

Claims

What is claimed:

1. A filter comprising:
a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass.
2. The filter of claim 1, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.
3. The filter of claim 1, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.
4. The filter of claim 1, wherein the porous mass has a void volume of about 40% to about 90%.
5. The filter of claim 1, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gadolinium oxide nanoparticle, a gadolinium oxide nanoparticle, a gadolinium oxide nanoparticle, an endofullerene, Gd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.
6. The filter of claim 1, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin low, polypropylene low, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.
7. The filter of claim 1, wherein the binder particle is a non-fibrous binder particle.

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8. The filter of claim 1, wherein the binder particle comprises a thermoplastic material.
9. The filter of claim 1, wherein the binder particle has a melt flow index less than or equal to about 3.5 g/10min at 190°C and 15 Kg.
10. The filter of claim 1, wherein the binder particle has a melt flow index less than or equal to about 2.0 g/10min at 190°C and 15 Kg.
11. The filter of claim 1, wherein the binder particle has a shape selected from the group consisting of: spherical, hyperion, asteroidal, chondular or interplanetary dust-like, granulated, potato, irregular, and any combination thereof.
12. The filter of claim 1, wherein the binder particle has a particle size in at least one dimension ranging from about 0.1 nanometers to about 5000 microns.
13. The filter of claim 1, wherein the porous mass comprises a plurality of active particles and a plurality of binder particles, and wherein the active particles and the binder particles are bound together at a plurality of randomly distributed points throughout the porous mass.
14. The filter of claim 1, wherein the active particle comprises activated carbon.
15. The filter of claim 1, wherein the active particle comprises at least one selected from the group consisting of: an ion exchange resin, a desiccant, a silicate, a molecular sieve, a metallocene, a silica gel, activated alumina, a zeolite, perlite, sepiolite, Fuller's Earth, magnesium silicate, a metal oxide, iron oxide, activated carbon, and any combination thereof.
16. The filter of claim 1, wherein the active particle has a particle size in at least one dimension ranging from about 0.1 nanometers to about 5000 microns.
17. The filter of claim 1, wherein the porous mass comprises a plurality of active particles and a plurality of binder particles, and wherein the porous mass comprises a ratio of the active particles to the binder particles ranging from about 1 wt% active particles and about 99 wt% binder particles to about 99 wt% active particles and about 1 wt% binder particles.
18. The filter of claim 1, wherein the porous mass comprises a plurality of active particles and a plurality of binder particles, and wherein the porous mass comprises a ratio of the active particles to the binder particles ranging from about 75 wt% active particles and

about 25 wt% binder particles to about 90 wt% active particles and about 10 wt% binder particles.

19. The filter of claim 1, wherein the porous mass has a length of about 1 mm to about 35 mm.

20. The filter of claim 1, wherein the porous mass has a shape selected from the group consisting of: a helical shape, a triangular shape, a disk shape, and a square shape.

21. The filter of claim 1, wherein the porous mass comprises activated carbon, and wherein the porous mass is capable of reducing acetaldehydes in a smoke stream by about 3.0%/mm to about 6.5%/mm length of porous mass; acrolein in a smoke stream by about 7.5%/mm to about 12.5%/mm length of porous mass; benzene in a smoke stream by about 5.5%/mm to about 8.0%/mm length of porous mass; benzo[a]pyrene in a smoke stream by about 9.0%/mm to about 21.0%/mm length of porous mass; 1,3-butadiene in a smoke stream by about 1.5%/mm to about 3.5%/mm length of porous mass; and formaldehyde in a smoke stream by about 9.0%/mm to about 11.0%/mm length of porous mass.

22. A smoking device comprising:
a smokeable substance; and

a filter comprising a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass.

23. The smoking device of claim 22, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

24. The smoking device of claim 22, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

25. The smoking device of claim 22, wherein the porous mass has a void volume of about 40% to about 90%.

26. The smoking device of claim 22, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a

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fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gadolinium oxide nanoparticle, a gadolinium oxide nanoparticle, an endofullerene, Gd@C60, a core-shell nanoparticle, an ionated nanoparticle, a nanoshell, an ionated iron oxide nanoparticle, and any combination thereof.

27. The smoking device of claim 22, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

28. The smoking device of claim 22, wherein the smokeable substance comprises at least one selected from the group consisting of: tobacco, bright leaf tobacco, burley tobacco, Oriental tobacco, Turkish tobacco, Cavendish tobacco, corajo tobacco, criollo tobacco, Perique tobacco, shade tobacco, white burley tobacco, and any combination thereof.

29. The smoking device of claim 22, wherein the filter consists essentially of the porous mass.

30. The smoking device of claim 22, wherein the filter is substantially degradable over time.

31. The smoking device of claim 22, wherein the filter comprises a plurality of sections, wherein at least one section comprises the porous mass.

32. The smoking device of claim 31, wherein the filter comprises at least one section that comprises at least one element selected from the group consisting of: cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, a paper, a corrugated paper, a concentric filter, a peripheral filter of fibrous tow and a core of a web material, carbon-on-tow, a Dalmatian filter, silica, magnesium silicate, a zeolite, a molecular sieve, a metalloene, a salt, a catalyst, sodium chloride, nylon, a flavorant, tobacco, a capsule, cellulose, a cellulosic derivative, a catalytic converter, iodine pentoxide, a coarse powder, a carbon particle, a carbon fiber, a fiber, a glass bead, a void chamber, a baffled void chamber, and any combination thereof.

