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cea tech

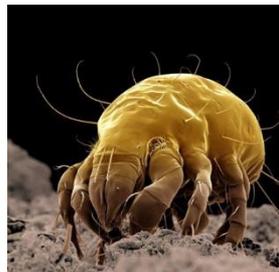
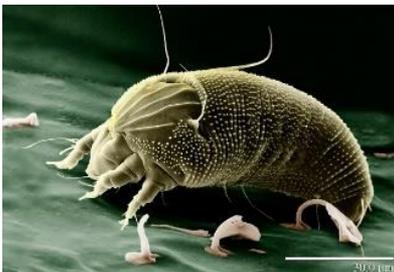


NANOSAFE

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Introduction

- Each day **we inhale 12000 litres of air**, the largest part of which comes **from indoor environments** where we spend 80 to 90% of our time.
- It is now widely acknowledged that **chronic exposure to pollutants has a larger effect on health than pollution peaks**, the consequences of which are comparatively marginal.
- To deal with this issue, public authorities recommend to **limit emission sources** (materials and certain activities), **air rooms regularly** and use **mechanical ventilation**.



In this alarming context, the market of air cleaners is booming

A large number of portable air cleaners can be found, with attractive design and claims to eliminate pollutants and sometimes improve well-being.



PHILIPS
AC3259/10...



Dyson Pure Cool
Purificateur de...



Biota Bot
MM208



Biota Bot
MM108
Desktop



Coway Mighty
AP-1512HH
w/ Eco Mode



Levoit LV-
H132



Purificateur d'air
Aicok - Filtre...



Philips
AC3256/10 -...



Austin Air
Healthmate
HM-400



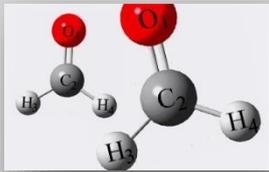
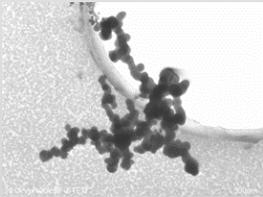
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Key Vendors

- DAIKIN Industries
- Honeywell International
- Koninklijke Philips
- Panasonic Corporation
- Sharp Corporation

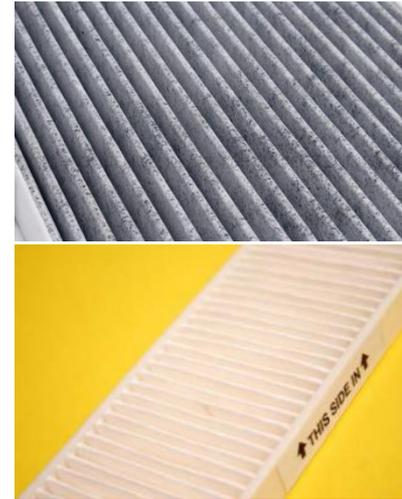
Global Residential Portable Air Purifier Market (2018-2022) is Forecast to Grow at a CAGR of 6.79% - ResearchAndMarkets.com

Particles & VOCs removal



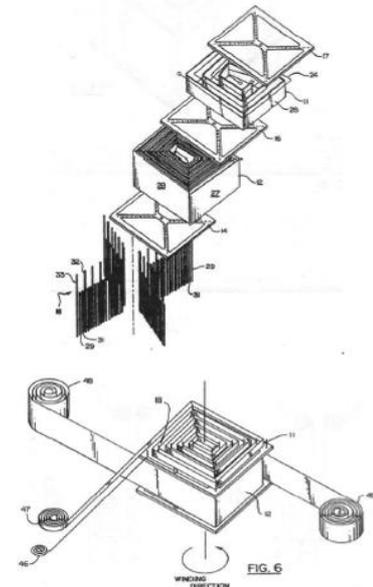
Passive components

- Common portable air cleaners include two filters, one for particles and another for gases
- Mainly based on High-efficiency particle arresting (HEPA) and activated carbon adsorbants



Active systems

- Electrostatic precipitator
- Ion generators
- Photocatalytic filters for VOCs...



When selecting a portable air cleaner keep in mind:

- 1. No air cleaner or filter will eliminate all of the air pollutants in your home:** there exists no air purifier with 100% efficiency
- 2. All filters need regular replacement:** 6 to 12 months depending on suppliers
- 3. Portable air cleaners can both remove and generate pollutants indoors:** ozone, ultrafine and fine particles, secondary organic aerosol (SOA), carbonyls, oxidized products and free radicals.
- 4. Researchers have developed performance metrics to uniformly evaluate portable air cleaners:** Clean Air Delivery Rate (CADR), effective volumetric flow rate of clean air delivered by the air cleaners.

Markets in the world

- The indoor air purification market in the United States and Asia is already colossal (more than \$ 8 billion in 2016).
 - 3 of ten american households own one type of air cleaning device
- Today the Chinese market, grows of 10 to 15% per year.
- The next attractive market will probably be India