

CLAIMS

1. A heated resistant pleated filter media for a clean room environment, **characterized in that** the pleated filter media is regenerated by heated air flow above 125°C at 1 atm, said pleated filter media being heat resistant to melting and burning for temperature of up to at least 190°C, and comprises

at least an adsorbent first layer of activated carbon or polymer wherein said activated carbon or polymer together with heat resistant fibers and/or an adhesion agent or a combination of heat resistant fibers and adhesion agent is enclosed between two second heat resistant layers of heat resistant non-woven with a heat resistant support grid positioned on at least one side of either of the second layers or incorporated in the first layer for preventing deformation of the pleated filter media when regenerated by a heated air flow above ~~100~~125°C at 1 atm.

2. ~~A~~The pleated filter media ~~for a clean room environment according to claim 1,~~ characterized in that the wherein an adsorbent in the layer of activated carbon has the a shape of, fiber, powder, granular, pellet or beads.

3. ~~A~~The pleated filter media ~~for a clean room environment according to claims 1 or 2,~~ characterized in that wherein the activated carbon is chosen from coal, coconut, polymers, and naphtha and further polymer adsorbent such as a macroporous styrene-divinyl benzene.

4. ~~A~~The pleated filter media ~~for a clean room environment according to claims 1-3,~~ characterized in that wherein the grid is made from aluminium, steel or high temperature resistant plastic material.

5. ~~A~~The pleated filter media ~~for a clean room environment according to claims 1-4,~~ characterized in that wherein the grid has an open area of 50-95% of the total area.

6. ~~A~~The pleated filter media ~~for a clean room environment according to claim 5,~~ characterized in that wherein the grid is made in the a shape of a net.

7. ~~A~~The pleated filter media for a clean room environment according to claims 1-6, characterized in that wherein the pressure drop over the a flat media is up to 75 Pa at 0.11 m/s air face velocity.

8. ~~A~~The pleated filter media for a clean room environment according to any of claims 1-7, characterized in that wherein the fibers are heat resistant bi-component fibers.

9. ~~A~~The pleated filter media for a clean room environment according to any of claims 1-8, characterized in that wherein the adsorbent is made of polymeric material or activated carbon material with an inner area of 500 m²/g to 3000 m²/g and with a micropore volume of 0.2 cm³/g to 0.8 cm³/g.

10. ~~A~~The pleated filter media for a clean room environment according to any of claims 1-9, characterized in that wherein at least two different adsorbents are selected and used in different layers within a filter element to match an intended mixture of volatile organic compounds to be removed.

11. ~~A~~The pleated filter media for a clean room environment characterized in that it comprises at least a pleated filter media according to any of according to claims 1-10, and further comprising a frame.

12. ~~A~~The pleated filter media for a clean room environment according to claim 11, characterized in that it further comprisinges a temperature resistant sealant.

13. Use of pleated filter media or filter element for a clean room environment according to any of claims 1-12 in the microelectronic industry, bare wafer manufacturing, semiconductor industry, printed circuit board assembly, hard disk manufacturing, flat panel manufacturing, biochips manufacturing, pharmaceutical industry, food industry, hospital clean environments, IVF laboratories, solar panel manufacturing laboratory, cabinets and fume hoods air systems.