# GO

Single Layer Graphene Oxide

Attribute:

Our GraphenX products are comprised of single layers of graphene oxide. It is a product of oxidation of graphite through a modified Hummers' method. In contrast to commercially available graphene oxide sheets which possess lateral size generally less than 5μm, GraphenX are monolayers of oxidized graphene with outstandingly high lateral size (up to 0.1mm), rendering these products as an excellent candidate for diverse applications such as electronics, composite materials, energy and etc. GraphenX is a polar and functionalized material bearing several types of oxygen groups and is available in polar solvents (Water, NMP, DMF and Ethanol).

| Property	
Later size (μm)	5 - 100
Thickness (nm)	0.7 - 1.4
Nitrogen content (XPS)	<0.1%
Carbon to oxygen atomic ratio (XPS)	1.3
Formula (XPS)	$C_{2.0}O_{1.54}$
Functional groups (XPS, FTIR)	OH, COOH, C-O-C
Graphene content	Up to 20 mg.ml^{-1}
Appearance	Yellow brown with anisotropic texture
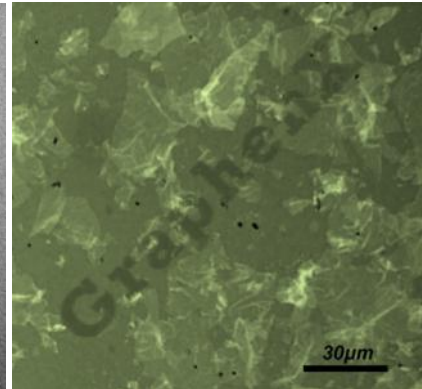
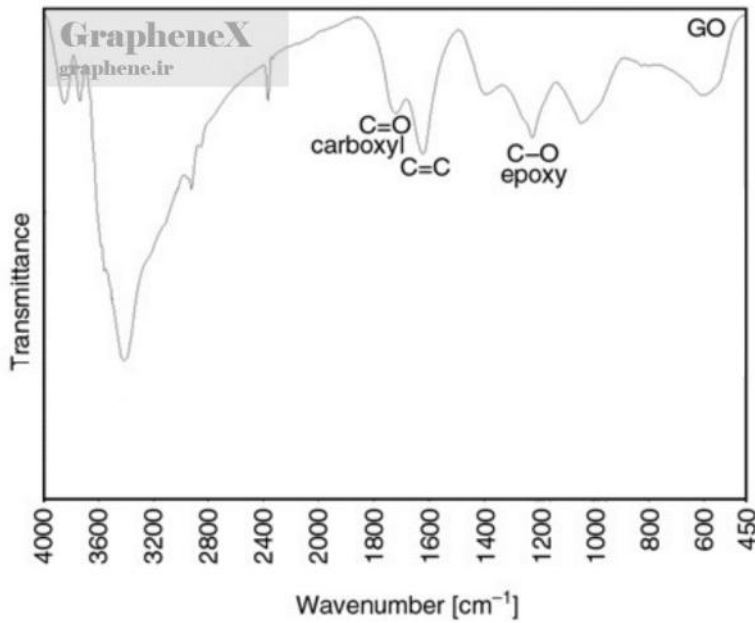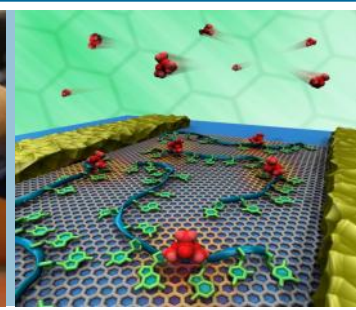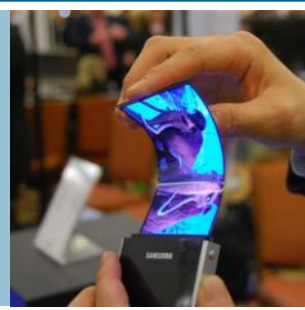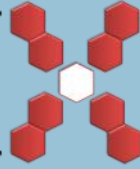| Dispersing Media	Conc.	Volume (ml)			
		50	100	250	1000
Water	1 g/lit		✓		✓
NMP, DMF,DMSO, DMAc	2 g/lit	✓		✓	
Ethanol,Methanol, Isopropanol	2 g/lit	✓		✓	
Ethylene glycol	2 g/lit	✓		✓	

