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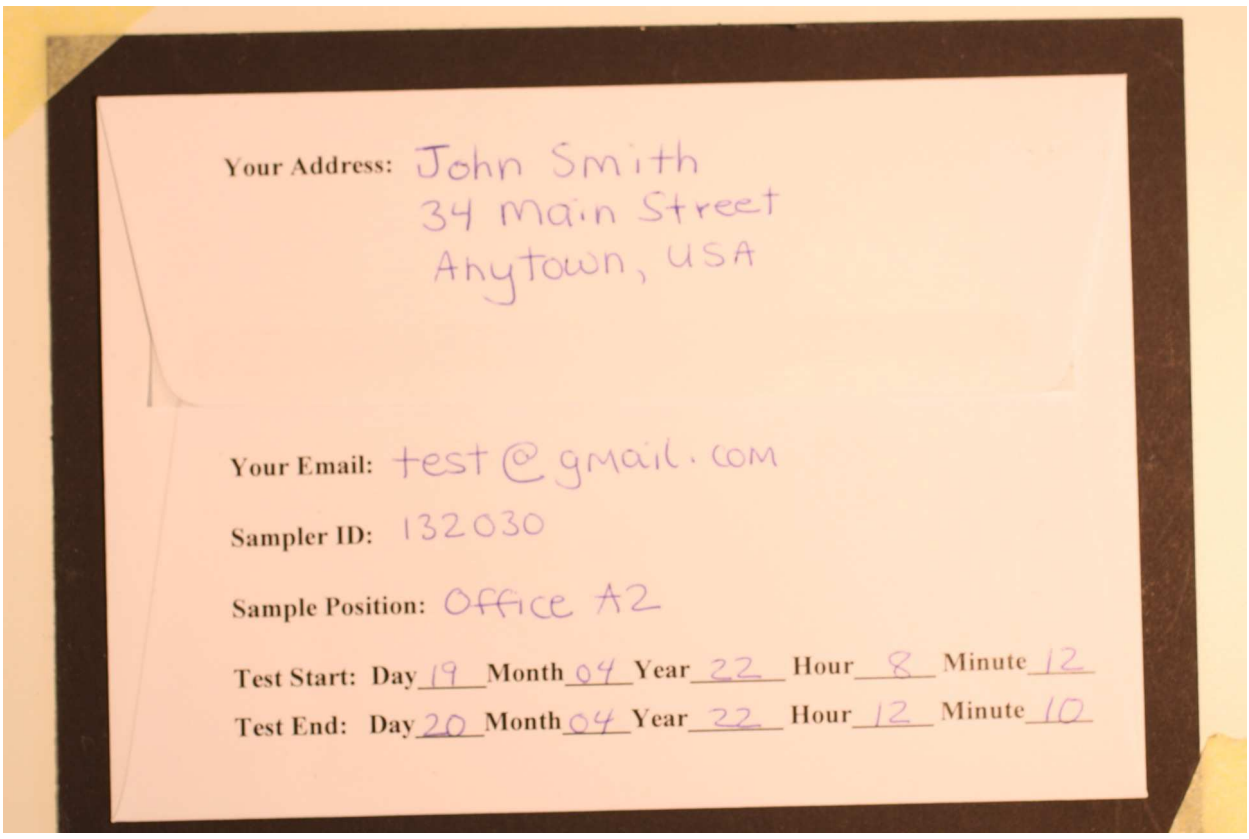
AirCheckup
24 Hour Air Particle Test
Laboratory Report

Sampler ID: **132065**



IMPORTANT: Multilevel BOOKMARKS are included to facilitate navigation within this document. If the bookmarks are not visible (left side) click the "Bookmarks" tab or F6 key (Adobe Acrobat).

