

European Standard for EPA, HEPA & ULPA Filters

Procedure

- On a flat sheet of media, the MPPS is determined for the given media velocity. This can be done with a laser spectrometer or a combination of electrostatic classifier and CNC (Condensed Nucleus Counter).
- The filter is assembled with the specified media grade and amount of media to comply with the defined media velocity.
- The filter is challenged with an aerosol and at the MPPS both the local and overall efficiency are determined with either a CNC or laser spectrometer.
- Leaks are specified as maximum allowable local penetration at the MPPS and must not exceed 5 x the overall penetration.
- The filter is classified according to the test results in the range E10 - E12 for EPA, H13 - H14 for HEPA, U15 - U17 for ULPA.

Filter Classification

| Efficiency (%) at the MPPS | | Penetration (%) at the MPPS | |
|----------------------------|-------------|-----------------------------|-------------|
| Overall Value | Local Value | Overall Value | Local Value |
| E10 | > | 85 | - |
| E11 | > | 95 | - |
| E12 | > | 99,5 | - |
| H13 | > | 99,95 | 99,75 |
| H14 | > | 99,995 | 99,975 |

| | | | |
|-----|---|---------|---------|
| U15 | > | 99,9995 | 99,9975 |
|-----|---|---------|---------|

0

| | | | |
|-----|---|----------|----------|
| U16 | > | 99,99995 | 99,99975 |
|-----|---|----------|----------|

0

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| U17 | > | 99,999995 | 99,9999 |
|-----|---|-----------|---------|

0

Notes:

- Filters in the class E10, E11 and E12 do not require verification of local penetration.
- Filters in the classification H13 and H14 may, as an alternative, be verified with the visual oil-smoke test (previously known as DIN 24.184), which is accepted as equal or more searching than the specified local penetration.
- U17 is an exception to the rule. In this case local penetration may not exceed 20 x the overall penetration value.