

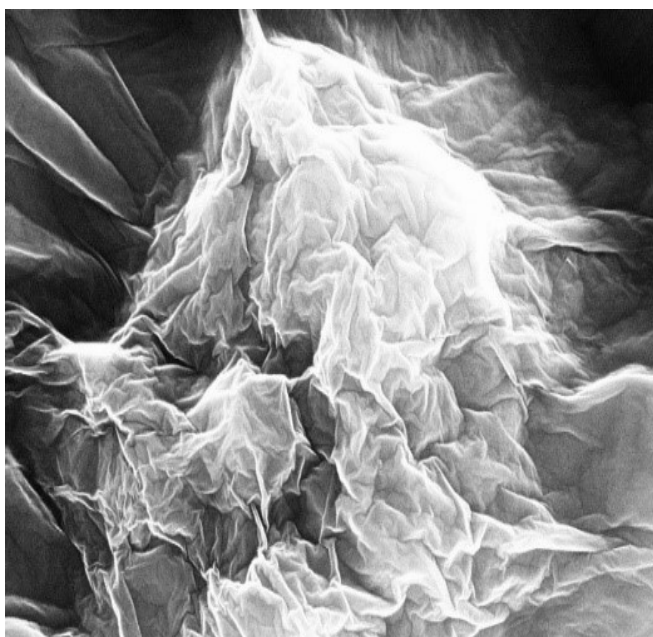


Graphene oxide (GO) powder

Main properties



SEM Image



Linear formula:	$C_xO_yH_z$
Form:	Powder
C/O atomic ratio:	2.5 – 2.6
Color:	Dark brown - Black
Odor:	Odorless
Dispersibility:	DI water, other polar solvents
pH (in dispersion):	2.5-3.5 (depends on GO concentration)
Apparent density:	0.2-0.4 g·mL ⁻¹
Particle size:	< 400 µm
Humidity:	1 %
Acid residues:	< 1 %

All the material data are obtained and presented accordingly to

- ISO/TS 80004-13:2017(E) Standard "Graphene and related two-dimensional (2D) materials".
- Good Practice Guide #145: Characterization of the Structure of Graphene.

**Elemental composition**

Carbon	49-57 %
Hydrogen	1-2 %
Chlorine	0-1 %
Sulfur	2-3 %
Oxygen	41-49 %

Graphene oxide by GRAFREN:

GRAFREN AB produces GO of highest degree of purity and of specific flakes lateral size. Highly dispersible in DI water. Requires ultrasound bath treatment (20-30 min) before further use.

GO at a concentration of 0,1 % w/v and higher can't fully remain at a single layer form due to the regular interactions between individual layers that are close to each other. To obtain free single layers, GO must be dispersed in a concentration typically 1 ppm and less, so the individual flakes can move around without touching each other. When starting with agglomerated material, bath ultrasound treatment is required to overcome the Van der Waals forces. For an investigation of single layers by e.g. SEM, TEM, AFM or Raman, dilution to less than one ppm is recommended.

Material performances were demonstrated with a specific protocol and in adapted conditions. A personalized study may be offered by the GRAFREN AB in order to meet customers' needs and deliver the best solution.