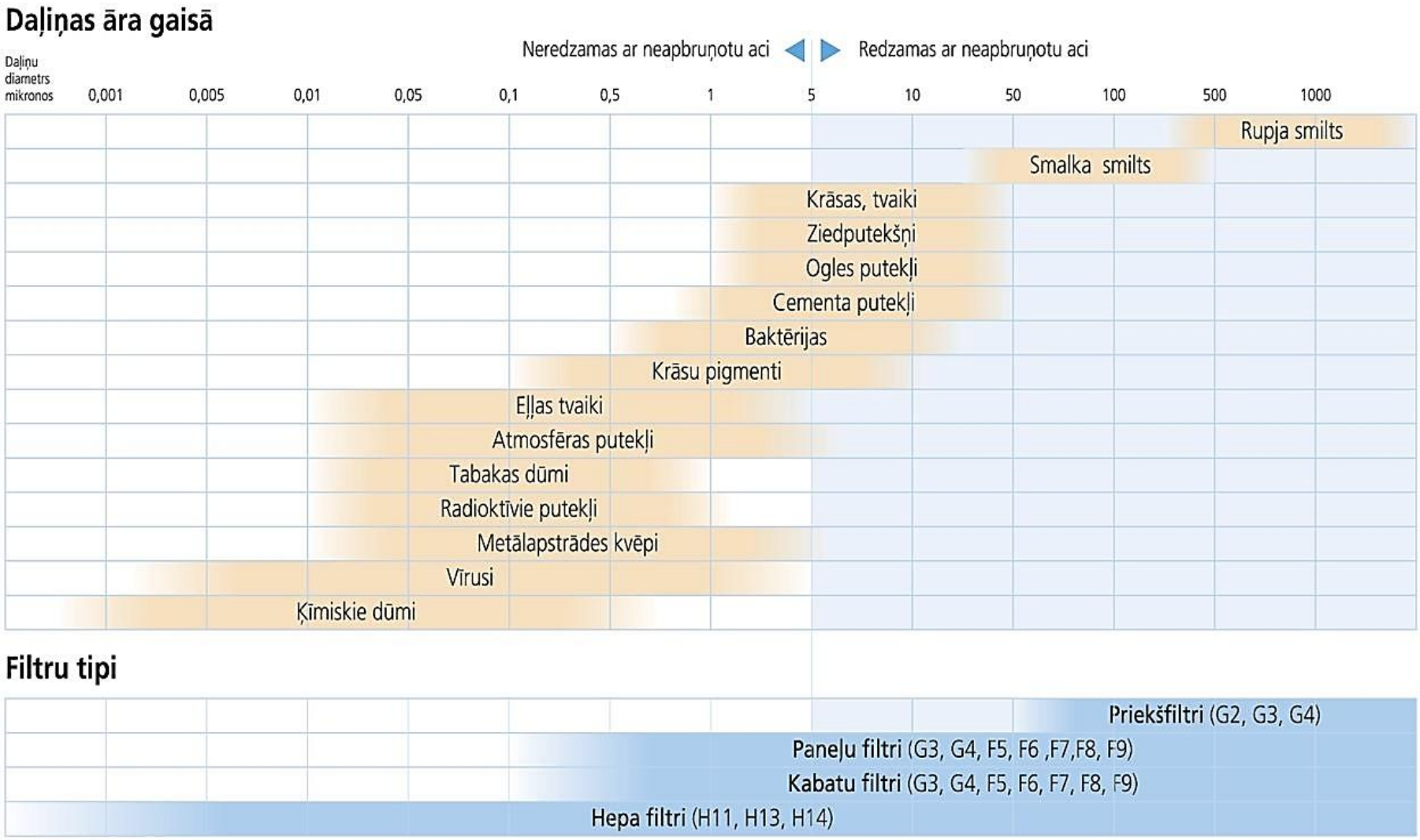
Putekļi darba vidē

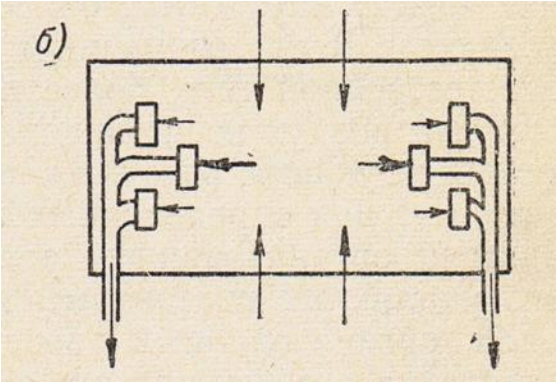
Autors: Mg.sc.ing. Dmitrijs Ivancovs.

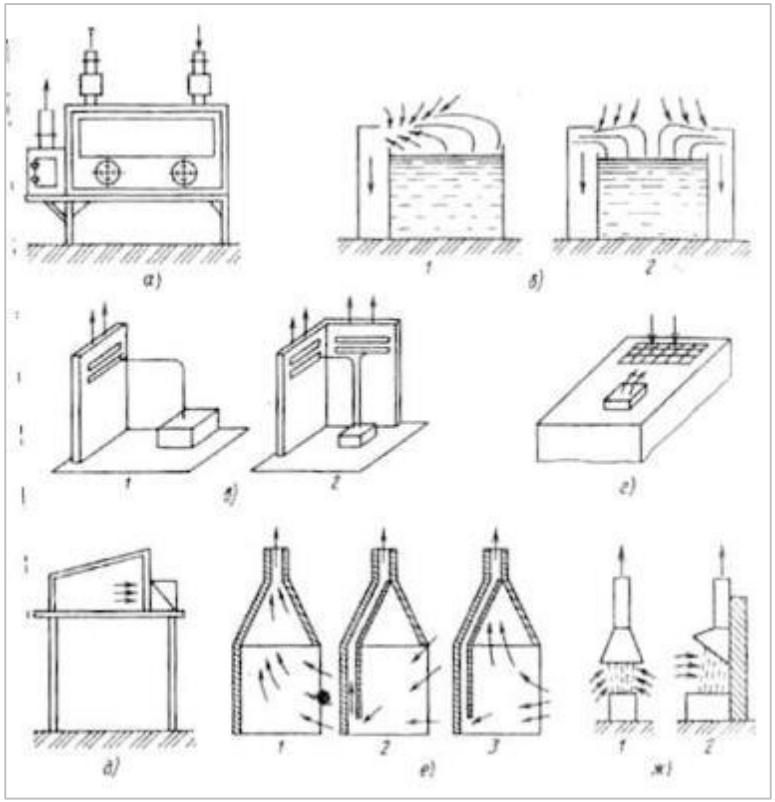
Rīga. 17.11.2017.