33. The smoking device of claim 22, wherein the filter comprises a cavity.

34. The smoking device of claim 33, wherein the cavity comprises at least one selected from the group consisting of: granulated carbon, a flavorant, a capsule, and any combination thereof.

35. The smoking device of claim 22, wherein the filter further comprises a flavorant that comprises at least one selected from the group consisting of: tobacco, clove, ground clove, ground clove flower, cocoa, menthol, cloves, cherry, chocolate, orange, mint, mango, vanilla, cinnamon, tobacco, anethole, licorice, limonene, citrus, eugenol, and any combination thereof.

36. The smoking device of claim 22, wherein the porous mass further comprises a flavorant that comprises at least one selected from the group consisting of: menthol, clove, cherry, chocolate, orange, mint, mango, vanilla, cinnamon, tobacco, and any combination thereof.

37. The smoking device of claim 22, wherein the filter has a diameter from about 5 mm to about 10 mm and a length from about 5 mm to about 35 mm.

38. The smoking device of claim 22, wherein the filter has a diameter from about 0.5 mm to about 5 mm.

39. The smoking device of claim 22, wherein the porous mass has a void volume of about 40% to about 90%.

40. The smoking device of claim 22, wherein the binder particle has a melt flow index less than or equal to about 5.5 g/10min at 190°C and 15 Kg.

41. The smoking device of claim 22, wherein the porous mass has an encapsulated pressure drop ranging from about 0.1 mm to about 7 mm of water per mm length of porous mass.

42. The smoking device of claim 22, wherein the active particle is capable of reducing or removing a smoke stream component selected from the group consisting of: acetaldehyde, acetamide, acetone, acrolein, acrylamide, acrylonitrile, aflatoxin B-1, 4-aminobiphenyl, 1-aminonaphthalene, 2-aminonaphthalene, ammonia, ammonium salts, anabasine, anatabine, 0-anisidine, arsenic, A- α -C, benz[a]anthracene, benz[b]fluoranthene, benz[j]aceanthrylene, benz[k]fluoranthene, benzene, benzo(b)furane, benzol[a]pyrene, benzo[c]phenanthrene, beryllium, 1,3-butadiene, butyraldehyde, cadmium, caffeic acid, carbon monoxide, catechol, chlorinated dioxins/furans, chromium, chrysene, cobalt,

coumarin, a cresol, crotonaldehyde, cyclopentadiene, dibenz(a,h)acridine, dibenz(a,j)acridine, dibenz[a,h]anthracene, dibenzo(c,g)carbazole, dibenzo[a,e]pyrene, dibenzo[a,h]pyrene, dibenzo[a,i]pyrene, dibenzo[a,l]pyrene, 2,6-dimethylaniline, ethyl carbamate (urethane), ethylbenzene, ethylene oxide, eugenol, formaldehyde, furan, glu-P-1, glu-P-2, hydrazine, hydrogen cyanide, hydroquinone, indeno[1,2,3-cd]pyrene, IQ, isoprene, lead, MeA- α -C, mercury, methyl ethyl ketone, 5-methylchrysene, 4(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK), 4(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL), naphthalene, nickel, nicotine, nitrate, nitric oxide, a nitrogen oxide, nitrite, nitrobenzene, nitromethane, 2-nitropropane, N-nitrosanabasine (NAB), N-nitrosodietanolamine (NDELA), N-nitrosodietylamine, N-nitrosodimethylamine (NDMA), N-nitrosoethylmethylamine, N-nitrosomorpholine (NMOR), N-nitrosomonicotine (NINN), N-nitrosopiperidine (NPIP), N-nitrosopyrrolidine (NPLYR), N-nitrososarcosine (NSAR), phenol, PhIP, polonium-210 (radio-isotope), propionaldehyde, propylene oxide, pyridine, quinoline, resorcinol, selenium, styrene, tar, 2-toluidine, toluene, Trp-P-1, Trp-P-2, uranium-235 (radio-isotope), uranium-238 (radio-isotope), vinyl acetate, vinyl chloride, and any combination thereof.

43. The smoking device of claim 22, wherein the active particle comprises activated carbon.

44. The smoking device of claim 22, wherein the active particle comprises at least one selected from the group consisting of: an ion exchange resin, a desiccant, a silicate, a molecular sieve, a metallocene, a silica gel, activated alumina, a zeolite, perlite, sepiolite, Fuller's Earth, magnesium silicate, a metal oxide, iron oxide, activated carbon, a nanoparticle, and any combination thereof.

