

CLAIMS

1. An electrostatic precipitator, comprising:
a chamber having an inlet configured to receive an effluent stream for treatment and an outlet configured to convey a treated effluent stream; and
5 an electrode structure housed within said chamber, said electrode structure being operable to generate a corona for treating said effluent stream to produce said treated effluent stream, wherein said electrode structure comprises at least one comb structure having a shaft and a plurality of teeth extending from said shaft, said corona being generated at a free tip of each tooth in response to
10 a voltage when applied across said electrode structure and said chamber.
2. The electrostatic precipitator of claim 1, wherein each tooth comprises at least one free end portion extending from said shaft, said free end portion terminating at said free tip.
- 15 3. The electrostatic precipitator of claim 1 or 2, wherein said shaft is elongate having said plurality of teeth spaced along its axial length.
4. The electrostatic precipitator of any preceding claim, wherein a distance
20 between adjacent teeth is greater than a width of each tooth and preferably greater than ten times a width of each tooth.
5. The electrostatic precipitator of any preceding claim, wherein a height of each tooth is greater than its width and preferably greater than five times its
25 width.
6. The electrostatic precipitator of any preceding claim, wherein at least said free tip is tapered and preferably wherein said taper has a taper angle of at least
30 45°.
7. The electrostatic precipitator of any preceding claim, wherein said free tip has a length which is around 1/16th of a total length of said tooth.

8. The electrostatic precipitator of any preceding claim, comprising a plurality of comb structures and preferably wherein said plurality comb structures are positioned circumferentially around said chamber.

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9. The electrostatic precipitator of any preceding claim, wherein said free end portions are orientated to extend radially within said chamber.

10. The electrostatic precipitator of any preceding claim, comprising a fluid cleaner configured to spray a fluid onto said electrode structure.

11. The electrostatic precipitator of any preceding claim, wherein said comb structure comprises a plurality of electrode wires as said teeth extending from at least one electrode support structure as said shaft,

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12. The electrostatic precipitator of claim 11, wherein said electrode wire comprises at least one free end portion extending from said electrode support structure, said free end portion terminating at said free tip.

20 13. The electrostatic precipitator of claim 12, wherein said free end portion comprise a mass structure located towards said free tip.

14. The electrostatic precipitator of any one of claims 11 to 13, wherein said electrode wires comprise legs of a spring.

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15. A method of manufacture of an electrostatic precipitator, comprising:
providing a chamber having an inlet configured to receive an effluent stream for treatment and an outlet configured to convey a treated effluent stream;
forming an electrode structure from at least one comb structure having a shaft and a plurality of teeth extending from said shaft; and
30 housing said electrode structure within said chamber.