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# UV Irradiation Unit


**It is a device that hydrophilizes graphene by UV ozone treatment with good controllability.**

**By hydrophilization with this device, a thin and uniform layer of vitreous ice can be formed on graphene.**

**It is ideal for hydrophilization treatment for LT-TEM observation using bilayer graphene TEM grid.**

## Main specifications

| | | | |
|---|---|---|---|
| Light Source | Low pressure mercury lamp wavelengt : 184.9nm, 253.7nm | Flowmeter (Air/N2) | Max. flow rate: 20L/MIN<br>Max. working pressure: 0.5MPa |
| Dimensions | W320mmxD343mmxH318mm | Operation settings | Touch panel |
| Power Supply | AC100V,2A (With earth leakage breaker) | Device weight | About 16kg |


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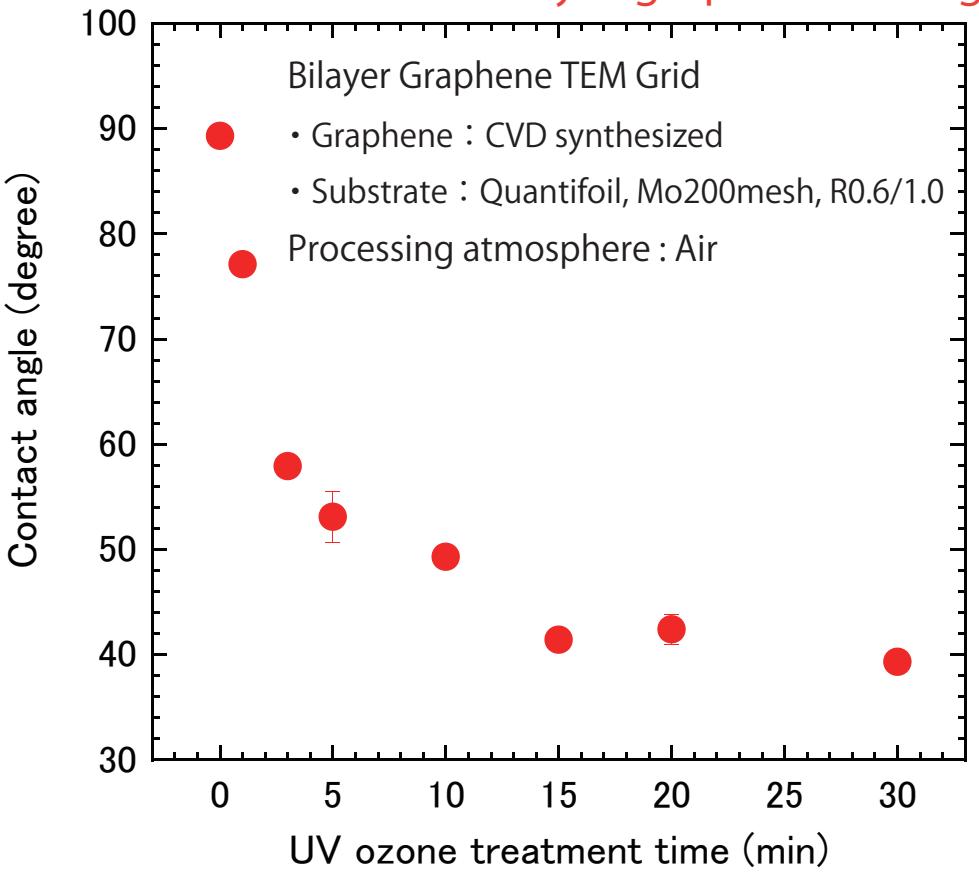
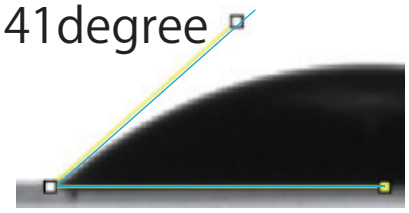
# UV ozone treatment time dependence of water contact angle of bilayer graphene TEM grid





0 min




20 min

Features : This device is a UV irradiation unit for hydrophilization treatment of bilayer graphene TEM grid. UV irradiation at 184.9 nm and 253.7 nm generates ozone and makes graphene hydrophilic. Graphene is naturally water repellent, making it difficult to form the thin, uniform ice layer needed for low-temperature TEM observations. On the other hand, the UV ozone treatment by this device is highly controllable, so it is possible to make only the upper layer of bilayer graphene hydrophilic in about 15 minutes. This allows a thin, uniform layer of ice to form on graphene and embed low temperature TEM observation samples. In addition, since there is almost no damage to the lower layer of bilayer graphene, the original electrical and thermal conductivity of graphene is maintained, and stable low-temperature TEM observation is possible.

Reference：High-precision thickness control of ice layer on CVD grown bilayer graphene for cryo-TEM, R.Kato, Y.Hatano, N.Kasahata, C.Sato, K.Suenaga, M.Hasegawa, Carbon, 160, 107-112 (2020)

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