45. A smoking device filter comprising:
at least two neighboring longitudinal in-series sections,

wherein a first section comprises a porous mass that comprises an active particle and an ultra high molecular weight binder particle and wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass;

wherein a second section comprises a section that is selected from the group consisting of: a cavity, cellulose acetate, polypropylene, polyethylene, polyolefin tow,

polypropylene low, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, a paper, a corrugated paper, a concentric filter, carbon-on-low, silica, magnesium silicate, a zeolite, a molecular sieve, a metallocene, a salt, a catalyst, sodium chloride, nylon, a flavorant, tobacco, a capsule, cellulose, a celulosic derivative, a catalytic converter, iodine pentoxide, a coarse powder, a carbon particle, a carbon fiber, a fiber, a glass bead, a nanoparticle, a void chamber, a baffled void chamber, and any combination thereof.

46. The smoking device filter of claim 45, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

47. The smoking device filter of claim 45, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

48. The smoking device filter of claim 45, wherein the porous mass has a void volume of about 40% to about 90%.

49. The smoking device filter of claim 45, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gado-nanotube, an endofullerene, Gd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

50. The smoking device filter of claim 45, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

51. The smoking device filter of claim 45, further comprising a third section that comprises an element selected from the group consisting of a cavity, cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate,

polybutylene terephthalate, random oriented acetate, a paper, a corrugated paper, a concentric filter, carbon-on-tow, silica, magnesium silicate, a zeolite, a molecular sieve, a metallocene, a salt, a catalyst, sodium chloride, nylon, a flavorant, tobacco, a capsule, cellulose, a cellulosic derivative, a catalytic converter, iodine pentoxide, a coarse powder, a carbon particle, a carbon fiber, a fiber, a glass bead, a nanoparticle, a void chamber, a baffled void chamber, and any combination thereof.

52. The smoking device filter of claim 45, wherein the binder particle has a melt flow index less than or equal to about 3.5 g/10min at 190°C and 15 Kg.

53. The smoking device filter of claim 45, wherein the active particle is capable of reducing or removing a smoke stream component selected from the group consisting of: acetaldehyde, acetamide, acetone, acrolein, acrylamide, acrylonitrile, aflatoxin B-1, 4-aminobiphenyl, 1-aminonaphthalene, 2-aminonaphthalene, ammonia, ammonium salts, anabasine, anatabine, 0-anisidine, arsenic, A- α -C, benz[a]anthracene, benz[b]fluoranthene, benz[j]aceanthrylene, benz[k]fluoranthene, benzene, benzo(b)furan, benzo[a]pyrene, benzo[c]phenanthrene, beryllium, 1,3-butadiene, butyraldehyde, cadmium, caffeic acid, carbon monoxide, catechol, chlorinated dioxins/furans, chromium, chrysene, cobalt, coumarin, a cresol, crotonaldehyde, cyclopenta[c,d]pyrene, dibenz(a,h)acridine, dibenz(a,j)acridine, dibenz[a,h]anthracene, dibenzo(c,g)carbazole, dibenzo[a,e]pyrene, dibenzo[a,h]pyrene, dibenzo[a,i]pyrene, dibenzo[a,l]pyrene, 2,6-dimethylaniline, ethyl carbamate (urethane), ethylbenzene, ethylene oxide, eugenol, formaldehyde, furan, glu-P-1, glu-P-2, hydrazine, hydrogen cyanide, hydroquinone, indeno[1,2,3-cd]pyrene, IQ, isoprene, lead, MeA- α -C, mercury, methyl ethyl ketone, 5-methylchrysene, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (MNK), 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL), naphthalene, nickel, nicotine, nitrate, nitric oxide, a nitrogen oxide, nitrile, nitrobenzene, nitromethane, 2-nitropropane, N-nitrosanabasine (NAB), N-nitrosodietanolamine (NDELA), N-nitrosodietylamine, N-nitrosodimethylaniline (NDMA), N-nitrosoethylmethylaniline, N-nitrosomorpholine (NMOR), N-nitrosomornicotine (NINN), N-nitrosopiperidine (NP1P), N-nitrosopyrrolidine (NPYR), N-nitrososarcosine (NSAR), phenol, PhIP, polonium-210 (radio-isotope), propionaldehyde, propylene oxide, pyridine, quinine, resorcinol, selenium, styrene, tar, 2-toluidine, toluene, Trp-P-1, Trp-P-2, uranium-235 (radio-isotope), uranium-238 (radio-isotope), vinyl acetate, vinyl chloride, and any combination thereof.

60. The smoking device of claim 54, wherein the housing is at least one selected from the group consisting of: a cigarette, a cigarette holder, a cigar, a cigar holder, a pipe, a water pipe, a hookah, an electronic smoking device, a roll-your-own cigarette, a roll-your-own cigar, and a paper.

5 61. The smoking device of claim 54, wherein the filter has a diameter from about 5 mm to about 10 mm and a length from about 5 mm to about 35 mm.

62. The smoking device of claim 54, wherein the filter has a diameter from about 0.5 mm to about 5 mm.

10 63. The smoking device of claim 54, wherein the smokeable substance comprises at least one selected from the group consisting of: tobacco, bright leaf tobacco, burley tobacco, Oriental tobacco, Turkish tobacco, Cavendish tobacco, corajo tobacco, criollo tobacco, Perique tobacco, shade tobacco, white burley tobacco, and any combination thereof.

64. The smoking device of claim 54, wherein the smokeable substance is in the form of a tobacco column.

15 65. The smoking device of claim 64, wherein the tobacco column comprises a bendable element.

