

# ISO/TR 14644-21:2023-08 (E)

## Cleanrooms and associated controlled environments - Part 21: Airborne particle sampling techniques

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
1	Scope .....	1
2	Normative documents .....	1
3	Terms and definitions .....	1
4	Determination of airborne particle concentration .....	2
4.1	General .....	2
4.2	Classification .....	3
4.3	Monitoring .....	4
4.4	Other LSAPC applications .....	4
5	Sampling airborne particles - things to consider .....	5
5.1	General .....	5
5.2	Instrument selection .....	5
5.2.1	General .....	5
5.2.2	Considered particle size selection .....	6
5.2.3	Required sample volume and sample flow rate .....	7
5.3	State of occupancy .....	7
5.3.1	General .....	7
5.4	Sample locations - points to consider .....	7
5.4.1	General .....	7
5.4.2	Sampling locations for classification .....	7
5.4.3	Sample locations for monitoring .....	9
5.5	Instrument measurement issues .....	10
5.5.1	General .....	10
5.5.2	Sampling errors .....	10
5.5.3	Sample measurement errors .....	13
5.5.4	Sample tubing issues .....	14
5.6	Decision tree .....	16
5.7	Examples of use of the decision tree .....	19
5.7.1	General .....	19
5.7.2	Example 1 .....	19
5.7.3	Example 2 .....	21
5.7.4	Example 3 .....	23
6	Verifying a system .....	25
Bibliography .....		26