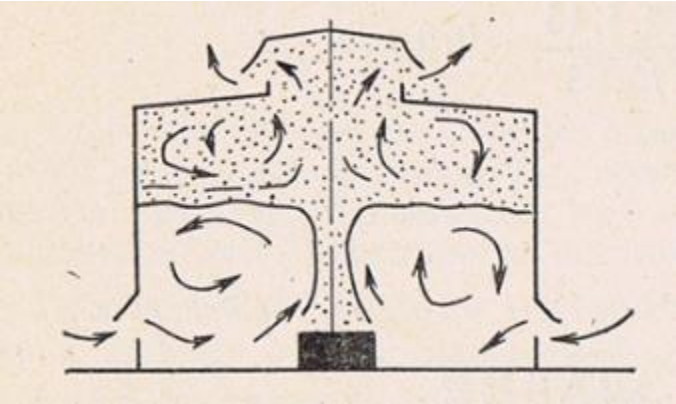
Daliņu izmēri

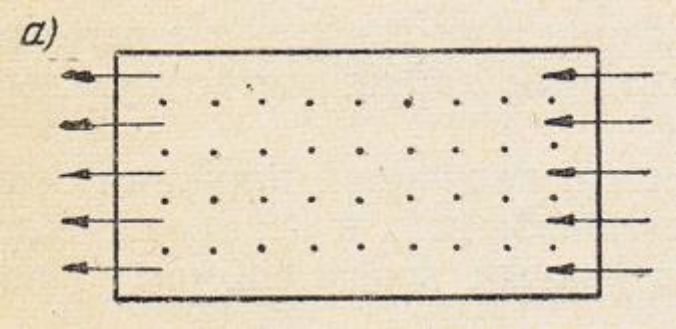


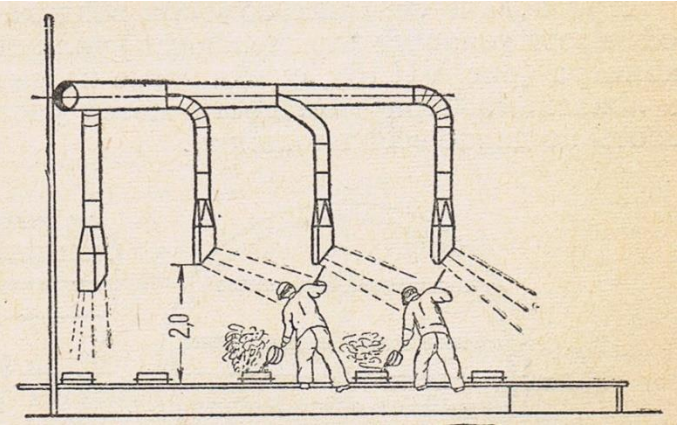
Putekļu izdalījuma raksturs





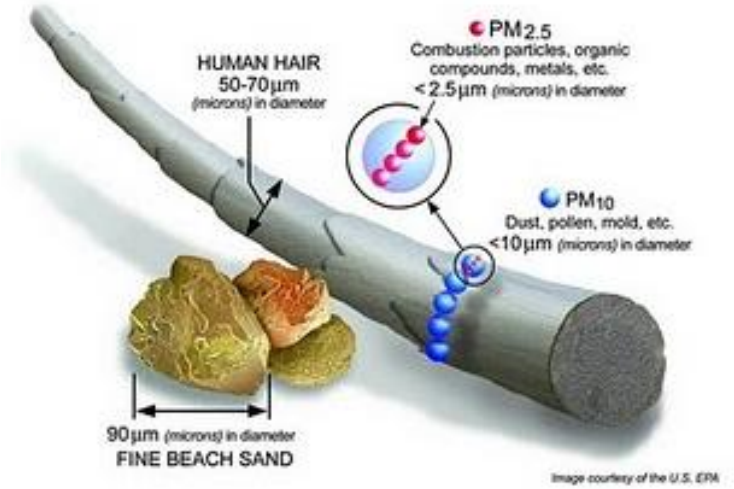


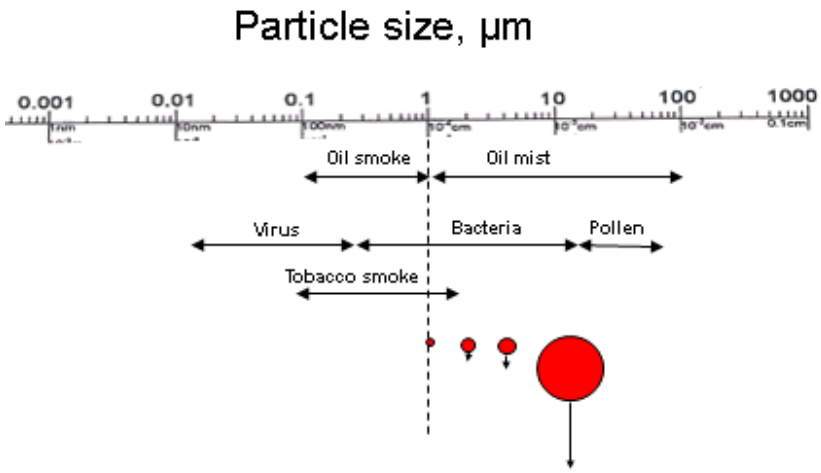




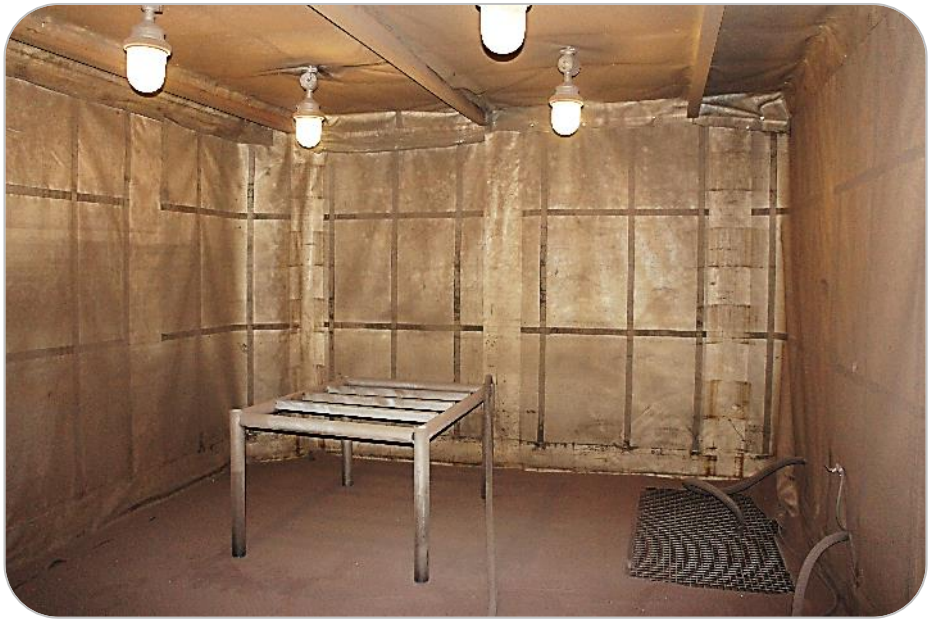
Metodes gaisa attīrīšanai no piesārņojumiem

