Home Air Check™
Indoor Air Quality Report

Client Sample ID: Living Room
Laboratory ID: 36192-1

Home Air Analysis For: [redacted]
Home Tested: [redacted]
United States

Report Number: 36192

Order Date: 03/13/2015
Scan Date: 03/14/2015
Report Date: 03/20/2015

Client Sample ID: Living Room
Sample Volume (L): 24
Date Sampled: 03/06/2015
Sample Type: TDT AA403

Location/Notes:
New construction, concerns over materials used, RE: out-gassing, Lumber Liquidators laminate floor

Thank you for using Home Air Check!

If you have questions about your report,
please contact customerservice@homeaircheck.com

Home Air Check™ is the most advanced, trusted air testing product on the market today for identifying chemical and mold contamination in a home. Many indoor air quality (IAQ) issues identified by Home Air Check can be easily remediated or eliminated. This test is an invaluable tool for homeowners and renters because it provides important information on potential contamination issues in the home 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 home, creating a healthier environment for you and your family.

What's in your Indoor Air Quality Report?

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

1. **The Total Volatile Organic Compound (TVOC) level:** a general indicator of the IAQ in your home. Typically, a lower TVOC means better IAQ in your home.

2. **The Total Mold Volatile Organic Compound (TMVOC) level:** an assessment of the quantity of actively growing mold in your home. Levels above 8 ng/L indicate that there is a source of actively growing mold in your home.

3. **The Contamination Index™ (CI):** shows the types of air-contaminating products and materials that are present in your home. Each CI category indicates how your home compares to thousands of other homes, and provides some suggestions for where these products and materials might be found. The CI is divided into 3 main sections: Lifestyle Sources, Building-Related Sources, and Mixed Building and Lifestyle Sources. Lifestyle sources are those that the occupants of the home bring into the home and can usually be easily remediated and eliminated. Building-Related Sources are those that are typically part of the structure of the home and may be more difficult to reduce in the short term. Mixed Building and Lifestyle Sources are those that could belong to either category and investigation on your part may be necessary to determine which source is more likely. Levels indicated as Elevated or Severe should be immediately addressed, and those listed as Moderate are areas that can be improved over time. Since there are potentially many sources of VOCs, homes can often be re-contaminated even after sources have been removed because new products are constantly being brought into the home. Home occupants should take note of this fact, and view IAQ as a continuous improvement process and plan to re-test the home every 6-12 months (more often if health issues exist).

4. **Additional Resources:** listing of various government, health, and consumer organization websites where home occupants can go to find more information on VOC and mold 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 Home Air Check, has been performing air quality assessments to industry and environmental consultants since 1995. Reference method NIOSH 2549 and Prism A2-HAC.

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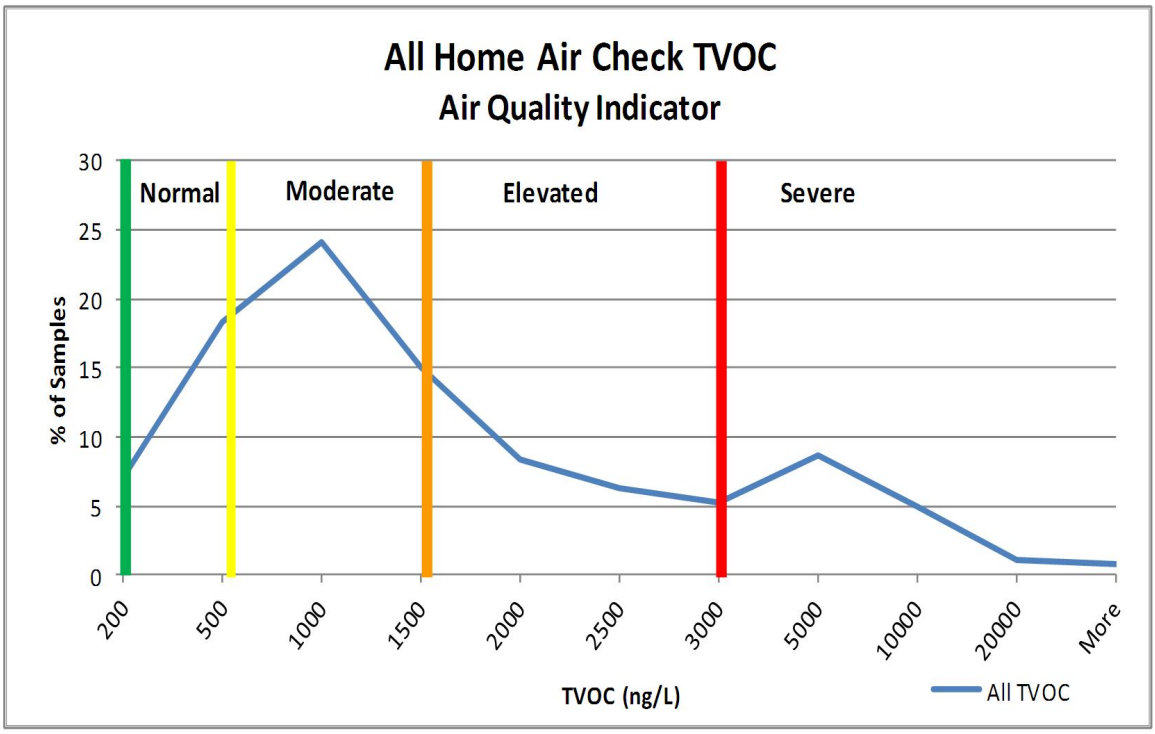
Total Volatile Organic Compound (TVOC) Summary