66. The smoking device of claim 54, wherein the smokeable substance comprises at least one selected from the group consisting of: tobacco, sugar, sucrose, brown sugar, invert sugar, high fructose corn syrup, propylene glycol, glycerol, cocoa, a cocoa product, a carob bean gum, a carob bean extract, a flavorant, menthol, licorice extract, diammonium phosphate, ammonium hydroxide, and any combination thereof.

67. The smoking device of claim 54, wherein the filter is removable, replaceable, disposable, recyclable, degradable, and/or any combination thereof.

25 68. The smoking device of claim 54, wherein the active particle is capable of reducing or removing a smoke stream component selected from the group consisting of: acetaldehyde, acetamide, acetone, acrolein, acrylamide, acrylonitrile, aflatoxin B-1, 4-aminobiphenyl, 1-aminonaphthalene, 2-aminonaphthalene, ammonia, ammonium salts, anabasine, anatabine, 0-anisidine, arsenic, A- α -C, benz[a]anthracene, benz[b]fluoranthene, benz[j]aceanthrylene, benz[k]fluoranthene, benzene, benzo(b)furan, benzo[a]pyrene, 30 benz[c]phenanthrene, beryllium, 1,3-butadiene, butyraldehyde, cadmium, caffeic acid, carbon monoxide, catechol, chlorinated dioxins/furans, chromium, chrysene, cobalt, coumarin, a cresol, crotonaldehyde, cyclopenta[c,d]pyrene, dibenz(a,h)acridine,

dibenz(a,j)acridine, dibenz[a,h]anthracene, dibenzo(c,g)carbazole, dibenzo[a,e]pyrene, dibenzo[a,h]pyrene, dibenzo[a,i]pyrene, dibenzo[a,l]pyrene, 2,6-dimethylaniline, ethyl carbamate (urethane), ethylbenzene, ethylene oxide, eugenol, formaldehyde, furan, glu-P-1, glu-P-2, hydrazine, hydrogen cyanide, hydroquinone, indenol, 1,2,3-cd]pyrene, IQ, isoprene, lead, MeA- α -C, mercury, methyl ethyl ketone, 5-methylchrysene, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (NNK), 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL), naphthalene, nickel, nicotine, nitrate, nitric oxide, a nitrogen oxide, nitrite, nitrobenzene, nitromethane, 2-nitropropane, N-nitrosanabasine (NAB), N-nitrosodietlanolamine (NDELA), N-nitrosodietylamine, N-nitrosodimethylamine (NDMA), N-nitrosoethylmethylamine, N-nitrosomorpholine (NMOR), N-nitrososomnicotine (NNN), N-nitrosopiperidine (NPIP), N-nitrosopyrrolidine (NPYR), N-nitrososarcosine (NSAR), phenol, PhIP, polonium-210 (radio-isotope), propionaldehyde, propylene oxide, pyridine, quinoline, resorcinol, selenium, styrene, tar, 2-toluidine, toluene, Trp-P-1, Trp-P-2, uranium-235 (radio-isotope), uranium-238 (radio-isotope), vinyl acetate, vinyl chloride, and any combination thereof.

69. A pack of filters comprising:

a pack comprising at least one filter, the filter comprising a porous mass that comprises an active particle and an ultra/high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass.

70. The pack of filters of claim 69, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

71. The pack of filters of claim 69, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

72. The pack of filters of claim 69, wherein the porous mass has a void volume of about 40% to about 90%.

73. The pack of filters of claim 69, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a

fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetite nanoparticle, a gadolinium tube, an endofullerene, Gd@C60, a core-shell nanoparticle, an ionated nanoparticle, a nanoshell, an ionated iron oxide nanoparticle, and any combination thereof.

74. The pack of filters of claim 69, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

75. The pack of filters of claim 69, wherein the pack is selected from the group consisting of: a hinge-lid pack, a slide-and-shell pack, a hard cup pack, a soft cup pack, and the like.

76. The pack of filters of claim 69 further comprising a polypropylene wrapper.

77. A smoking device comprising a pack of filter of claim 69.

78. A pack of smoking devices comprising:

a pack comprising at least one smoking device that comprises a filter, wherein the filter comprises a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass.

79. The pack of smoking devices of claim 78, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

80. The pack of smoking devices of claim 78, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

81. The pack of smoking devices of claim 78, wherein the porous mass has a void volume of about 40% to about 90%.

82. The pack of smoking devices of claim 78, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gadonanotube, an endofullerene, Cd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

83. The pack of smoking devices of claim 78, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

84. The pack of smoking devices of claim 78, wherein the filter comprises a plurality of sections, wherein at least one section comprises the porous mass.

85. The pack of smoking devices of claim 78, wherein the pack is selected from the group consisting of: a hinge-lid pack, a slide-and-shell pack, a hard cup pack, a soft cup pack, and the like.

86. The pack of smoking devices of claim 78 further comprising a polypropylene wrapper.

87. The pack of smoking devices of claim 78, wherein the smoking device is selected from the group consisting of: a cigarette and a cigar.