No 30, Maleklu st, Farjam st., Resalat ave, Tehran, Iran
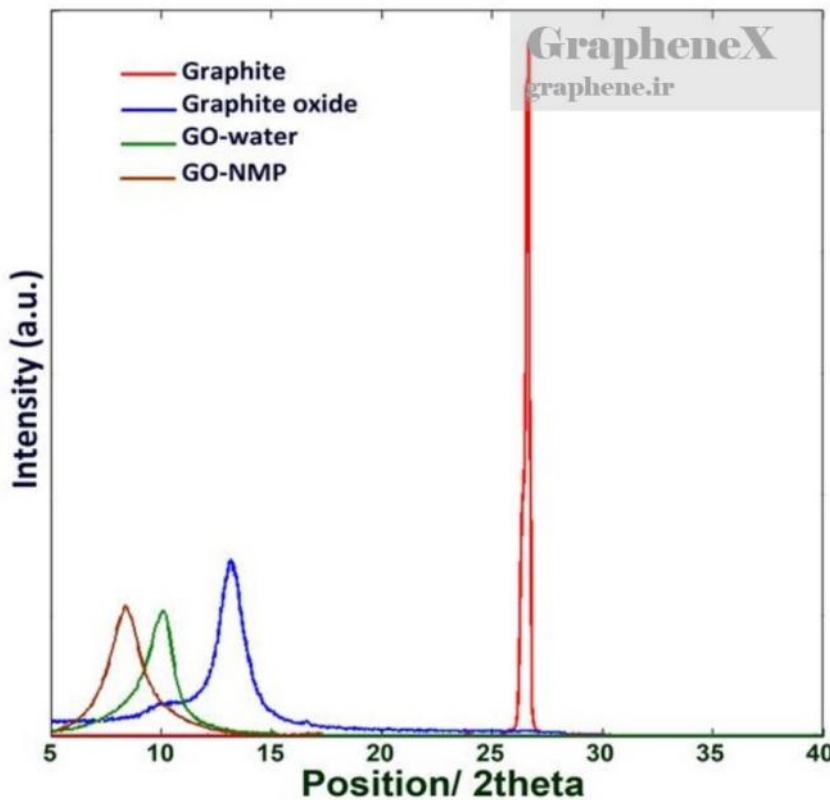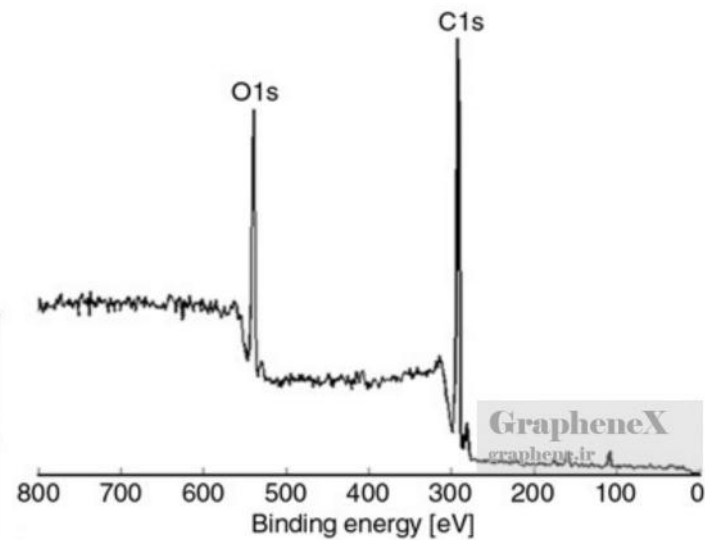
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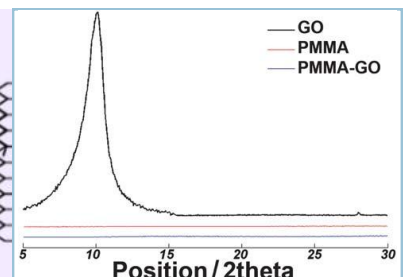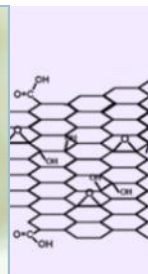
FTIR spectrum of GO showing presence of oxygen groups (carboxyl, epoxy, and hydroxyl) in the chemical structure of graphene oxide ◀