- Gravitācijas, centrbēdzes filtri, cikloni, separatori - nostādinot putekļus gravitācijas un centrbēdzes spēka iedarbības rezultātā;
- Auduma, metāla, papīra filtri - izlaižot gaisu caur filtrējošo materiālu;
- Eļļas filtri - Izlaižot gaisu caur lipīgu vielu;
- Skruberi, ūdens filtri - putekļu apsmidzināšana;
- Elektrofiltri, gāzizlādes bloki, plazmas filtri, jonizācija – gaisa attīrīšana ar elekromagnetiska laukuma un plazmas palīdzību;
- Biofiltri – gaisa attīrīšana no organisko vielu piesārņojumiem;
- Pirolīze - piesārņojuma sadedzināšana.





lokāla ventilācija. Rupjas frakcijas. Ciklons + lokāla pieplūde.

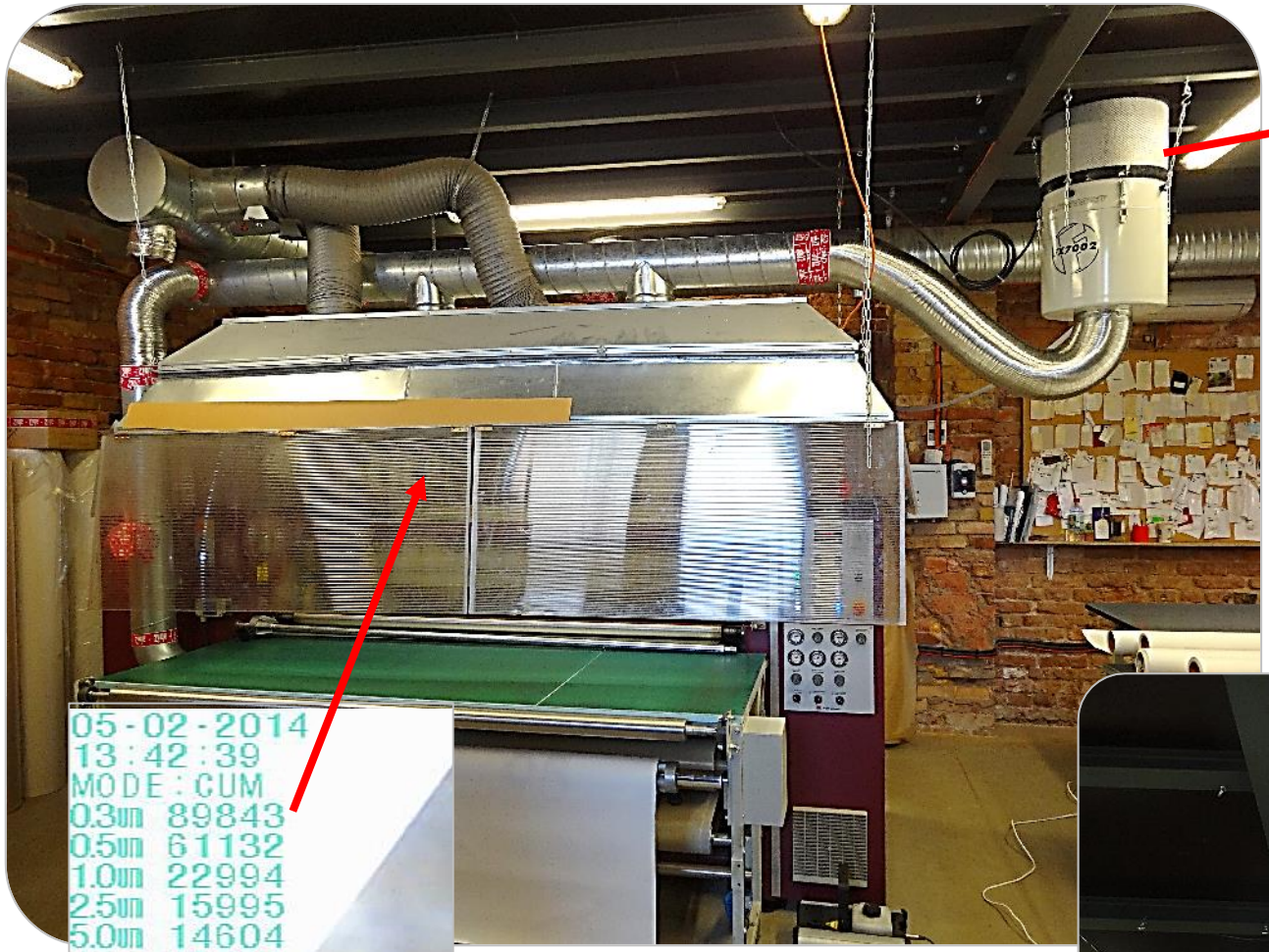


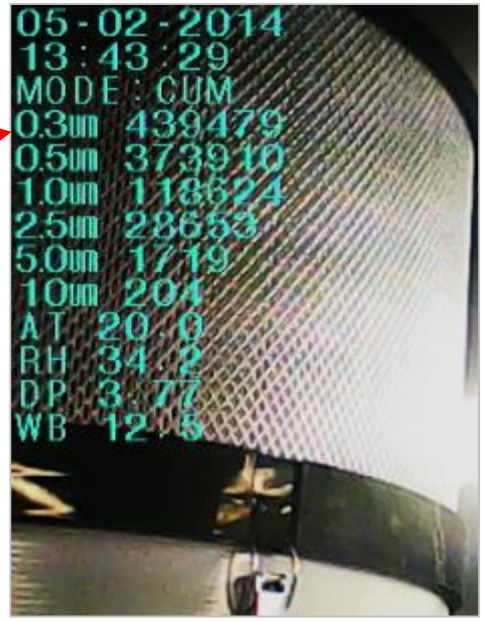
lokāla nosūces sistēma. Rupjas frakcijas.

