

## Biochar Air Filter – A More Sustainable Way of Reducing Particulate Matters in Air

Particulate matters (PMs) can affect our respiratory systems and lead to health hazards such as aggravated asthma, irritation of airways and even heart attacks.



*Biochar air filtration unit, with highly customizable dimensions and shape for different air duct systems*

Effectiveness and durability of air filtration system is very important, especially if Singapore wants to promote the widespread utilization of natural ventilation and occupant's health and comfort.

Conventional fabric-based air filter causes pressure drop across the filter as air passes through it.

This worsens when the pores in the filter are blocked by pollutants.

Specially made air filters containing biochar is able to remove about 12.2% of the PM<sub>10</sub> and 32.9% of the PM<sub>2.5</sub> from external air before it is channelled into buildings. When the external air has very high PM levels, for example during a haze incident, this biochar air filter can remove higher percentages of PMs.

Air speed actually increases and stabilizes after passage through biochar air filter, which is the result of flow straightening and reduction of air turbulence.

### Applications:

- Air purification in buildings

### Capabilities:

- Low cost
- Biochar is made from recycling of biomass waste
- Plug-and-Play system
- Dimension and shape easily customized to different air duct system

### Benefits:

- Reduce pressure drop of air flowing through the filter
- Improve occupant's health by significantly reducing PM levels in the fresh air taken into the air duct
- Suitable for use where clean air is crucial, including in healthcare facilities.

### Contact Information:

[kristina.ra@biochar-innovations.com](mailto:kristina.ra@biochar-innovations.com)

(Kristina Razanskaite)

[bdgkuahw@nus.edu.sg](mailto:bdgkuahw@nus.edu.sg)

(Dr. Kua Harn Wei)

11 Collyer Quay #17-00 The Arcade Singapore 049317

<https://biochar-innovations.com/>

Project Principal Investigator:

Dr. Kua Harn Wei / Biochar Innovations Pte Ltd.

Project supported by GBIC Product Prototyping