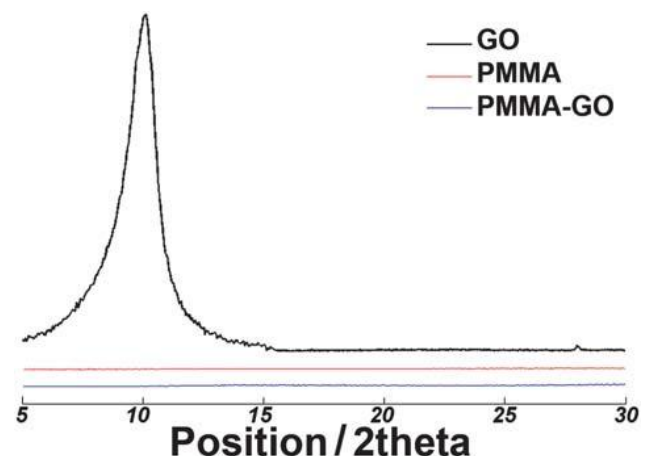**XPS spectrum of GO showing presence of carbon and oxygen in the chemical structure of graphene oxide** ▶
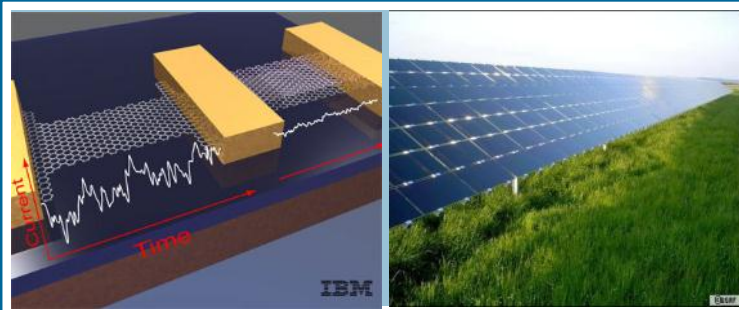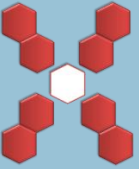

XRD spectrum of pure and composite GO ▼
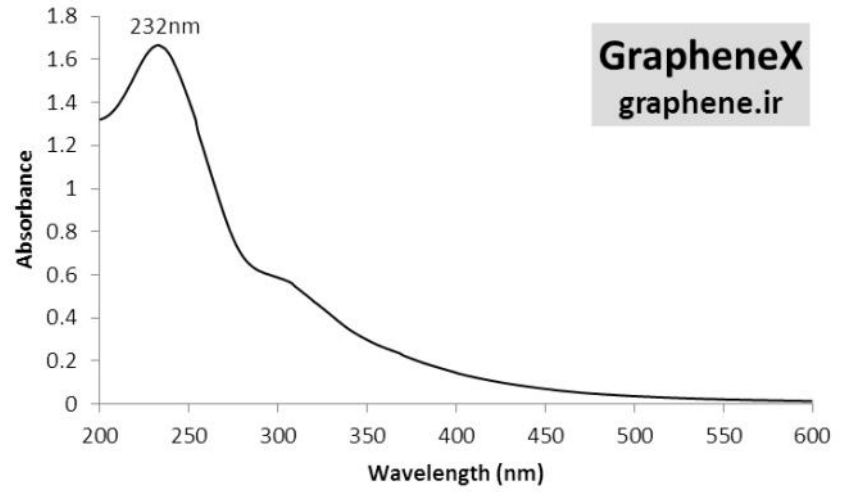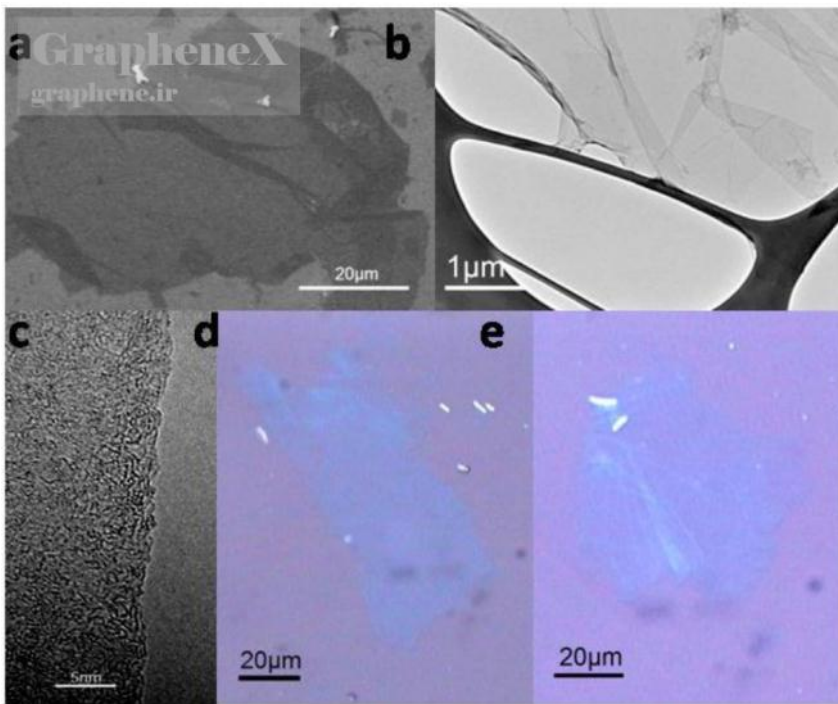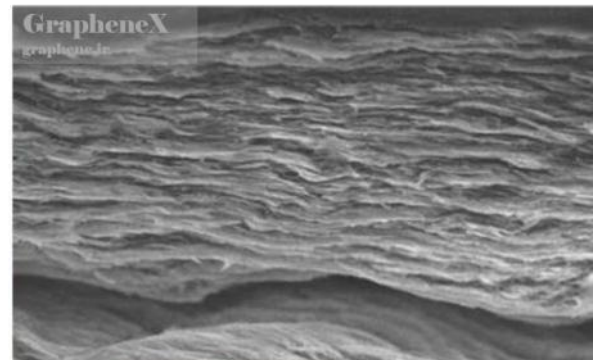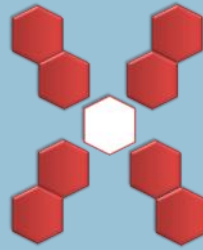