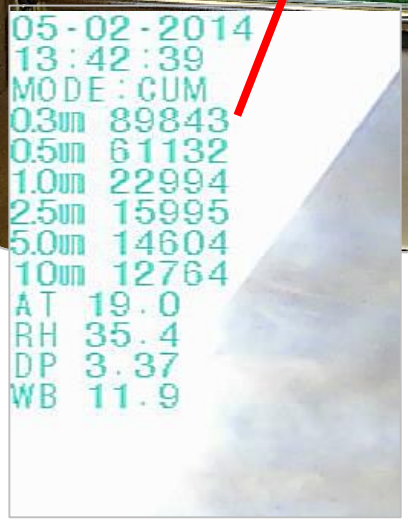
Stiklu šķiedra (x640)

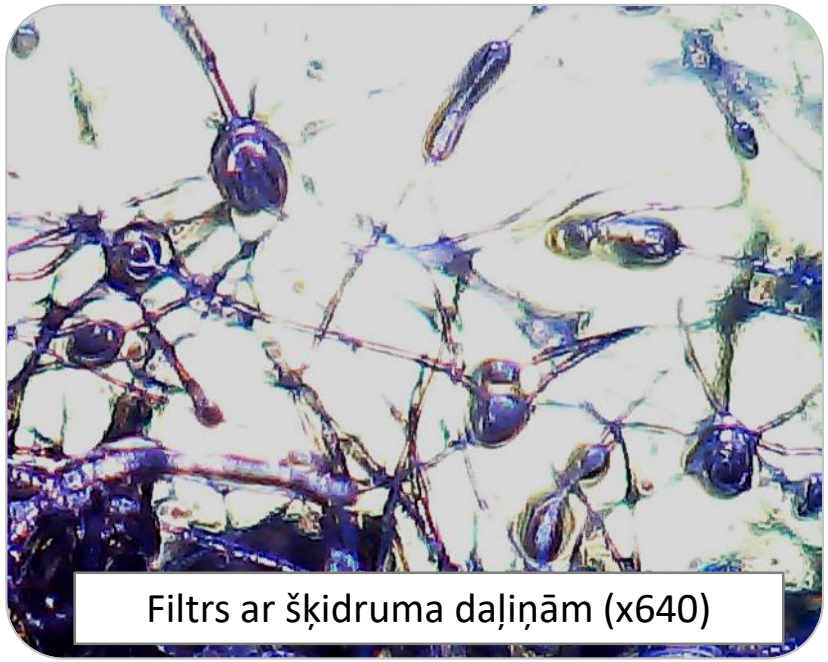
Stiklu šķiedra ar kondensātu (x800)

lokāla nosūces sistēma. Smalkas frakcijas. Centrbēdzes filtrs.

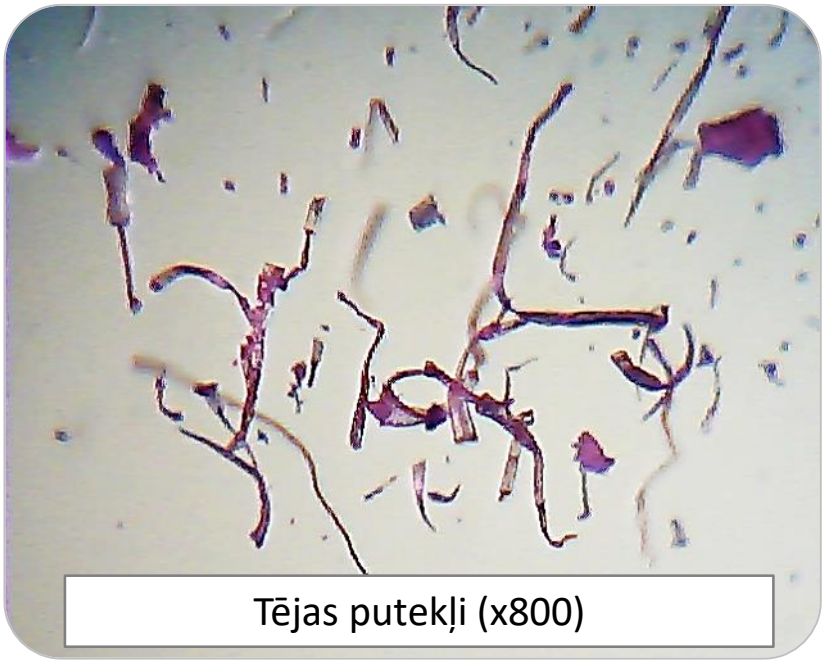




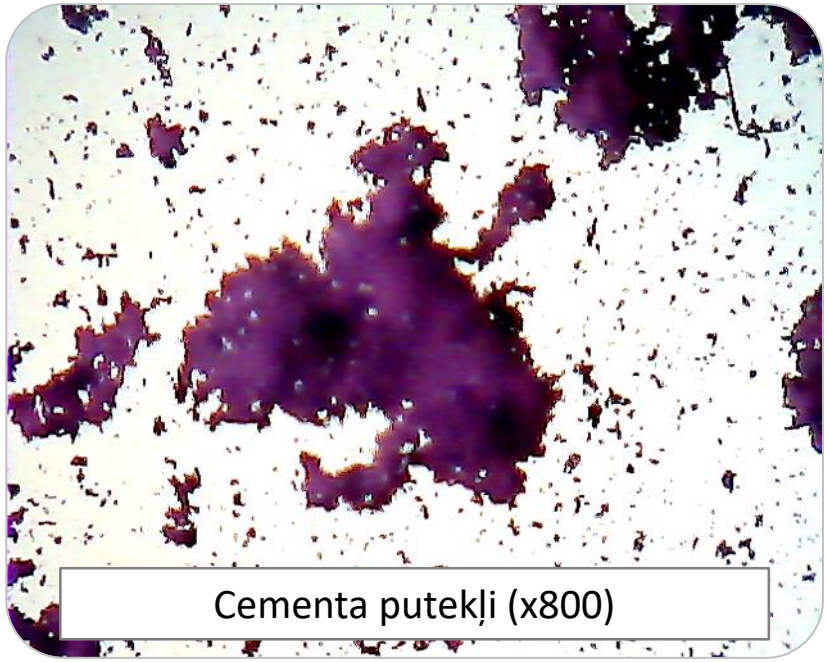




Filtrs ar šķidruma daļiņām (x640)



Tējas putekļi (x800)

