



## SAMPLE REPORT

# Office Air Check™ Indoor Air Quality Report

Client Sample ID: Office  
Laboratory ID: 6006-1

**Air Analysis For:** John Taylor  
**Location Tested:** Flat 2, Cavendish Building Shephard Street  
LONDON SE6 4BF  
UK

**Report Number:** 6006

**Order Date:** 20/03/2012  
**Scan Date:** 23/03/2012  
**Report Date:** 27/03/2012

**Client Sample ID:** Office  
**Sample Volume (L):** 40  
**Date Sampled:** 14/03/2012  
**Sample Type:** TDT 112J

**Location/Notes:**

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**Thank you for using Office Air Check!**

If you have questions about your report,  
please contact [support@homeaircheck.co.uk](mailto:support@homeaircheck.co.uk)

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Office Air Check™ is the most advanced, trusted air testing product on the market today for identifying chemical and active mould contamination. Many indoor air quality (IAQ) issues identified by Office Air Check can be easily remediated or eliminated. This test is an invaluable tool because it provides important information on potential contamination issues that cannot be detected by sight alone. Acting upon the information in this report will enable you to dramatically improve the air quality in your office or commercial building, creating a healthier environment for you and your colleagues.

## What's in your Indoor Air Quality Report?

Your Indoor Air Quality Report has several sections describing different aspects of your office air quality.

- 1. The Total Volatile Organic Compound (TVOC) level:** a general indicator of the IAQ. Typically, a lower TVOC means better IAQ.
- 2. The Total Mould Volatile Organic Compound (TMVOC) level:** an assessment of the quantity of actively growing mould. Levels above 8 µg/m<sup>3</sup> indicate that there is a source of actively growing mould.
- 3. The Contamination Index™ (CI):** shows the types of air-contaminating products and materials that are present in your office. Each CI category indicates how your office compares to thousands of other locations, and provides some suggestions for where these products and materials might be found. The CI is divided into two main sections: Building Sources and Occupant Sources. Building Sources are those that are typically part of the structure of the building and may be more difficult to reduce in the short term. Occupant Sources are those that the occupants bring into the building and can usually be more readily identified and remediated. The values assigned to each category are approximations based on typical office and commercial spaces. Locations with additional or atypical sources may require investigation to determine the source of certain chemicals that are not accurately represented by the CI. Levels indicated as Elevated, High, or Severe should be addressed immediately, and those listed as Moderate are areas that can be improved over time. Since there are potentially many sources of VOCs, buildings can often be re-contaminated even after sources have been removed because new products are constantly being brought into the building. Occupants should take note of this fact, and view IAQ as a continuous improvement process.
- 4. Additional Resources:** listing of various government, health, and consumer organization websites where office occupants can go to find more information on VOC and mould contamination, the sources of contamination, and the possible chemical compounds contained therein. In addition, one may be able to find further suggestions for dealing with the contamination and the next steps for improving air quality.

Prism Analytical Technologies, Inc., the creator of Office Air Check, has been performing air quality assessments to industry and environmental consultants since 1995. Reference method NIOSH 2549 and Prism A2-OAC.



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**Total Volatile Organic Compound (TVOC) Summary**

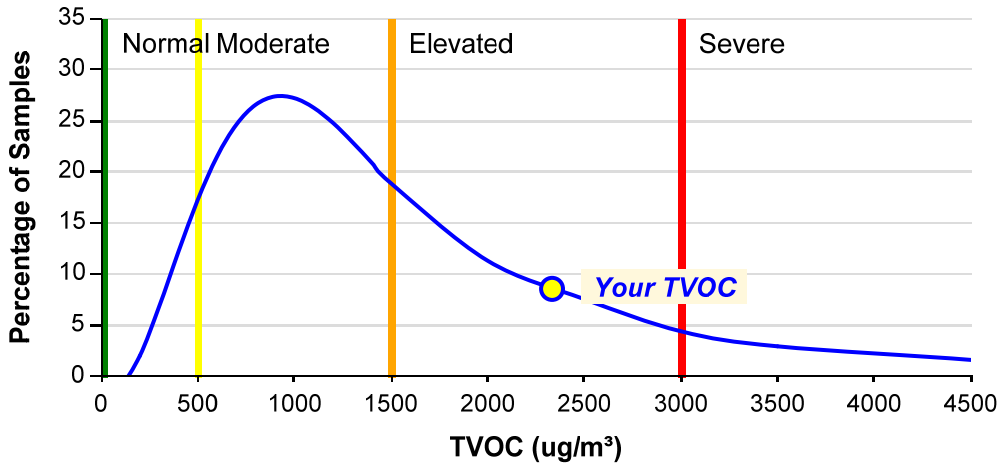
**Your TVOC Level is: 2300 µg/m³**

IAQ needs improvement; effect on occupants is possible; reduce potential sources and increase ventilation.

