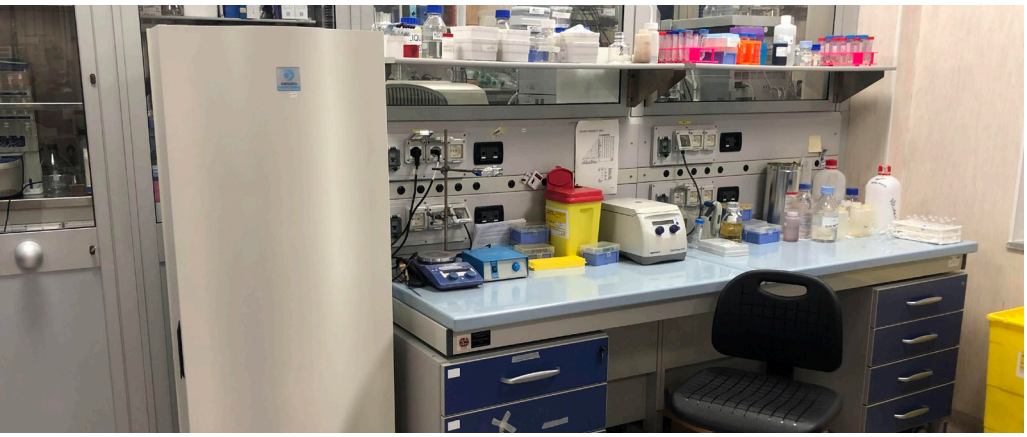
Genano Customer Case

Air decontamination in NEST research laboratories

Protecting operating personnel and preventing contamination of analyzed samples



NEST Laboratory – Scuola Normale Superiore

University scientific laboratories operating in the field of nanoscience and nanotechnology

Why is air purification needed at NEST laboratories?

In the research laboratories, most of the rooms are equipped with air exchange systems, with a flow rate of 5–6 air changes per hour. Sometimes it is advisable to increase the level of traditional air filtering systems (Hepa or Ulpa) with additional high efficiency air decontamination devices.

Example cases:

- High anthropic presence
- Particular processes with peaks of activity that create problems for the internal microclimate
- Poor air exchange
- Possible generation of particulate matter
- For the purpose of a posteriori study of environmental contamination (trap)

Dr. **Pasqualantonio Pingue**, Director of Operations at the Laboratory, lists other situations in which an extremely high level of air purification is required:

"Cases that are related to molecular biology, "in vivo" experiments and cell cultures is where we tend to protect the operating person and try to keep the level of possible contamination under control of the analyzed samples".

The outcome of efficiency tests carried out on filterless air decontamination technology

At the beginning of 2020, the NEST University Laboratory in Pisa and Genano Italy started carrying out tests on a Genano professional air decontamination unit.

After obtaining the desired results, NEST deemed it useful to use the air decontamination device during the cleaning processes of the vacuum chamber of a Chemical Beam Epitaxy (CBE) type growth system, demonstrating that the unit is able to capture micro and nano powders that are generated in the environment during the maintenance processes of the vacuum chamber.

The following laboratories are equipped with four Genano units, including one with a kit to create negative pressure:

- Molecular biology
- Cell cultures
- In vivo microscopy
- Microscopy in a BSL2 environment

To ensure greater control of air quality, some laboratories were equipped with Airwits Genano sensors for PM1, VOC and CO2 particle counts.

Extra benefits Genano air decontamination brings for the laboratories

On top of capturing even the nano sized particles and safeguarding the health of operating personell, Dr. Pingue comments the benefits of using Genano unit:

"The researchers were able to verify the type of substances captured by the unit through analyzing the residue from the collection tray inside the air decontamination unit."

Also high-efficiency active carbon ensures the elimination of solvent odors and volatile organic compounds (VOCs) for the benefit of staff health.

"On the one hand, we have been able to test by means of particulate "capture" and its subsequent ICP-MS analysis, the specifics of contamination of the working environment. On the other hand we have verified how users have declared an improvement in working conditions in terms of perceived odors".

More information on Genano air decontamination units: **www.genano.com**