Your TVOC Level is (ng/L): 990 **HAC Air Quality Level: Moderate**



The chart above shows the TVOC levels for all homes tested using Home Air Check. The blue line represents the relationship between the percentage of homes (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.

The U.S. federal government has not specified a TVOC limit for indoor air. However, the U.S. Green Building Council (USGBC) has recommended 500 ng/L as the upper TVOC limit. TVOC levels below 500 ng/L indicate that the IAQ is acceptable for most individuals; however, chemically sensitive persons may require lower levels. TVOC levels between 500 and 1,500 ng/L indicate that the air quality is marginal and some effect on the occupants is possible. Levels above 1,500 ng/L indicate that your IAQ should definitely be improved.

The presence of chemicals in your home 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 home unlivable. 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: http://www.epa.gov/iaq/
American Lung Association: http://www.lung.org/healthy-air/home/
World Health Organization:
http://www.euro.who.int/en/what-we-do/health-topics/environment-and-health/air-quality/policy/indoor-air-quality
Lawrence Berkeley National Laboratory: http://www.iaqscience.lbl.gov/voc-introduction.html

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 home could be problematic for your IAQ, and will provide some recommendations to help reduce or eliminate them.

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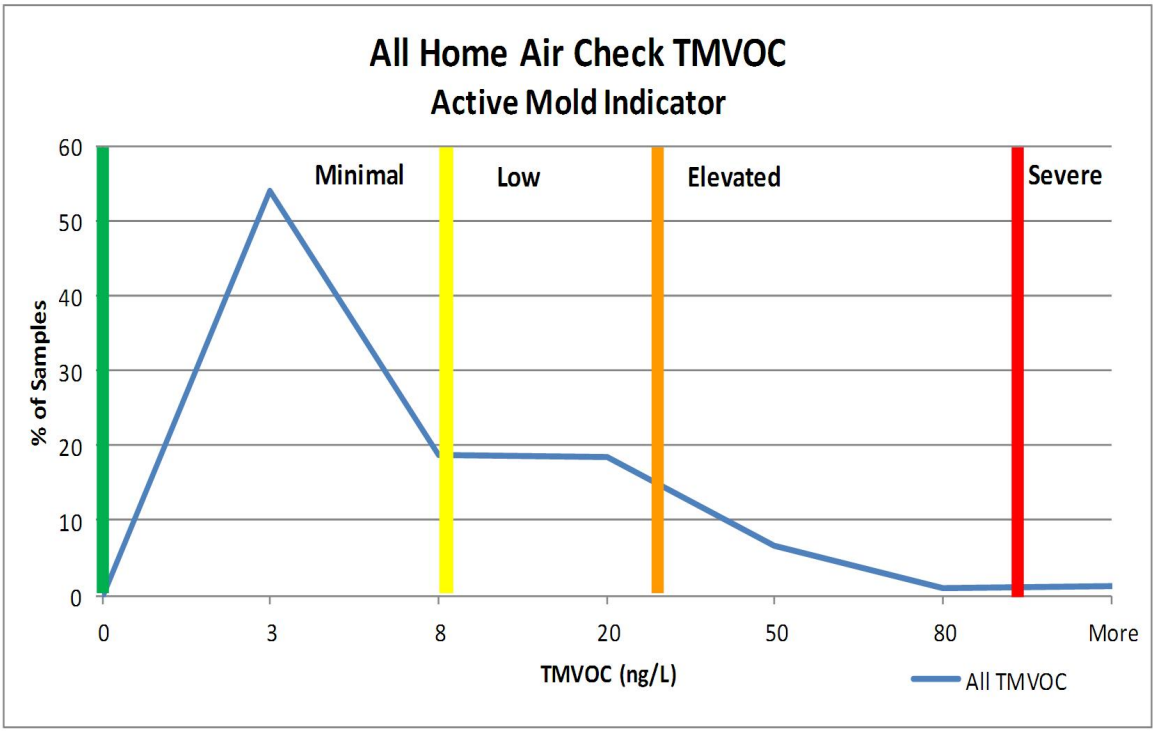
Total Mold Volatile Organic Compound (TMVOC) Summary

