www.msesupplies.com
4400 E Broadway Blvd Suite 600
Tucson AZ 85712 USA
Tel: +1-520-789-6673
Email: info@msesupplies.com

Transfer and Post Processing Recommendations

CVD Graphene

Bottom Layer removal from Cu foil

The graphene grown on the bottom part of the copper catalyst is treated for easier removal. To eliminate the bottom layer completely, an additional treatment like RIE is needed before transfer.

Adhesion to the substrate after transfer

In order to improve the adhesion between the graphene and the substrate an annealing at 150 degrees during 1h in vacuum or inert atmosphere is advisable before the removal of the sacrificial layer.

Lithography of graphene on SiO2/Si

Temperature annealing above 100 ºC to remove water trapped at the interface between the graphene and the substrate. For instance, an annealing at 300 ºC in inert atmosphere for several hours notably improves the adhesion between the graphene and the substrate

Dilute developers in water. For instance, the developer generally employed for AZ 5214 E resist, widely used for optical lithography in graphene, is a TMAH-based solvent, which usually gives delamination problems. In this case, diluting the developer in water in a 1:4 developer: water proportion notably reduces the problem.

Humidity in the laboratory. This is also a critical point for handling the graphene. The humidity value is recommended to be below 40 %

www.msesupplies.com
4400 E Broadway Blvd Suite 600
Tucson AZ 85712 USA
Tel: +1-520-789-6673
Email: info@msesupplies.com

Handling Instructions

CVD Graphene

Main Precautions


Graphene processing at temperatures >150ºC must be carried out in inert atmosphere (vacuum, N2, Ar...)


Graphene on Cu should be storage in vacuum


Graphene exposition for long time at temperatures >120ºC might result in some modifications in the graphene properties


Sonication might result in graphene detachment


Long exposition time to solvents might result in graphene detachment


Exposition to water might result in detachment


It is highly recommended do not touch graphene surface with tweezers


It is recommended to use plastic tweezers and take the substrate from the edges without touching graphene surface


In customized samples is recommended to avoid the areas close to the edges of the film


It is highly recommended to check graphene surface before and after each processing