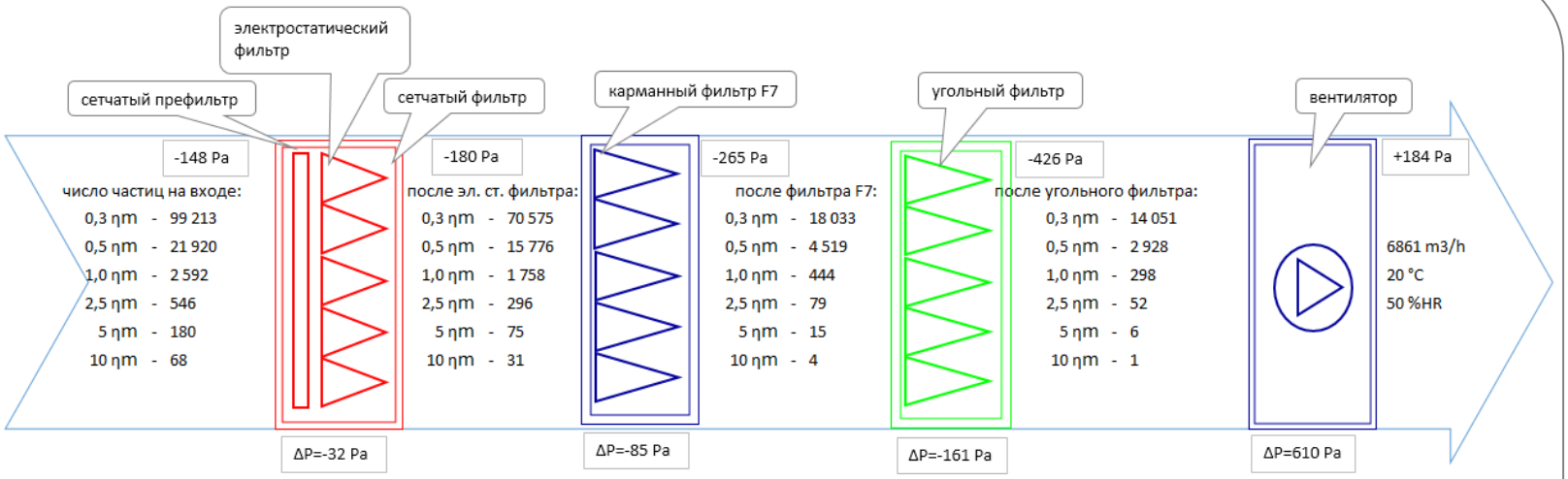


Cementa putekļi (x800)

Trokšņu slapētāju minerālvate (x800)

lokāla nosūces sistēma. Smalkas frakcijas. Filtru kaskāde. Elektrostatiskais + kabatu + ogles filtri.

Filtru kaskāde. Daliņu skaits.



число частиц в помещение:

0,3 ηm	62 166
0,5 ηm	12 808
1,0 ηm	1 490
2,5 ηm	298
5 ηm	82
10 ηm	36

число частиц на входе:

0,3 ηm	99 213
0,5 ηm	21 920
1,0 ηm	2 592
2,5 ηm	546
5 ηm	180
10 ηm	68

после эл. ст. фильтра:

0,3 ηm	70 575
0,5 ηm	15 776
1,0 ηm	1 758
2,5 ηm	296
5 ηm	75
10 ηm	31

после фильтра F7:

0,3 ηm	18 033
0,5 ηm	4 519
1,0 ηm	444
2,5 ηm	79
5 ηm	15
10 ηm	4

после угольного фильтра:

0,3 ηm	14 051
0,5 ηm	2 928
1,0 ηm	298
2,5 ηm	52
5 ηm	6
10 ηm	1

число частиц на улице:

0,3 ηm	30 964
0,5 ηm	5 762
1,0 ηm	465
2,5 ηm	68
5 ηm	27
10 ηm	9

Δηm после эл. ст. фильтра:

29%	0,3 ηm	28 638
28%	0,5 ηm	6 144
32%	1,0 ηm	834
46%	2,5 ηm	250
58%	5 ηm	105
54%	10 ηm	37

Δηm после фильтра F7:

74%	0,3 ηm	52 542
71%	0,5 ηm	11 257
75%	1,0 ηm	1 314
73%	2,5 ηm	217
80%	5 ηm	60
87%	10 ηm	27

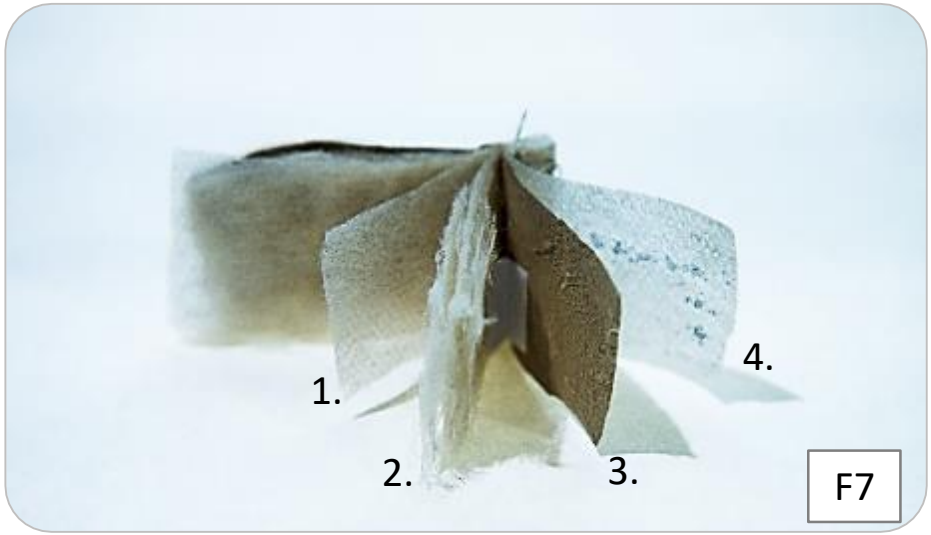
Δηm после угольного фильтра:

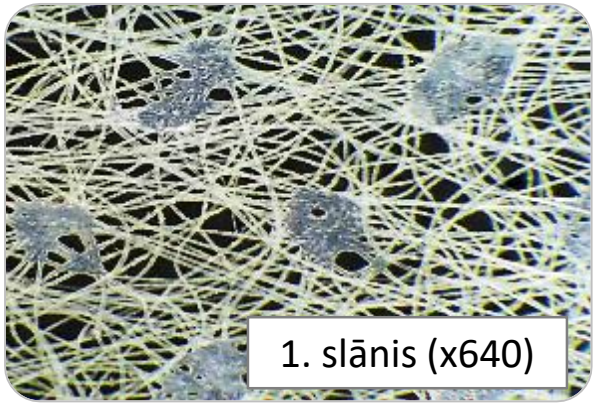
22%	0,3 ηm	3 982
35%	0,5 ηm	1 591
33%	1,0 ηm	146
34%	2,5 ηm	27
60%	5 ηm	9
75%	10 ηm	3

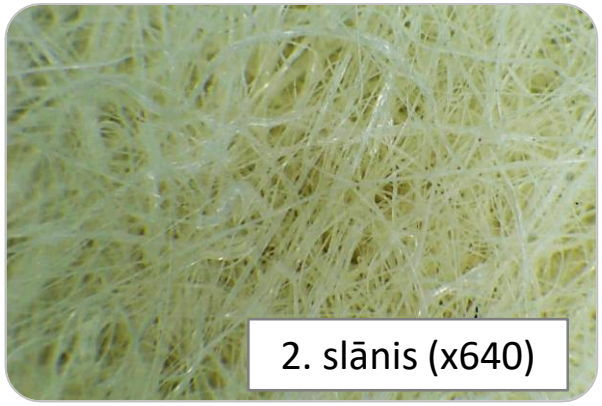
Δηm до и после фильтров:

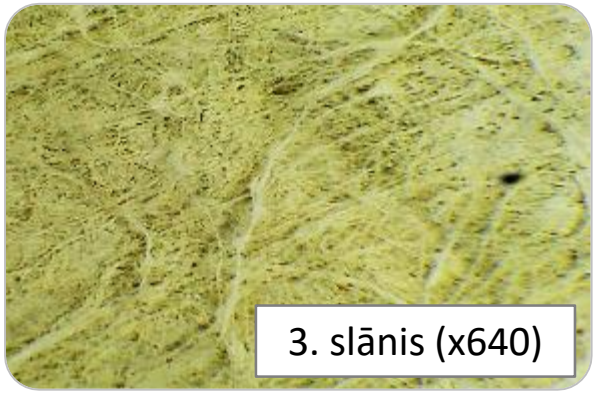
86%	0,3 ηm	85 162
87%	0,5 ηm	18 992
89%	1,0 ηm	2 294
90%	2,5 ηm	494
97%	5 ηm	174
99%	10 ηm	67

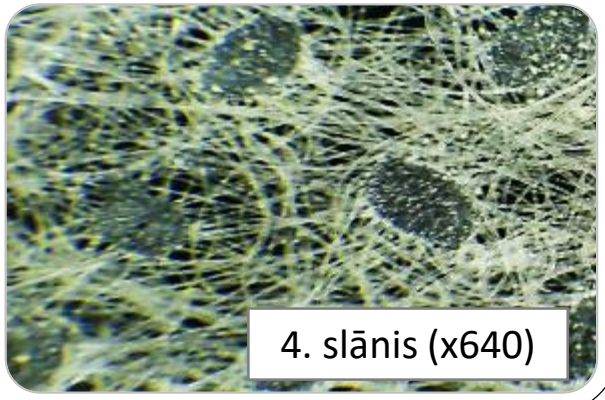
Filtru struktūras



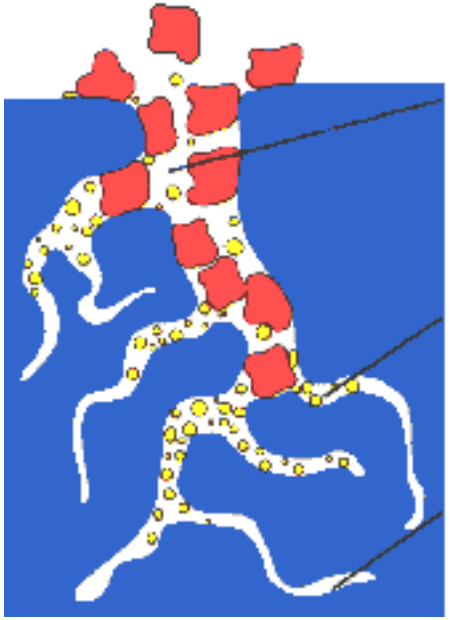








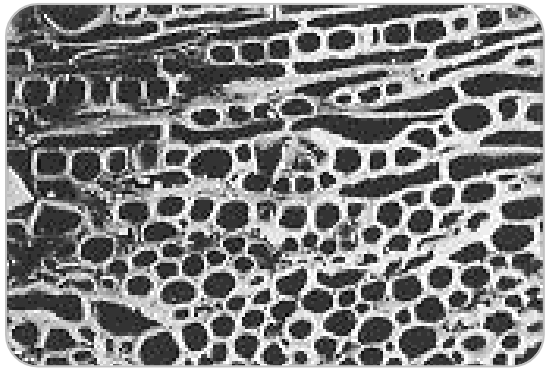
Ogles filtri



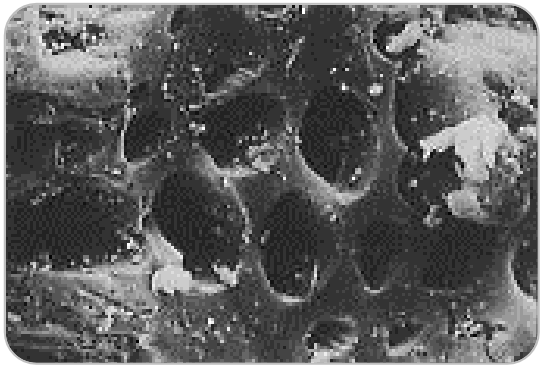
Makroporas
> 500 A

Mezoporas
20-500 A

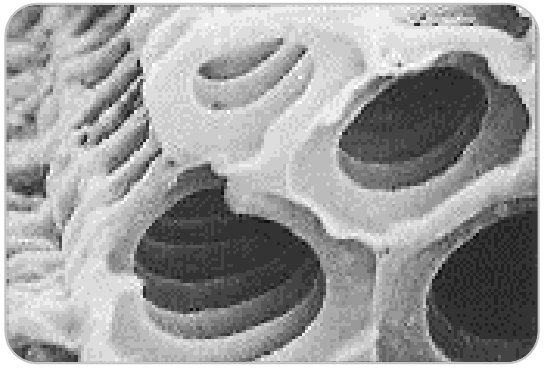