88. The pack of smoking devices of claim 78, wherein the smoking device is sealed as a bundle inside the pack, wherein the bundle comprises at least one smoking device.

89. A carton of smoking device packs comprising:
a container comprising at least one pack that comprises at least one smoking device, the smoking device comprising a filter that comprises a porous mass, the porous mass comprising an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material

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and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass.

90. The carton of smoking device packs of claim 89, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

91. The carton of smoking device packs of claim 89, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

92. The carton of smoking device packs of claim 89, wherein the porous mass has a void volume of about 40% to about 90%.

93. The carton of smoking device packs of claim 89, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetite nanoparticle, a gadonanotube, an endofullerene, $Gd@C_{60}$, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

94. The carton of smoking device packs of claim 89, wherein the wrapping material comprises at least one material selected from the group consisting of: cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

95. The carton of smoking device packs of claim 89, wherein the active particle comprises at least one selected from the group consisting of: an ion exchange resin, a desiccant, a silicate, a molecular sieve, a metalloocene, a silica gel, activated alumina, a zeolite, perlite, sepiolite, Fuller's Earth, magnesium silicate, a metal oxide, iron oxide, activated carbon, and any combination thereof.

96. The carton of smoking device packs of claim 89, wherein the filter comprises a plurality of sections, wherein at least one section comprises the porous mass.

97. The carton of smoking device packs of claim 89, wherein the container has the physical integrity to contain the weight of the packs of smoking devices.

98. The carton of smoking device packs of claim 89 further comprising a polypropylene wrapper.

99. The carton of smoking device packs of claim 89, wherein the smoking device is selected from the group consisting of: a cigarette and a cigar.

100. The carton of smoking device packs of claim 89, wherein the smoking device is sealed as a bundle inside the pack, wherein the bundle comprises at least one smoking device.

101. A method of smoking a smoking device, the method comprising:
heating or lighting a smoking device to form smoke,

wherein the smoking device comprises a smokeable substance and at least one filter section comprising a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass;

drawing the smoke through the smoking device to form a smoke stream, and
allowing the filter section to at least reduce the presence of at least one

component in the smoke stream as compared to a filter without the porous mass.

102. The method of smoking a smoking device of claim 101, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

103. The method of smoking a smoking device of claim 101, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

104. The method of smoking a smoking device of claim 101, wherein the porous mass has a void volume of about 40% to about 90%.

105. The method of smoking a smoking device of claim 101, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like

carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gadonanotube, an endofullerene, Gd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

106. The method of smoking a smoking device of claim 101, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

107. A method for producing a smoking device, the method comprising:
providing a first filter section;

15 providing at least one second filter section,

wherein the second filter section comprises a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass;

joining the first filter section and at least one second filter section longitudinally so as to form a filter rod; and

joining at least a portion of the filter rod with a tobacco column to form a smoking device.

108. The method for producing a smoking device of claim 107, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

109. The method for producing a smoking device of claim 107, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

110. The method for producing a smoking device of claim 107, wherein the porous mass has a void volume of about 40% to about 90%.

111. The method for producing a smoking device of claim 107, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gadonanotube, an endofullerene, Gd@CC60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

112. The method for producing a smoking device of claim 107, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

113. The method of claim 107, wherein the first filter section comprises at least one element selected from the group consisting of: cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, a paper, a corrugated paper, a concentric filter, a peripheral filter of fibrous tow and a core of a web material, carbon-on-tow, a Dalmatian filter, silica, magnesium silicate, a zeolite, a molecular sieve, a metalocene, a salt, a catalyst, sodium chloride, nylon, a flavorant, tobacco, a capsule, cellulose, a cellulosic derivative, a catalytic converter, iodine pentoxide, a coarse powder, a carbon particle, a carbon fiber, a fiber, a glass bead, a void chamber, a baffled void chamber, and any combination thereof.

114. The method of claim 113, wherein the zeolite comprises at least one selected from the group consisting of: BETA, SBA-15, MCM-41, MCM-48 modified by 3-aminopropylsilyl groups, and any combination thereof.

115. A method of making a filter rod, the method comprising:

providing a container that comprises at least a plurality of first filter section pieces;

providing a second container comprising at least a plurality of second filter section pieces,

wherein the second filter section pieces comprise a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass;

joining a first filter section piece and a second filter section piece end-to-end along the longitudinal axis of the first filter section piece and the second filter section piece to form an unwrapped filter rod; and

wrapping the first filter section piece and the second filter section piece with a paper to form a filter rod.

116. The method of making a filter rod of claim 115, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

117. The method of making a filter rod of claim 115, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

118. The method of making a filter rod of claim 115, wherein the porous mass has a void volume of about 40% to about 90%.

119. The method of making a filter rod of claim 115, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gadonanotube, an endofullerene, Gd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

120. The method of making a filter rod of claim 115, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

121. A method of making a smoking device, the method comprising:

providing a filter rod comprising at least one filter section that comprises a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass;

providing a tobacco column;

cutting the filter rod transverse to its longitudinal axis to form at least two smoking device filters having at least one filter section that comprises a porous mass; and

joining at least one of the smoking device filters to the tobacco column along the longitudinal axis of the filter and the longitudinal axis of the tobacco column to form at least one smoking device.