▲ **XRD-GO in organic solvents**

UV-vis ▶

GrapheneX
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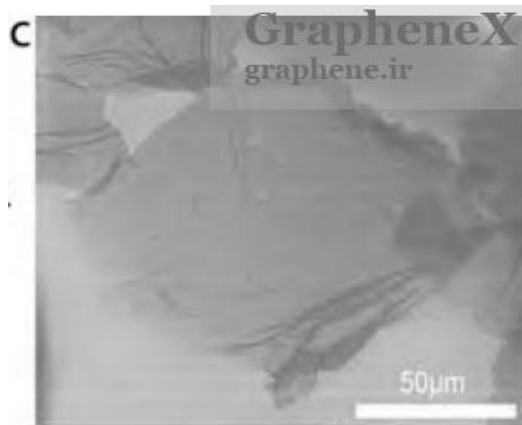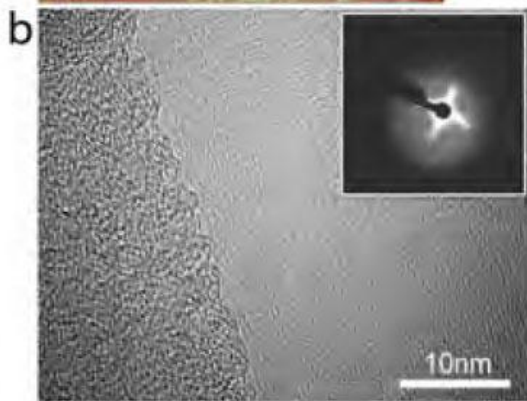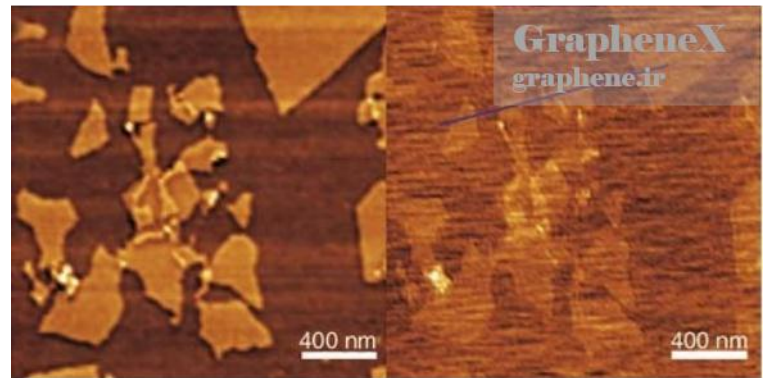