Mikroporas
< 20 A



Karbonizēta koksne



Aktivizētas akmeņogles

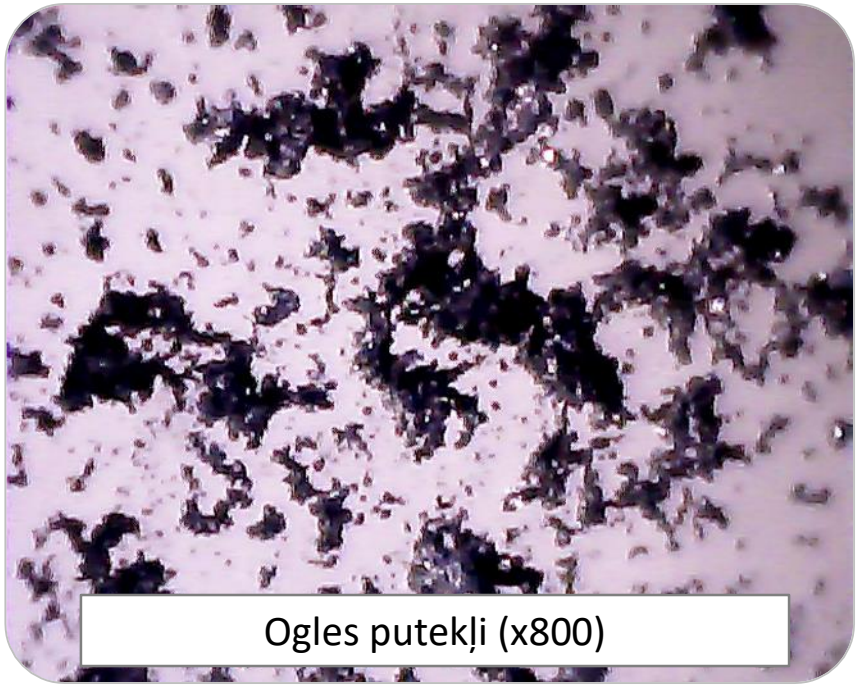


Aktivizētas kokosriektu čaulas

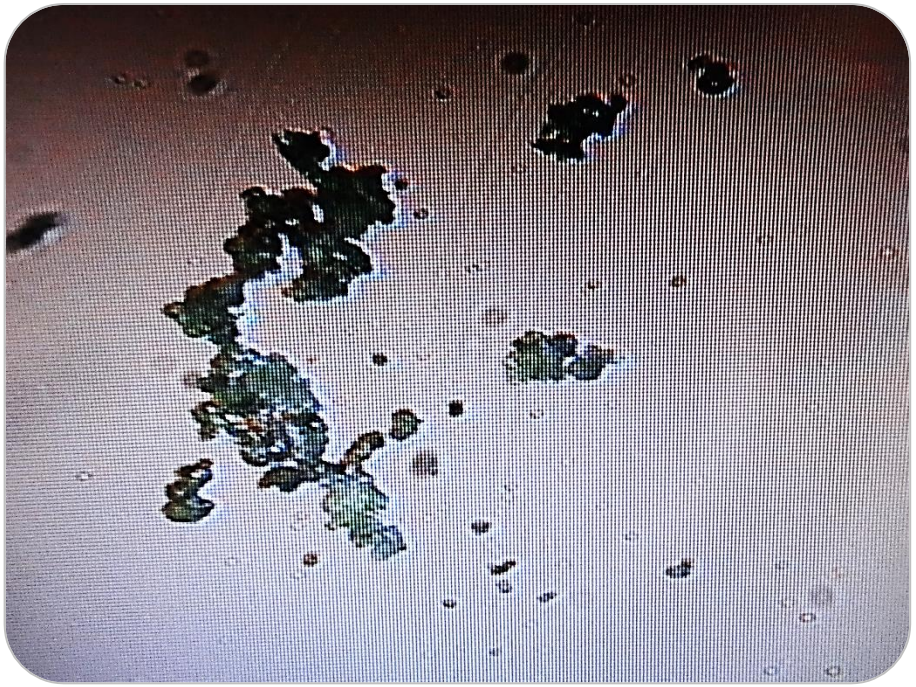
Decentralizēti piesārņojuma avoti

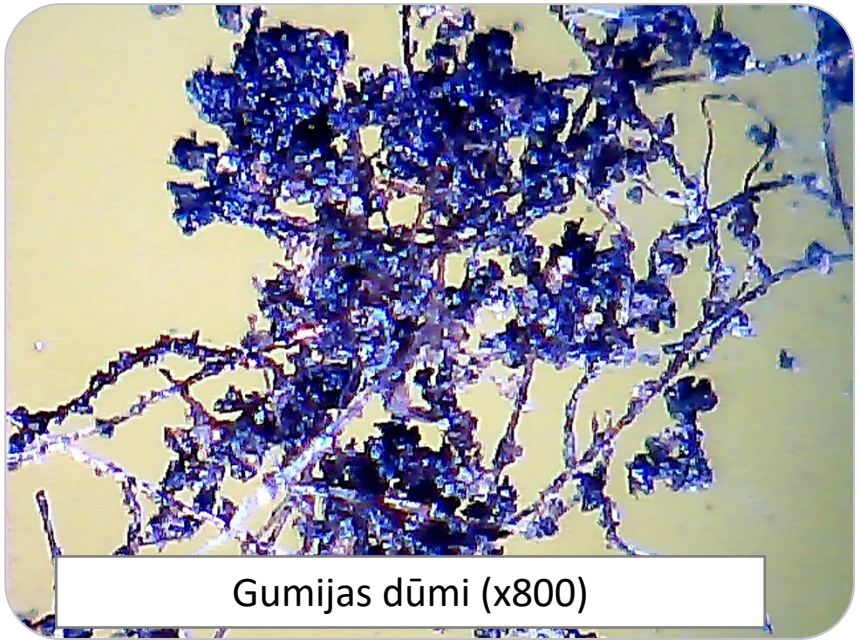
Decentralizēti piesārņojuma avoti

Decentralizēti piesārņojuma avoti

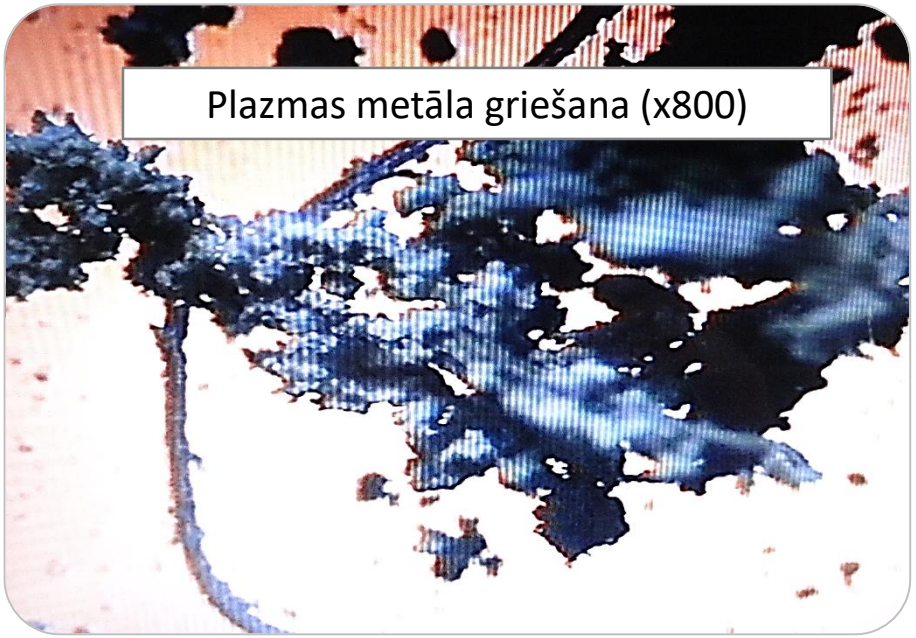


Ogles putekļi (x800)