**Your Indoor Air Quality Level (Highlighted)**

Normal	Moderate	<b>Elevated</b>	Severe
< 500 µg/m³	500 - 1500 µg/m³	<b>1500 - 3000 µg/m³</b>	> 3000 µg/m³

**All IAQ Survey TVOC  
Air Quality Indicator**



**The average TVOC is 1900 µg/m³**

This chart represents the TVOC distribution of over 8,000 samples. Over 80% of these samples indicate improvements in IAQ are necessary to achieve the goal of TVOC less than 500 µg/m³.

The chart above shows the TVOC levels for all locations. Results for this air sample are displayed on the chart as a yellow circle. The blue line represents the relationship between the percentage of locations (indicated on the vertical y-axis) and the TVOC level (indicated on the horizontal x-axis). The green, yellow, orange, and red vertical bars represent divisions between Normal, Moderate, Elevated, and Severe TVOC levels. At the Normal level, non-chemically sensitive individuals should not experience issues because of VOCs. As the TVOC value increases into the Moderate, Elevated, or Severe levels, individuals may experience aggravated health problems, and therefore, the need to address VOC issues becomes more critical. However, reductions in VOCs can be made at any level.

UK government guidelines do not specify a TVOC limit for indoor air. However, the Building Research Establishment Environmental Assessment Method (BREEAM) specifies a limit of 300 µg/m³ over 8 hours (post construction but pre-occupancy), in-line with Building Regulation requirements. The U.S. Green Building Council (USGBC) on the other hand recommends 500 µg/m³ as the upper TVOC limit. TVOC levels below 500 µg/m³ indicate that the IAQ is acceptable for most individuals; however, chemically sensitive persons may require lower levels. TVOC levels between 500 and 1,500 µg/m³ indicate that the air quality is marginal and some effect on the occupants is possible. Levels above 1,500 µg/m³ indicate that your IAQ should definitely be improved.

The presence of chemicals in your office or commercial building can cause a wide range of problems, ranging from an unpleasant odor to physical symptoms (burning and irritation in the eyes, nose, and throat; headaches; nausea; nervous system effects; severe illness; etc.). In some cases, these conditions may make the office environment unbearable. Anyone with respiratory issues like asthma and allergies, as well as children, the elderly, and pregnant women are more susceptible to poor indoor air quality than healthy individuals. However, at elevated TVOC levels even healthy individuals are likely to experience ill effects. The following websites can offer more information:

- US EPA [Indoor Air Quality \(IAQ\)](#)
- American Lung Association [Healthy Air at Work](#)
- World Health Organization (WHO) [Guidelines for Indoor Air Quality](#)
- Lawrence Berkeley National Laboratory [Indoor Volatile Organic Compounds \(VOCs\) and Health](#)

The Contamination Index (CI) in the next pages of this report will help guide you through determining what types of products or materials in the office could be problematic for your IAQ, and will provide some recommendations to help reduce or eliminate them.