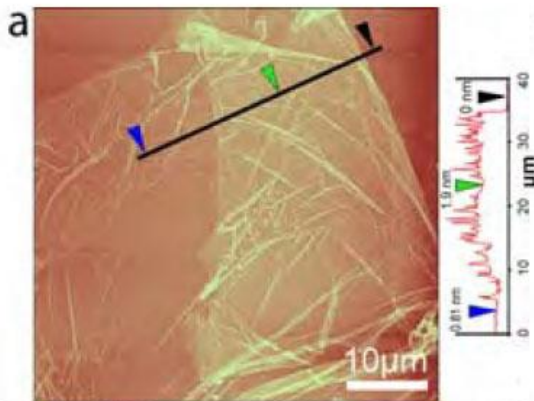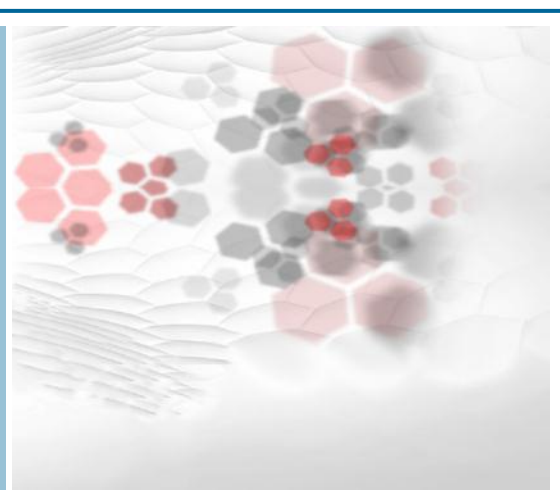◀ **a) SEM , b)TEM , c) HRTEM
d,e) Optical Microscopy**

**SEM of graphene sheets arrangement
in polymeric matrix** ▶
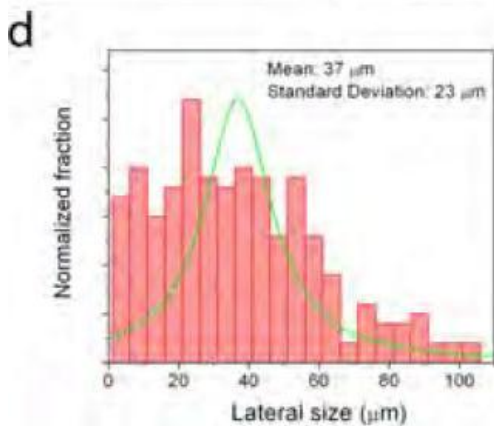
Graphene X

Delivering emerging materials with high quality
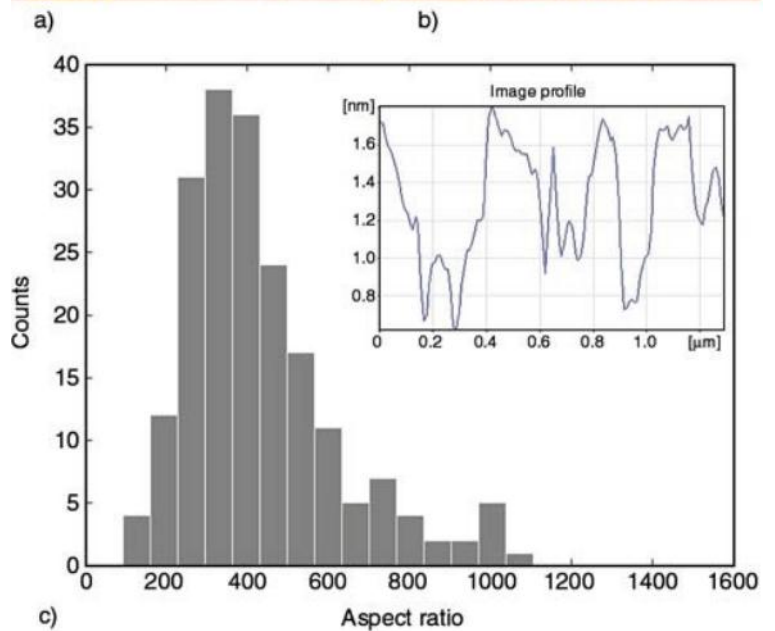
▲ **Top: AFM images**

Bottom: Aspect ratio distribution

◀ **Lateral size distribution with mean = 37 um**