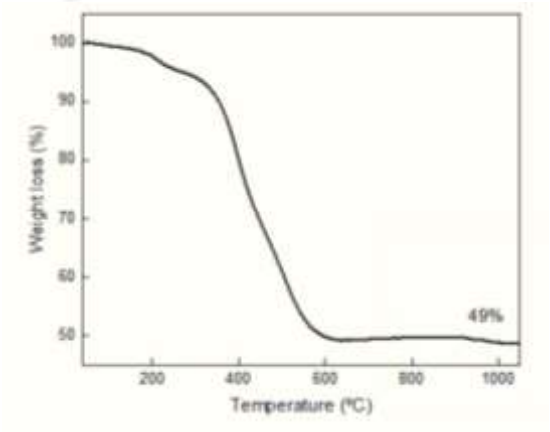
Gnanomat develops and tailor-made nanocomposites of carbon materials with nanoparticles and additives of different source for tech-advanced applications.

Superparamagnetic Graphene-based Nanocomposite	
Form	Powder
Morphology	Graphene lateral size: 40-200 nm Crystallite size (XRD): 3 nm BET Surface area: 333 m²/g
Color	Black
Potential uses and applications*	Magnetic fluid hyperthermia Magnetofection Ferrofluidic
Composition	Manganese Diiron Oxide 24-26% Graphene 49-51% Volatiles <1%

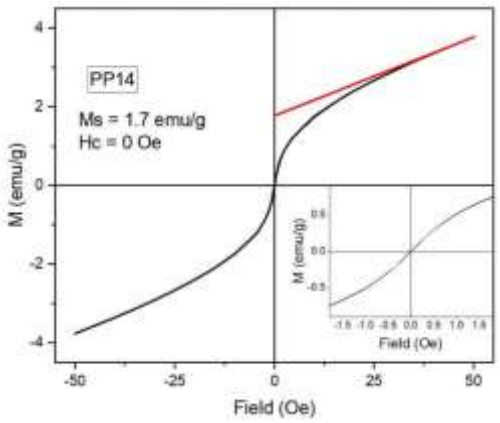


*XRD spectra

*Superparamagnetic Graphene



*Thermogravimetric curve



*Magnetic characterization

About Gnanomat

Gnanomat, your nanotech partner of choice to bring nanomaterials to Industrial applications. The Company offers a versatile range of advanced materials for technologically advanced applications.

Nanomaterials need to be tailored for each specific device and application to ensure the best performance and we establish early collaborations with clients through custom product development.

Contact us to design and optimize products that from the first moment address the customer pains and offer real solutions that can fit into your manufacturing process.

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*Uses and application references:

"Magnetic graphene, synthesis, and applications: A review. Mohammad Jafar Molaei. Materials Science and Engineering: B, Volume 272, 2021, 115325, ISSN 0921-5107, (https://doi.org/10.1016/j.mseb.2021.115325) "

"Superparamagnetic iron oxide-reduced graphene oxide nanohybrid-a vehicle for targeted drug delivery and hyperthermia treatment of cancer. Manivel Muthuvel, Adiraj Srinivas, Saravanan Padmanaban, Arout Jayaramane Volume 448, Pages 1-386 (15 February 2018) (https://doi.org/10.1016/j.jmmm.2017.05.084) "

"Self-heating evaluation of superparamagnetic MnFe2O4 nanoparticles for magnetic fluid hyperthermia application towards cancer treatment. Supriya R. Patade, Deepali D. Andhare, Sandeep B. Somvanshi, Swapnil A. Jadhav, Mangesh V. Khedkar, K.M. Jadhav. (https://doi.org/10.1016/j.ceramint.2020.07.029)."