## Total Mold Volatile Organic Compound (TMVOC) Summary

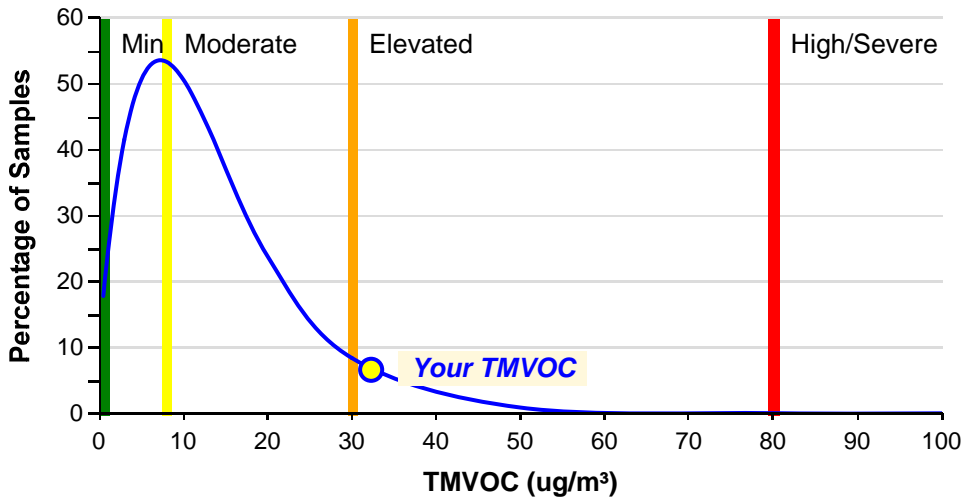
**Your TMVOC Level is: 32 µg/m³**

Significant levels of actively growing molds are present; reactions or symptoms are probable.

### Your Active Mold Level (Highlighted)

Minimal	Active-Moderate	Active-Elevated	Active-High	Active-Severe
< 8 µg/m³	8 - 30 µg/m³	30-80 µg/m³	80 - 150 µg/m³	150 + µg/m³

### All IAQ Survey TMVOC Active Mould Growth Indicator



**The average TMVOC is 10 µg/m³**

This chart represents the TMVOC distribution of over 8,000 samples. Approximately half the samples indicate that some active mould growth is occurring at the time of sample collection.

The chart above shows the TMVOC level for all locations. Results for this air sample are displayed on the chart as a yellow circle. The blue curved line represents the relationship between the percentage of locations (indicated on the vertical y-axis) and the TMVOC level (indicated on the horizontal x-axis). For example, a TMVOC of 20 µg/m³ is reported in ~20% of the samples. The green, yellow, orange, and red vertical bars represent divisions between Minimal, Moderate, Elevated, and High/Severe TMVOC levels.

Moulds are fungi that grow and spread to form a network or colony. There are thousands of known species of moulds, although a much smaller number of mould species are commonly found in indoor environments.

Moulds can affect humans and animals in their vicinity in several ways. The most commonly known characteristic of moulds is that they produce spores as their primary means of reproduction. Spores are released from the mould and are spread by air currents and by people, animals, or materials that travel from place to place. These spores can remain viable for a long time until they find a suitable environment and grow to form new colonies. In addition to spores, mycotoxins can also be released under certain situations. Mycotoxins are chemicals that are produced during certain parts of the mould life cycle and can evoke a toxic response (e.g., severe allergic reactions and respiratory irritation and exacerbation of asthma symptoms or other respiratory ailments) in humans and animals. Mycotoxins have low volatility, meaning they have relatively low concentrations in air, so contact or ingestion rather than inhalation is often the main route of exposure for these chemicals.

Mould VOCs (MVOCs) are produced during the metabolic or digestive processes of moulds and therefore can be used as an indicator of actively growing mould. When mould is in an inactive or dormant state it does not produce many MVOCs and so they cannot be used as an indicator of inactive mould. There are a number of factors that can affect the production and movement of MVOCs, including but not limited to the genus/species, ventilation rates, temperature, humidity, growth surfaces, and competition from other moulds. These factors make determination of the genus/species of mould very difficult so the presence of MVOCs indicates active mould growth but not the genus/species of the mould.



## Total Mould Volatile Organic Compound (TMVOC) Summary

### Mould Sources

Since there are so many possible locations that mould can grow, it can be difficult to locate without visual indicators. However, there are some potential locations where moulds are often found, as listed here.

- Air conditioning units or drain lines
- Near plumbing leaks
- Near roof or wall leaks
- Water intrusion into basements and cellars from surrounding soil
- Any consistently humid area
- Near condensation around windows or any other condensation locations like exterior walls (typically where there is a temperature gradient that allows water to condense)
- Freezer/refrigerator door seals, especially in summer
- Freezer/refrigerator drain line and drip pan (if present)
- Indoor plants
- Empty beverage containers and glasses, especially if left for disposal or recycling without being rinsed out
- Wastebaskets and rubbish bins containing discarded food or wet items
- Sump pumps, especially when the pump does not cycle often
- Stand pipes and traps
- Books, magazines, and newspapers if they have become wet or sit for a long time
- Outdoor mould, especially if the air intake is near the ground and landscaping near the building uses wood chips or mulch

Typically, if there is no plumbing leak, condensation, or water intrusion into the building, there will not be a mould problem. If active mould growth is indicated, the first step in fixing the problem is to find and repair the water intrusion or moisture build up.

