



CHARACTERISATION NOTE

PRODUCT: **GRAPHENE OXIDE, suspension in water 4.5 mg/ml**

SECTION 1: Identification of the substance/mixture and of the undertaking

Product name:	Graphene oxide
Synonyms:	GO, graphene oxide flakes, GO flakes, GO suspension
Manufacturer:	Institute of Electronic Materials Technology 133 Wólczyńska str., 01-919 Warsaw, POLAND phone: +48 22 639 58 52
Chemical name:	Graphene oxide
Chemical formula:	$C_xO_yH_z$
Application:	Laboratory chemicals, manufacturing of substances, barrier coatings, membranes, biomedical applications, fillers

SECTION 2: Basic properties

Appearance:	From very light to very dark brown
Odour:	Flavourless
Concentration:	4.5 g/dm ³
Stability:	Stable in the air (if stored properly)
Storage:	In an airtight container to protect against UV radiation, in a dry and cool place

SECTION 3: Composition/information on ingredients

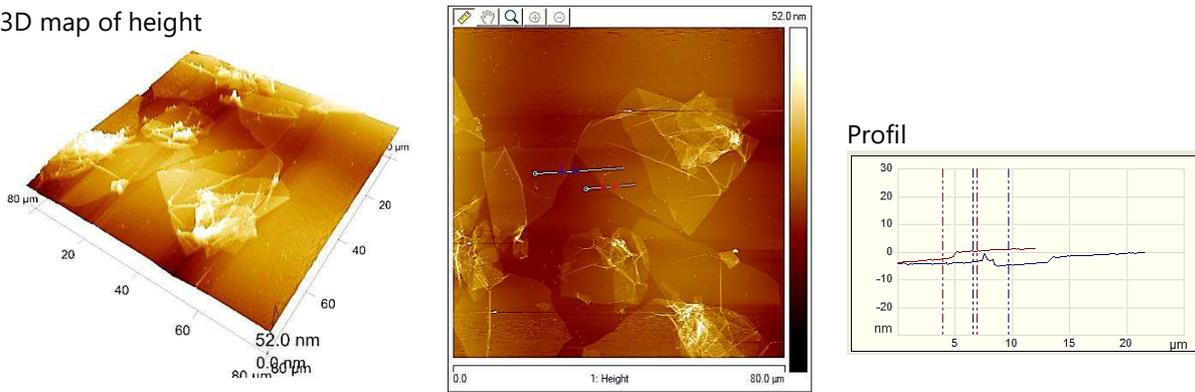
Carbon	40-42%
Oxygen	45-52%
Sulfur	1-3%
Nitrogen	<0.3%
Hydrogen	2.5-3%

SECTION 4: Physical properties

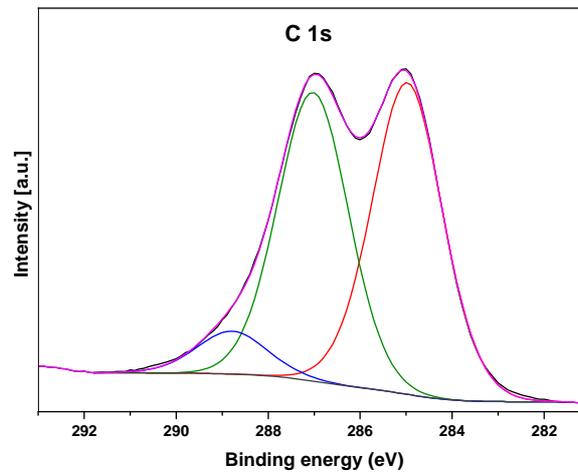
AFM

AFM image with height profile showing the thickness of the graphene oxide flakes (~1-2 nm).

3D map of height



XPS



GO	Peak BE (eV)	Concentration in atomic scale (%)	Chemical bond
C1s	285	33.60	C – C and C=C
C1s	287.04	30.94	C – O (epoxy, hydroxyl groups)
C1s	288.22	4.59	C = O (carbonyl groups)
O1s	532.9	23.1	C – O

SEM

SEM image of graphene oxide flakes. The average size of GO flakes is 2-6 μm .