Technology Care LLC based in Zurich, Switzerland, is a leading provider of environmental audits and precision cleaning in data centers. For over 25 years, many of the world's largest corporations have relied on our products and services to ensure that their critical environments consistently meet required standards. Our laboratory located in Zurich, Switzerland uses the latest, most innovative technologies to provide analysis of the highest quality. Many of our technologies have been developed in-house and as a result we have been awarded various patents and trademarks. Technology Care LLC is a member of the Swiss Contamination Control Society: SRRT-SwissCCS

Standard ISO 14644-1

Sampler ID: 132065
Report Date: 01.05.2022
Test Start: 19.04.2022 08:12:00
Test End: 20.04.2022 12:10:00
Exposure: 1 days, 3 hours, 58 minutes

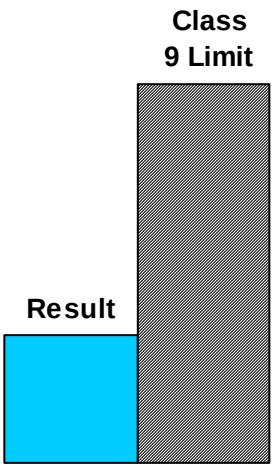
SCOPE:

This report corresponds to ISO 14644-1 which is a widely accepted standard for qualifying indoor air cleanliness in terms of the concentration of airborne particles per cubic meter.

TEST RESULT:

33.74% of the ISO 14644-1 Class 9 limit

Graph compares the test result to the class limit:



ISO 14644-1 Cleanroom Classes:

Class	maximum particles/m^3						FED STD 209E equivalent
	>=0.1 µm	>=0.2 µm	>=0.3 µm	>=0.5 µm	>=1 µm	>=5 µm	
ISO 1	10	2					
ISO 2	100	24	10	4			
ISO 3	1,000	237	102	35	8		Class 1
ISO 4	10,000	2,370	1,020	352	83		Class 10
ISO 5	100,000	23,700	10,200	3,520	832	29	Class 100
ISO 6	1,000,000	237,000	102,000	35,200	8,320	293	Class 1,000
ISO 7				352,000	83,200	2,930	Class 10,000
ISO 8				3,520,000	832,000	29,300	Class 100,000
ISO 9				35,200,000	8,320,000	293,000	Room Air

Recommendations:

ISO 14644-1 Class 9: General indoor rooms.

ISO 14644-1 Class 8: Data centers, mission critical facilities, technology spaces and electronic equipment.

ISO 14644-1 Class 7: Biopharma products, sterile pharmaceuticals, electronics components, medical devices and implants; and the maintenance of sensitive aviation and avionics systems.

Particle Metrics Report

Sampler ID: 132065
Report Date: 01.05.2022

Test Start: 19.04.2022 08:12:00
Test End: 20.04.2022 12:10:00
Exposure: 1 days, 3 hours, 58 minutes

SCOPE:

This report compares test results to benchmark limits based on average test results from our database.

IMPORTANT: Test results which are elevated may still be within legal or allowable limits. However, we recommend that test results marked as elevated in this report be investigated since they are higher than normal or expected values.

Fine Particulates:

Fine particulates are so small that they effectively act as a gas. Sources include contamination from laser printers, asbestos, combustion byproducts (e.g. smoke) and improper maintenance procedures (e.g. use of vacuum cleaners with inadequate filtration).

!	PM10:	189.0%	PM10: Particulate matter 10 micrometers or less in diameter.
!	PM2.5:	200.8%	PM2.5: Particulate matter 2.5 micrometers or less in diameter.

Fibers:

Fibers are defined as having an aspect ratio >3:1. Test results show fibers with aspect ratios =>3:1, =>5:1 and =>10:1. This test shows all airborne fibers including airborne asbestos, artificial mineral (rock, clay, slag, or glass), metal (zinc whiskers) and microplastic fibers. Fibers have an aerodynamic diameter, independent of their length. This peculiar characteristic enables long thin fibers to orient with the smallest diameter in the direction of air flow (align along their long axis) allowing them to deposit deep within the lungs. New studies suggest that in addition to asbestos fibers, other organic and synthetic fibers may also be carcinogenic (cause cancer).

!	Fibers =>3:1 (L:W):	417.8%
!	Fibers =>5:1 (L:W):	379.7%
!	Fibers =>10:1 (L:W):	313.5%

Particle Mass and Concentration:

!	Concentration:	149.6%	This is the total number of particles of all sizes and shapes.
!	Mass (weight):	244.6%	This is the total mass or weight of particles.

✓ OK ! Elevated

INDEX: This is a percentage of the benchmark limit. For example, a test result of 50 indicates that the result is half of the limit. A result of 200 means that the test result is twice as high as the limit. If the test result is <=100 it is OK (green). If the test result is >100 it is elevated (yellow).