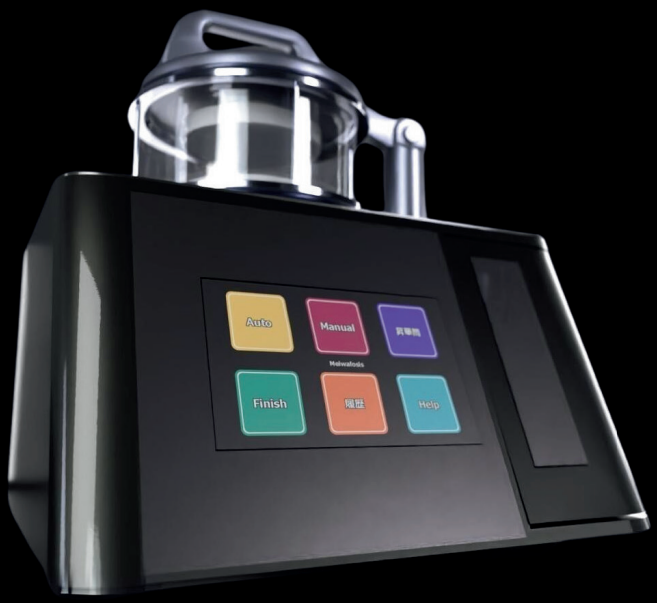
Tennant20

OSMIUM COATING SYSTEM

Discovery awaits beneath an ultra-thin veil



What is Osmium Coating?

Plasma CVD Osmium Coating

Osmium coating applies plasma CVD technology, refined through decades of use in the semiconductor industry, to deposit metallic osmium films with nanometer-scale thickness control. The process forms a highly uniform conductive film at low temperatures with exceptional thickness reproducibility.

By minimizing charging during SEM imaging and elemental analysis, it enables high-resolution observation of fine surface structures with remarkable clarity.

HIGH-PERFORMANCE DESIGN

PROPRIETARY TEFLON-INSULATED ELECTRODE

By insulating the perimeter of the electrode with Teflon, the negative glow region—where the Os film forms—is expanded to 20 mm above the sample stage (compared to just 5 mm in conventional models). This expanded region enables uniform coating across a larger number of samples in a single run.

REPRODUCIBILITY

Consistent results, regardless of who operates the system. High-speed feedback control corrects current fluctuations every millisecond, while timer control with 0.01-second resolution enables precise control of ultra-thin films from 0.5 nm upward.
By minimizing process variability, the Tennant20 delivers stable and reproducible coating results.

SAFETY

Engineered for complete gas control. A fully sealed system and automated exhaust sequence effectively manage residual osmium gas within the chamber. After coating is complete, the chamber atmosphere is automatically purged and replaced with clean air.
Dedicated solenoid valves automatically close during power interruptions, helping prevent accidental gas leakage.

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Safety Overview

■ Third-Party Analysis Results

The Osmium Coating System "Tennant20" was evaluated by Analysis Center Co., Ltd., an independent, registered Working Environmental Measurement Institution (Registration No. 13-43), to verify osmium tetroxide (OsO_4) leakage and its potential health impact.

Test Overview

- Date: August 29, 2024
- Location: Technology Lab, Head Office, Meiwafosis Co., Ltd.
- Measurement points: 9 locations, including indoor air, near/inside the chamber, exhaust port, and after the purification system

Results

OsO_4 concentration was below the detection limit (0.02 ppb) at 8 of the 9 measurement points. The single detected value — 0.08 ppb, inside the chamber before the exhaust sequence — remained well below the ACGIH exposure limits (TLV-TWA: 0.2 ppb, STEL: 0.6 ppb).

Conclusion

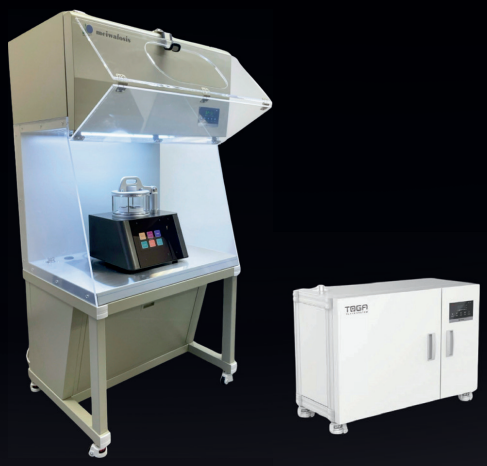
Based on these results, there is no potential health risk to human beings from osmium tetroxide under the tested conditions.
Scan the QR code for the full analysis report.

■Dedicated Purification System for Tennant20 (Fume Hood Type)

It purifies over 99% of hazardous osmium gas through a 2-stage reduction and adsorption process. The system is equipped with a specialized filter designed exclusively for osmium gas. Combined with the fully sealed rotary pump, it provides a significantly safer working environment.

Key Features

- Ductless design with a two-stage filtration system; equipped with casters for easy mobility and flexible installation
- Negative-pressure airflow prevents the leakage of hazardous substances, ensuring maximum safety
- After primary purification through the filter connected to the vacuum pump, upper and right-side blowers provide dilution and secondary purification
- Automatic alerts for filter replacement timing
- Five-level adjustable airflow speed control
- Integrated internal lighting for clear visibility



Specifications

Model: MF-OGPS-D | External Dimensions: 700(W) × 900(D) × 1765(H) mm | Control Unit: Touch panel controller | Connection Port: NW25 (Vacuum type) | Power Supply: 110 VAC, 50/60 Hz

Meiwafosis Co., Ltd.

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