Some new or extensively renovated buildings can produce high MVOC results. Additional dampness is often introduced into a new building during the construction process (e.g., newly installed cement) and can lead to optimal mould growth conditions. Also, some building materials may have mould growth on them when they are installed due to exposure to water before installation. It is strongly recommended that new buildings or those with extensive renovation undergo a drying process to eliminate or reduce the potential for mould growth.

### Additional Information about Mould

<sup>1a</sup> World Health Organization (WHO):  
[WHO Guidelines for Indoor Air Quality – Dampness and Mold](#)

US Environmental Protection Agency (EPA):  
[Molds and Moisture](#)

American Industrial Hygiene Association (AIHA)  
[Position Statement on Mold and Dampness](#)

American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE):  
[Limiting Indoor Mold and Dampness in Buildings](#)  
(Position Documents; click on Limiting Indoor Mold and Dampness in Buildings)



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**Contamination Index™ Building Sources**

Use the Contamination Index (CI) below to help you find products and materials in the sampled area that may be affecting your indoor air quality. Removing or reducing these products will improve your air quality. These categories are typically part of the structure of the building and may be more difficult to reduce in the short term. Recent construction or renovation will often cause these categories to be elevated. Increased ventilation will help to reduce VOCs from construction or renovation sources. Levels indicated as Elevated, High, or Severe should be addressed immediately, and those listed as Moderate are areas that can be improved over time.

	Source Prediction & Suggestions for VOC Reduction		
	Contamination Index Category	Severity	
<b>Building Sources</b>	<b>Coatings (Paints, Varnishes, etc.)</b>	<b>Normal</b>	Includes interior and exterior paints (including low- or no-VOC paints), varnishes, lacquers, some sealants, and other products that can be classified as a coating over a surface. Typically, VOCs from these products are in the 10 to 14 carbon size range and can linger for several months after application, sometimes longer. Ventilate as much as possible during and after application of any of these products. Dispose of opened but unused products and related supplies if possible or store in areas that will minimize off gassing. Additional sources include fuel oil or diesel fuel.
	<b>PVC Cement</b>	<b>Moderate</b>	PVC cement is used to join pieces of PVC pipe together, usually for plumbing. Chemical compounds in these products can cause respiratory irritation and headaches. Ventilate the area during and after use.
	<b>Building Materials-Toluene Based</b>	<b>Normal</b>	Adhesives and glues used in construction and maintenance, arts and crafts; adhesive removers; contact cement; sealants; coatings (paint, polyurethane, lacquer, thinner); automotive products, including parts cleaners. Additional sources include gasoline and other fuels.
	<b>Gasoline</b>	<b>Moderate</b>	VOCs from gasoline are typically a result of off-gassing from gas containers, small spills, and gas-powered equipment used in facilities maintenance in nearby garage or storage areas. Most vehicles in good operating condition do not emit gasoline vapors due to the tightly sealed gas tank. This category does not include exhaust emissions. Gasoline VOCs can linger on clothing after refueling at a gas station. Gasoline includes chemical compounds that are also included in the Light Solvents category.
	<b>Fuel Oil, Diesel Fuel, Kerosene</b>	<b>Normal</b>	Typically found in garages and facilities maintenance areas. These fuels are not very volatile so they will not readily get into the air, but they can linger for a long time and produce a strong, unpleasant odor. This category does not include exhaust emissions. Additional sources include coatings such as paints, varnishes, sealants, waxes, etc.
	<b>Light Hydrocarbons</b>	<b>Normal</b>	Building materials; aerosol cans; liquefied petroleum gas (LPG); refrigerant; natural gas; propellant; blowing agent. Includes chemical compounds such as propane, butane, and isobutane.
	<b>Light Solvents</b>	<b>Elevated</b>	Stoddard solvent; mineral spirits; some coatings (paints, varnish, enamels, etc.); wax remover; adhesives; automotive products; light oils. Many of these are present in common consumer products; however, recent renovation or construction will increase these levels. Increase ventilation during and after use of these products. Typically, VOCs from these products are in the 6 to 9 carbon size range. Gasoline can contribute to the Light Solvents.



