MODEL 1070

NanoClean plasma system

Superior performance and design

Many manufacturers claim that their plasma cleaner is the fastest, most effective, or gentlest plasma cleaner on the market. But the superior design and performance of the Fischione Instruments' Model 1070 NanoClean allows it to surpass its competitors and leaves it as the only real choice to meet your plasma cleaning requirements.

Superior performance

The NanoClean is ideal for both physical and life science applications.

Physical sciences

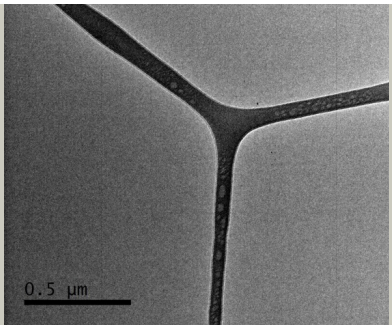
Clean specimens immediately before they are inserted into the electron microscope to remove hydrocarbon contamination and to prevent hydrocarbon build up during imaging and analysis. Removal of contamination is especially relevant when using small, high current-density electron probes, when performing high resolution imaging, and when gathering analytical data.

The NanoClean causes no change in the specimen's elemental composition or structural characteristics.

Life sciences

The NanoClean is the choice for fast, reliable hydrophilic grid preparation that promotes the deposition of biological specimens to the grid. Plasma cleaning of a carbon grid for only 20 seconds can make a hydrophobic grid hydrophilic.

The Nanoclean is safe for processing fragile grids. For example, ultrathin carbon on lacy carbon that is plasma cleaned for 3 minutes remains intact.



SAFE FOR FRAGILE GRIDS

Ultrathin carbon on lacy carbon remains intact after 3 minutes of plasma cleaning in the NanoClean.

Superior design

The NanoClean's superior design is the key to the plasma system's superior performance. How does the NanoClean stack up against the competition?

	Competitor	Model 1070 NanoClean
Capacitive vs. inductive coupling	The power amplifier is **capacitively** coupled to the plasma chamber. The electrode is located **inside** of the plasma discharge area, which increases or contributes to the likelihood of specimen heating or sputtering (see below).	The high-frequency power amplifier is **inductively** coupled to the quartz and stainless-steel plasma chamber. The electrode is located **outside** of the plasma discharge area, which decreases or eliminates the chance for specimen heating or sputtering and creates ideal plasma properties at the specimen position. The NanoClean plasma cleans a specimen without changing the specimen's elemental composition or structural characteristics.
Specimen heating	The electrode is located directly above the specimen. In the likely event that particulates attach to the electrode when the chamber is exposed to ambient, these particulates typically rain down on the sample when the plasma is activated, which can result in a significant temperature increase.	The electrode is located adjacent to the plasma discharge area (the plasma is downstream from the electrode). The distance between the electrode and the specimen means negligible chance of specimen heating.
Sputtering	Sputtering can lead to contamination. Nonetheless, the position of the electrode in the chamber directly above the specimen and specimen holder increases the chance of electrode material sputtering onto the specimen and specimen holder. Therefore, manufacturers recommend that hydrogen be used as the process gas because its lower mass (in comparison to argon) reduces the plasma cleaner's propensity to produce sputtering. Some facilities may prohibit the use of hydrogen because of the risk of explosion.	With the electrode located external to the plasma chamber, there is no chance of the electrode sputtering onto the specimen or specimen holder. This is due to the low energies at the specimen position. Consequently, there is no need to use hydrogen as the process gas in an effort to control sputtering. The NanoClean is typically operated with a mix of argon and oxygen gases (25% oxygen; 75% argon); however, the NanoClean can operate with a mix of up to three gases (argon, oxygen, and hydrogen).

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