

Which Air-Treatment Technology Is Right for Your Problem?

Different technologies solve different problems — the right choice depends on the contaminant, space, airflow and desired result.



What matters		HEPA	UV-C	PCO	Needlepoint BPI	Activated Carbon
Main purpose	Distributed ion treatment	Particle capture	Microbial control	Oxidises certain gases / VOCs	Ion generation / particle charging	Adsorbs certain gases / odours
Treatment goes into the room?	YES	No — air must reach filter	Usually no	Depends on design	Depends on installation	No — air must reach media
Particle control	YES	Excellent	Not primary purpose	Not primary purpose	Can assist	Not primary purpose
Odour / VOC control	YES	Not primary purpose	Limited	Certain VOCs	Evidence varies by application	Certain gases / odours
Microorganisms	YES under suitable conditions	Can remove some with particles	Strong when properly designed	Can be effective	Evidence varies by application	Not primary purpose
Can scale to HVAC airflow	Yes — single or multi-tube systems	Yes	Yes	Yes	Yes	Yes
Typical maintenance	Tube cleaning / replacement	Filter replacement	Lamp cleaning / replacement	Lamp / catalyst maintenance	Electrode cleaning / maintenance varies	Media replacement
Ozone / secondary chemistry	Certified fixed models available (UL 2998)	No active chemistry	Depends on wavelength / design	Possible oxidation intermediates	Depends on design	No active chemistry
Main limitation	Needs correct sizing, airflow & distribution	Only treats air through filter	Needs correct dose and exposure	Needs contact time; chemistry varies	Room delivery and results vary	Media becomes saturated

Notes: "Certain" and "can" are intentional — performance depends on product design, installation, contaminant and operating conditions. UL 2998 applies only to specific certified PurAir fixed models.

PurAire's DBD Bipolar Ionisation vs. Other Air-Treatment Technologies



	 DBD Bipolar Ionisation	HEPA Filtration	UV Light	Photocatalytic Oxidation (PCO)	"Needlepoint" Ionisation	Carbon Filters	Room Ionisers & Electronic Air Cleaners
Active technology (actively treats the air)	Active	Passive	Passive	Passive	Passive	Passive	Passive
Deactivates contaminants & pathogens in the room	✓	✗	✗	✓	✗	✗	✗
Reduces odours	✓	✗	✗	✓	✗	✓	✗
Reduces VOCs	✓	✗	✗	✗	✓	✓	✗
Reduces airborne particles	✓	✓	✗	✗	✗	✓	✓
Effective on viruses, bacteria & germs	✓	✗	✓	✓	✗	✗	✗
Ozone-free operation	✓	✓	✗	✗	✓	✓	✗
Low pressure drop (energy-efficient airflow)	✓	✗	✓	✓	✓	✗	✓
Maintenance interval	Yearly	Quarterly	Yearly tube replacement	Yearly	6 mths – 2 yrs	Monthly	Monthly
No HVAC re-engineering required	✓	✗	✓	✓	✓	✗	✓
Suits new-build & retrofit applications	✓	✗	✓	✓	✓	✗	✗
Reduces energy costs	✓	✗	✓	✗	✗	✗	✗
No chemical by-products	✓	✓	✓	✗	✓	✓	✓
"Smart" system available (sensors & monitoring)	✓	✗	✗	✗	✗	✗	✗

✓ Favourable / offered ✗ Not offered or unfavourable

Comparison reflects typical performance of each technology category; individual products vary. PurAire performance claims are based on independent testing under specified conditions — real-world results vary by installation, sizing and application.