**Contamination Index™ Occupant Sources**

Use the Contamination Index (CI) below to help you find products and materials in the sampled area that may be affecting your indoor air quality. Removing or reducing these products will improve your air quality. These categories are typically brought into the building by the occupants and can often be readily identified and removed or contained. Levels indicated as Elevated, High, or Severe should be addressed immediately, and those listed as Moderate are areas that can be improved over time.

		<b>Source Prediction &amp; Suggestions for VOC Reduction</b>
<b>Contamination Index Category</b>	<b>Severity</b>	
<b>Occupant Sources</b>	<b>HFCs and CFCs (Freons™)</b>	Most often used as refrigerants for air conditioners and refrigerator/freezers and propellants for blown-in insulation, cushions, aerosol cans, etc. Many of these chemical compounds are being phased out because of the Montreal Protocol.
	<b>Personal Care and Cleaning Products</b>	Personal care products such as soap, deodorant, lotions, perfumes, hair coloring supplies, nail care supplies, oral hygiene products, etc. Cleaning agents such as surface, window, and flooring products, also restroom and antibacterial products. These products contain many VOCs that will dissipate if use is discontinued or reduced.
	<b>Odorants and Fragrances</b>	Air fresheners, scented cleaning products, and scented personal care products. Reduce use of scented products and store in a closed container or enclosed ventilated space such as a cabinet or closet.
	<b>Dry Cleaning Solvents</b>	Typical dry-cleaning methods employ the use of carcinogenic chemicals. Dry-cleaning should be allowed to vent outside, without plastics bags, before being placed inside.

**Notes**



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## Additional Resources

There are many online sources of information on indoor air quality and the sources that contribute to poor IAQ. For your benefit, we have listed some of the best places to find more in-depth information on these topics, and to gain further insight into how to improve your overall IAQ.

### Indoor Air

- U.S. Environmental Protection Agency, [Indoor Air Quality](#)
- U.S. Environmental Protection Agency, [An Introduction to Indoor Air Quality \(IAQ\)](#)
- U.S. Environmental Protection Agency, [An Office Building Occupants Guide to Indoor Air Quality](#)
- American Industrial Hygiene Association (AIHA), [Improving Indoor Air Quality at Work](#)
- World Health Organization, [Indoor Air Pollution](#)
- California Environmental Protection Agency, Air Resources Board [Indoor Air Program](#)
- American Lung Association, [Healthy Air at Home](#)
- U.S. National Library of Medicine & National Institutes of Health, Medline Plus, [Indoor Air Pollution](#)
- National Safety AG Database, [Questions about Indoor Air Quality](#)

### Mould

- Centers for Disease Control and Prevention, [Environmental Hazards & Health Effects, Mold](#)
- U.S. Environmental Protection Agency, [Mold](#)
- U.S. National Library of Medicine & National Institutes of Health, Medline Plus, [Molds](#)

### Respiratory Health

- Breathe California of the Bay Area [Resources](#)
- Centers for Disease Control and Prevention, Environmental Hazards & Health Effects, [Air Pollution & Respiratory Health](#)

### Toxic Air Pollutants

- U.S. Environmental Protection Agency, [Air Toxics](#)
- Hazardous Substance [Data Bank](#)

### Volatile Organic Compounds (VOCs)

- Lawrence Berkeley National Laboratory, [Indoor Volatile Organic Compounds \(VOCs\) and Health](#)
- U.S. Environmental Protection Agency, Indoor Air Quality, [Organic Gases \(Volatile Organic Compounds - VOCs\)](#)
- U.S. National Library of Medicine & National Institutes of Health, [Tox Town](#)
- Household Products [Database](#)

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These results are authorized by the Laboratory Director or approved representative.

This analysis was performed by Prism Analytical Technologies, Inc. (Prism), the developer of Office Air Check. The results contained in this report are dependent upon a number of factors over which Prism has no control, which may include, but are not limited to, the sampling technique utilized, the size or source of sample, the ability of the sampler to collect a proper or suitable sample, the compounds which make up the TVOC, and/or the type of mould(s) present. Therefore, the opinions contained in this report may be invalid and cannot be considered or construed as definitive and neither Prism, nor its agents, officers, directors, employees, or successors shall be liable for any claims, actions, causes of action, costs, loss of service, medical or other expenses or any compensation whatsoever which may now or hereafter occur or accrue based upon the information or opinions contained herein.

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