122. The method of making a smoking device of claim 121, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

123. The method of making a smoking device of claim 121, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

124. The method of making a smoking device of claim 121, wherein the porous mass has a void volume of about 40% to about 90%.

125. The method of making a smoking device of claim 121, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a

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magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetite nanoparticle, a gadonanotube, an endofullerene, Gd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

126. The method of making a smoking device of claim 121, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

127. The method of making a smoking device of claim 121, wherein the filter rod has a length ranging from about 80 mm to about 150 mm.

128. The method of claim 121, wherein the filter rod is cut into about 4 to about 6 filter sections of about 5 mm to about 35 mm in length.

129. A method of making a smoking device, the method comprising:
providing a tobacco column;

joining a filter to the tobacco column, the filter comprising a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass.

130. The method of claim 129, wherein the active particle comprises carbon and the porous mass has a carbon/loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

131. The method of claim 129, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

132. The method of claim 129, wherein the porous mass has a void volume of about 40% to about 90%.

133. The method of claim 129, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide

nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetite nanoparticle, a gadolinium nanotube, an endofullerene, Gd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

134. The method of claim 129, wherein the wrapping material comprises at least one material selected from the group consisting of cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, paper, corrugated paper, carbon-on-tow, silica, magnesium silicate, nylon, cellulose, and combinations thereof.

135. An apparatus comprising:

a container area comprising at least a plurality of first filter section pieces;
a second container area comprising at least a plurality of second filter section pieces,

wherein the second filter section pieces comprise a porous mass that comprises an active particle and an ultra high molecular weight binder particle, wherein the porous mass is wrapped along its longitudinal axis with a compressible wrapping material and wherein encapsulated pressure/drop of the wrapping material is greater than the encapsulated pressure drop of the porous mass;

a joiner area wherein a first filter section piece and a second filter section piece are joined along their longitudinal axes;

a wrapping area wherein the first filter section piece and the second filter section piece are wrapped with a paper to form a smoking device filter; and

a conveyor to transport the smoking device filter to a subsequent area for storage or use.

136. The apparatus of claim 135, wherein the active particle comprises carbon and the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

137. The apparatus of claim 135, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

138. The apparatus of claim 135, wherein the porous mass has a void volume of about 40% to about 90%.

139. The apparatus of claim 135, wherein the active particle comprises an element selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetic nanoparticle, a gadolinium nanoparticle, an endofullerene, Gd@C60, a core-shell nanoparticle, a magnetic nanoparticle, a gadolinium nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

140. The apparatus of claim 135, further comprising a cutting area wherein a filter rod is cut can be used to form multiple smoking devices.

Claims:

1. A smoking device filter comprising:
 a porous mass that itself comprises a plurality of active particles and a plurality of non-fibrous binder particles, wherein the active particles and the non-fibrous binder particles are bound together at a plurality of sintered contact points, and

wherein the active particles comprises at least one selected from the group consisting of: a nano-scaled carbon particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, a iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetite nanoparticle, a gadolinium oxide nanoparticle, a hemafite nanoparticle, a magnetite nanoparticle, a gado-nanotube, an endofullerene, $Gd@C_{60}$, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

2. The smoking device filter of claim 1, wherein at least some of the non-fibrous binder particles comprise a thermoplastic material.

3. The smoking device filter of claim 1, wherein at least some of the non-fibrous binder particles comprise at least one selected from the group consisting of: ultrahigh molecular weight polyethylene, very high molecular weight polyethylene, high molecular weight polyethylene, a polyolefin, a polyester, a polyamide, a nylon, a polyacrylic, a polystyrene, a polyvinyl, polytetrafluoroethylene, polyether ether ketone, a non-fibrous plasticized cellulose, polyethylene, polypropylene, polybutylene, polymethylpentene, low-density polyethylene, linear low-density polyethylene, high-density polyethylene, polyethylene terephthalate, polybutylene terephthalate, polycyclohexylene dimethylene terephthalate, polytrimethylene terephthalate, polyacrylics, polymethyl methacrylate, polystyrene, acrylonitrile-butadiene-styrene, styrene-acrylonitrile, styrene-butadiene, styrene-maleic anhydride, ethylene vinyl acetate, ethylene vinyl alcohol, polyvinyl chloride,

cellulose acetate, cellulose acetate butyrate, plasticized cellulose, cellulose propionate, ethyl cellulose, any derivative thereof, any copolymer thereof, and any combination thereof.

4. The smoking device filter of claim 1, wherein at least some of the non-fibrous binder particles have a melt flow index less than or equal to about 3.5 g/10min at 190°C and 15 Kg.

5. The smoking device filter of claim 1, wherein at least some of the non-fibrous binder particles have a particle size in at least one dimension ranging from about 0.1 nanometers to about 5000 microns.

6. The smoking device filter of claim 1, wherein the porous mass has a void volume of about 40% to about 90%.

7. The smoking device filter of claim 1, wherein the porous mass comprises a ratio of the active particles to the binder particles ranging from about 1 wt% active particles and about 99 wt% binder particles to about 99 wt% active particles and about 1 wt% binder particles.