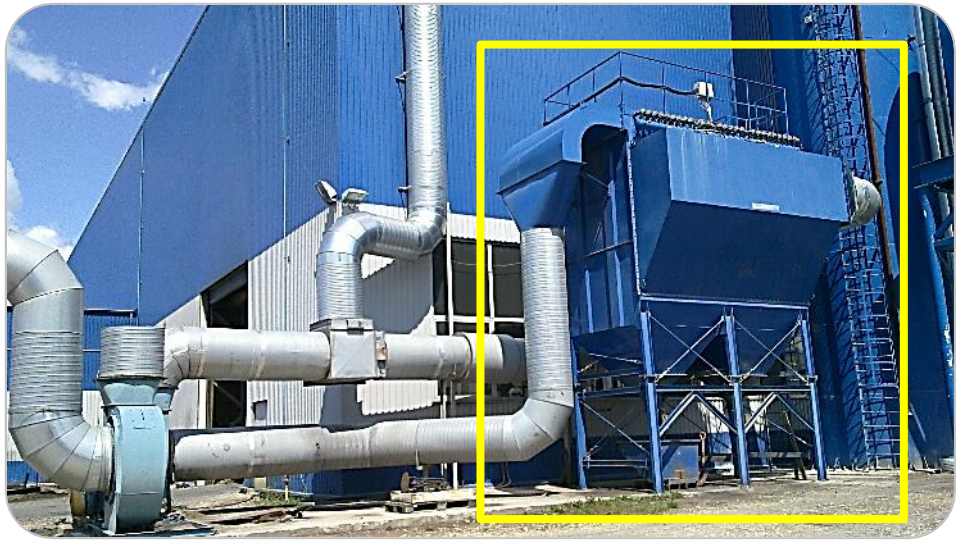
Gumijas dūmi (x800)



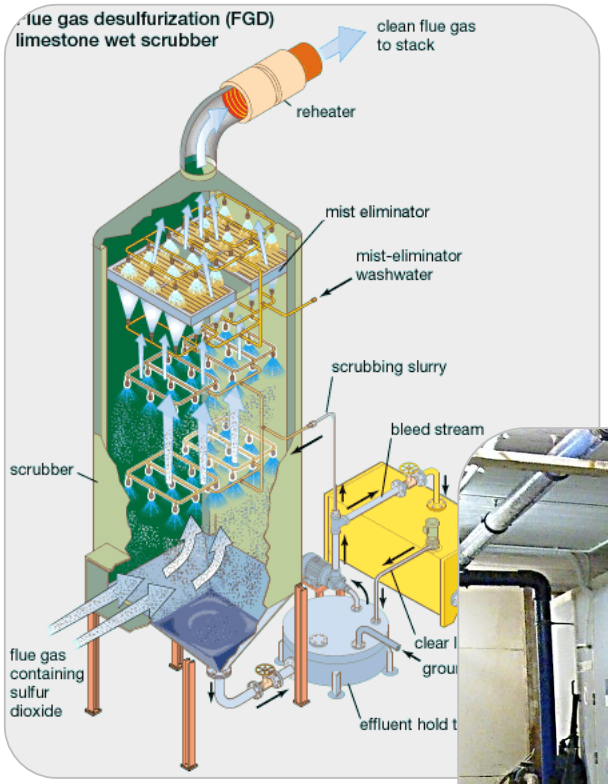
Plazmas metāla griešana (x800)

Gaisa recirkulācija. Lokālas nosūces. Gaisa dušas.

Piedurkņu filtri



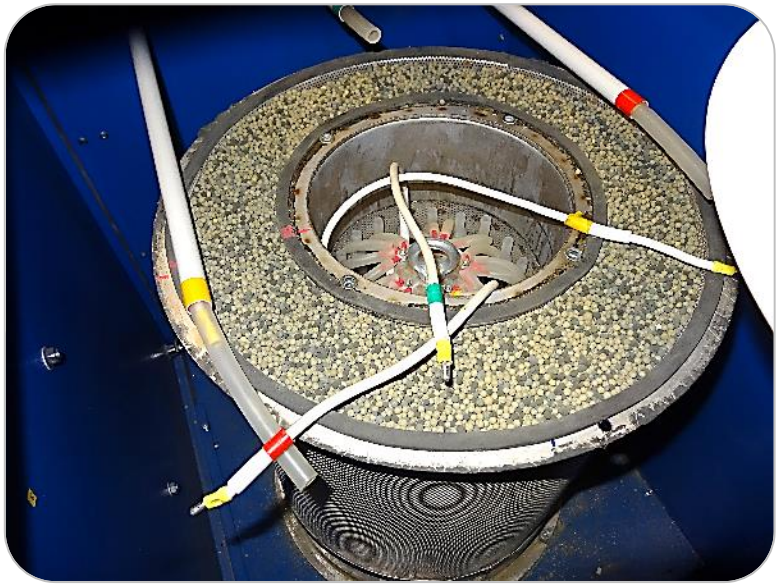
Ūdens filtri, skruberi

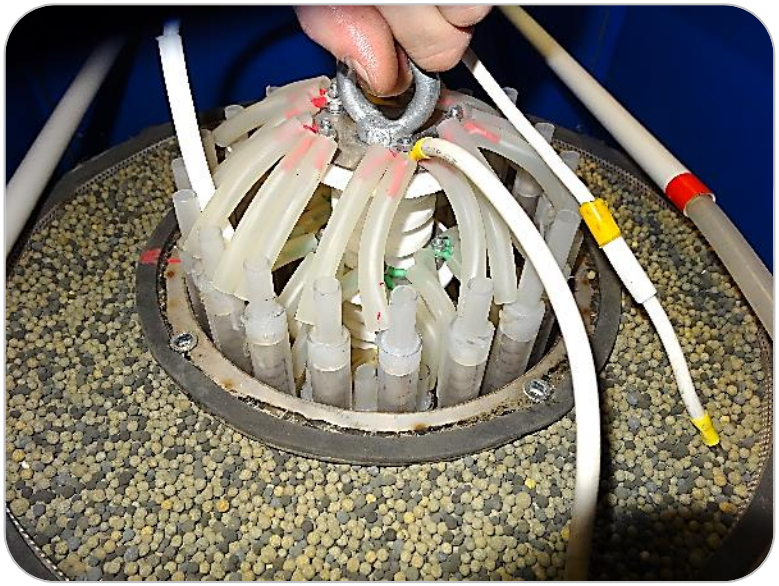


Biofiltrs

Gaisa piesārņojuma sadedzināšanas reaktors

Plazmas gāzizlādes filtrs





Paldies par uzmanību!

Mg.sc.ing. Dmitrijs Ivancovs
SIA «AERO MASTER»
SIA «PRIHODA.LV»

Konsultācijas, būvuzraudzība, ekspertīzes
dmitrijs@ivancovs.com
(+371) 2 555 32 44