8. The smoking device filter of claim 1, wherein the porous mass has an encapsulated pressure drop of about 0.1 to about 20 mm of water per mm length of porous mass.

9. A smoking device comprising a smokeable substance in fluid communication with the smoking device filter of claim 1.

10. A smoking device filter comprising:

a porous mass that comprises active particles and non-fibrous binder particles, wherein the active particles and the non-fibrous binder particles are bound together at a plurality of sintered contact points, wherein the active particle is not carbon, and wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

11. The smoking device filter of claim 10, wherein at least some of the non-fibrous binder particles comprise at least one selected from the group consisting of: ultrahigh molecular weight polyethylene, very high molecular weight polyethylene, high molecular weight polyethylene, a polyolefin, a polyester, a polyamide, a nylon, a polyacrylic, a polystyrene, a polyvinyl,

polytetrafluoroethylene, polyether ether ketone, a non-fibrous plasticized cellulose, polyethylene, polypropylene, polybutylene, polymethylpentene, low-density polyethylene, linear low-density polyethylene, high-density polyethylene, polyethylene terephthalate, polybutylene terephthalate, polycyclohexylene dimethylene terephthalate, polytrimethylene terephthalate, polyacrylics, polymethyl methacrylate, polystyrene, acrylonitrile-butadiene-styrene, styrene-acrylonitrile, styrene-butadiene, styrene-maleic anhydride, ethylene vinyl acetate, ethylene vinyl alcohol, polyvinyl chloride, cellulose acetate, cellulose acetate butyrate, plasticized cellulose, cellulose propionate, ethyl cellulose, any derivative thereof, any copolymer thereof, and any combination thereof.

12. The smoking device filter of claim 10, wherein at least some of the non-fibrous binder particles have a melt flow index less than or equal to about 3.5 g/10min at 190°C and 15 Kg.

13. The smoking device filter of claim 10, wherein the porous mass has a void volume of about 40% to about 90%.

14. The smoking device filter of claim 10, wherein the active particles comprises at least one selected from the group consisting of: an ion exchange resin, a desiccant, a silicate, a molecular sieve, a silica gel, activated alumina, a zeolite, perlite, sepiolite, Fuller's Earth, magnesium silicate, a metal oxide, iron oxide, activated carbon, and any combination thereof.

15. The smoking device filter of claim 10, wherein the active particles comprises at least one selected from the group consisting of: a iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetite nanoparticle, a gadolinium nanotube, an endofullerene, Gd@C₆₀, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

16. A smoking device comprising a smokeable substance in fluid communication with the smoking device filter of claim 10.

17. A smoking device filter comprising:

a porous mass that comprises active particles and non-fibrous binder particles, wherein the active particles and the non-fibrous binder particles are bound together at a plurality of sintered contact points, wherein the active particle comprises carbon, and wherein the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

18. The smoking device filter of claim 17, wherein at least some of the non-fibrous binder particles comprise at least one selected from the group consisting of: ultrahigh molecular weight polyethylene, very high molecular weight polyethylene, high molecular weight polyethylene, a polyolefin, a polyester, a polyamide, a nylon, a polyacrylic, a polystyrene, a polyvinyl, polytetrafluoroethylene, polyether ether ketone, a non-fibrous plasticized cellulose, polyethylene, polypropylene, polybutylene, polymethylpentene, low-density polyethylene, linear low-density polyethylene, high-density polyethylene, polyethylene terephthalate, polybutylene terephthalate, polycyclohexylene dimethylene terephthalate, polytrimethylene terephthalate, polyacrylics, polymethyl methacrylate, polystyrene, acrylonitrile-butadiene-styrene, styrene-acrylonitrile, styrene-butadiene, styrene-maleic anhydride, ethylene vinyl acetate, ethylene vinyl alcohol, polyvinyl chloride, cellulose acetate, cellulose acetate butyrate, plasticized cellulotics, cellulose propionate, ethyl cellulose, any derivative thereof, any copolymer thereof, and any combination thereof.

19. The smoking device filter of claim 17, wherein at least some of the non-fibrous binder particles have a melt flow index less than or equal to about 3.5 g/10min at 190°C and 15 Kg.

20. The smoking device filter of claim 17, wherein the porous mass has a void volume of about 40% to about 90%.

21. A smoking device comprising a smokeable substance in fluid communication with the smoking device filter of claim 17.

22. A smoking device filter comprising:
a porous mass that comprises a plurality of active particles and a plurality of non-fibrous binder particles, wherein the porous mass has a void

volume of about 40% to about 90%, and wherein the active particles and the non-fibrous binder particles are bound together at a plurality of sintered contact points.

23. The smoking device filter of claim 22, wherein the non-fibrous binder particles comprise a thermoplastic material.

24. The smoking device filter of claim 22, wherein at least some of the non-fibrous binder particles comprise at least one selected from the group consisting of: ultrahigh molecular weight polyethylene, very high molecular weight polyethylene, high molecular weight polyethylene, a polyolefin, a polyester, a polyamide, a nylon, a polyacrylic, a polystyrene, a polyvinyl, polytetrafluoroethylene, polyether ether ketone, a non-fibrous plasticized cellulose, polyethylene, polypropylene, polybutylene, polymethylpentene, low-density polyethylene, linear low-density polyethylene, high-density polyethylene, polyethylene terephthalate, polybutylene terephthalate, polycyclohexylene dimethylene terephthalate, polytrimethylene terephthalate, polyacrylics, polymethyl methacrylate, polystyrene, acrylonitrile-butadiene-styrene, styrene-acrylonitrile, styrene-butadiene, styrene-maleic anhydride, ethylene vinyl acetate, ethylene vinyl alcohol, polyvinyl chloride, cellulose acetate, cellulose acetate butyrate, plasticized cellulosics, cellulose propionate, ethyl cellulose, any derivative thereof, any copolymer thereof, and any combination thereof.

25. The smoking device filter of claim 22, wherein at least some of the non-fibrous binder particles have a melt flow index less than or equal to about 3.5 g/10min at 190°C and 15 Kg.

26. The smoking device filter of claim 22, wherein at least some of the non-fibrous binder particles have a particle size in at least one dimension ranging from about 0.1 nanometers to about 5000 microns.

27. The smoking device filter of claim 22, wherein the active particles comprise at least one selected from the group consisting of: activated carbon, an ion exchange resin, a desiccant, a silicate, a molecular sieve, a silica gel, activated alumina, a zeolite, perlite, sepiolite, Fuller's Earth, magnesium silicate, a metal oxide, iron oxide, activated carbon, and any combination thereof.

28. The smoking device filter of claim 22, wherein the active particles comprise at least one selected from the group consisting of: a nano-scaled carbon

particle, a carbon nanotube having at least one wall, a carbon nanohorn, a bamboo-like carbon nanostructure, a fullerene, a fullerene aggregate, graphene, a few layer graphene, oxidized graphene, an iron oxide nanoparticle, a nanoparticle, a metal nanoparticle, a gold nanoparticle, a silver nanoparticle, a metal oxide nanoparticle, an alumina nanoparticle, a magnetic nanoparticle, a paramagnetic nanoparticle, a superparamagnetic nanoparticle, a gadolinium oxide nanoparticle, a hematite nanoparticle, a magnetite nanoparticle, a gadolinium oxide nanoparticle, a gadolinium oxide nanoparticle, a gadolinium oxide nanoparticle, an endofullerene, Gd@C60, a core-shell nanoparticle, an onionated nanoparticle, a nanoshell, an onionated iron oxide nanoparticle, and any combination thereof.

29. The smoking device filter of claim 22, wherein at least some of the active particles have a particle size in at least one dimension ranging from about 0.1 nanometers to about 5000 microns.

30. The smoking device filter of claim 22, wherein the porous mass comprises a ratio of the active particles to the binder particles ranging from about 1 wt% active particles and about 99 wt% binder particles to about 99 wt% active particles and about 1 wt% binder particles.

31. The smoking device filter of claim 22, wherein the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.

32. The smoking device filter of claim 22, wherein the porous mass has an encapsulated pressure drop of about 0.1 to about 7 mm of water per mm length of porous mass.

33. The smoking device filter of claim 22, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop less than about 20 mm of water per mm length of porous mass, and wherein the active particle is not carbon.

34. A smoking device comprising:
a smokeable substance, and
a filter in fluid communication with the smokeable substance, the filter comprising a porous mass that comprises a plurality of active particles and a plurality of non-fibrous binder particles, wherein the porous mass has a void

volume of about 40% to about 90%, and wherein the active particles and the non-fibrous binder particles are bound together at a plurality of sintered contact points.

35. The smoking device of claim 34, wherein the filter consists essentially of the porous mass.

36. The smoking device of claim 34, wherein the filter comprises a plurality of sections, wherein at least one section comprises the porous mass.

37. The smoking device of claim 36, wherein the filter comprises at least one section that comprises at least one element selected from the group consisting of: cellulose acetate, polypropylene, polyethylene, polyolefin tow, polypropylene tow, polyethylene terephthalate, polybutylene terephthalate, random oriented acetate, a paper, a corrugated paper, a concentric filter, a peripheral filter of fibrous tow and a core of a web material, carbon-on-tow, a Dalmatian filter, silica, magnesium silicate, a zeolite, a molecular sieve, a salt, a catalyst, sodium chloride, nylon, a flavorant, tobacco, a capsule, cellulose, a cellulosic derivative, a catalytic converter, iodine pentoxide, a coarse powder, a carbon particle, a carbon fiber, a fiber, a glass bead, a void chamber, a baffled void chamber, and any combination thereof.

38. The smoking device of claim 34, wherein the filter comprises a cavity.

39. The smoking device of claim 34, wherein at least some of the non-fibrous binder particles have a melt flow index less than or equal to about 3.5 g/10min at 190°C and 15 Kg.

40. The smoking device of claim 34, wherein the porous mass has an active particle loading of at least about 1 mg/mm and an encapsulated pressure drop less than about 20 mm of water per mm length of porous mass, and wherein the active particle is not carbon.

41. The smoking device of claim 34, wherein the porous mass has a carbon loading of at least about 6 mg/mm and an encapsulated pressure drop of about 20 mm of water or less per mm of porous mass.