Your TMVOC Level is (ng/L): 6 **Active Mold Level: Minimal**



The chart above shows the TMVOC level for all homes tested using Home Air Check. The line represents the relationship between the percentage of homes (indicated on the vertical y-axis) and the TMVOC level (indicated on the horizontal x-axis). The green, yellow, orange, and red vertical bars represent divisions between Minimal, Low, Elevated, and Severe TMVOC levels.

The TMVOC value is an assessment of the quantity of actively growing mold in your home. Like TVOC, the U.S. federal government has not specified limits for TMVOC. Typically, if there is no plumbing leak, condensation, or water intrusion into the home, there will not be a mold problem. If active mold growth is indicated, the first step in fixing the problem is to find and repair the water leak, which is typically from the roof, plumbing, windows, or condensation.

Levels below 8 ng/L are typical for most homes and should not cause great concern for healthy individuals. Levels between 8 and 30 ng/L indicate a low level of mold which, generally, affects people who are sensitive to molds.

Levels above 150 ng/L indicate that a high level of active mold growth is present and it is likely that nearly all occupants of the home will be affected.

For sensitive individuals, these cutoff levels may need to be reduced by up to a factor of four, depending on the degree of sensitivity. Always consult a mold remediation specialist before attempting to remove mold.

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Contamination Index™

Use the Contamination Index (CI) below to help you find products in your home that may be affecting your indoor air quality. Removing or reducing these products will improve your air quality.

	Contamination Index Category	Severity	Description and Suggestions for VOC Reduction
Lifestyle Related Sources	**Personal Care Products**	**Normal**	Personal care products include soap, deodorant, lotions, perfumes, hair coloring supplies, nail care supplies, oral hygiene products, etc. They contain many VOCs that will dissipate if use is discontinued or reduced. Consider storing these products in a tight fitting container when not in use, and dispose of unused products. Also, run an exhaust fan or open a window when dispensing these products.
	Alcohol Products	**Moderate**	VOCs from alcohol can come from household cleaning products, antiseptic wipes, hand sanitizers, some solvents, reed diffusers, consumable alcohol, and some pharmaceuticals. These concentrations will be reduced by removing unnecessary products or proper storage of those materials in a tight fitting container. Consolidate cleaning products to the essentials. Consider switching to alternative methods of cleaning and sanitizing, e.g., baking soda, vinegar, borax, steam, etc., and ventilate the area during and after cleaning.
	Odorants and Fragrances	**Normal**	VOCs in this cateogry can come from scented candles, potpourri, air fresheners, scented cleaning products, and scented personal care products. Consider reducing use of scented products and store unused products in a tight fitting container.
	Dry Cleaning Solvents	**Normal**	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. Consider switching to a dry-cleaner that uses environmentally friendly methods.
	Medicinals	**Normal**	Ointments and creams, topical first aid/pain relievers.
Building Related Sources	**Paints, Varnishes, and Coatings**	**Moderate**	Typically, VOCs from paints and coatings can linger for several months, sometimes longer. Ventilate as much as possible after painting and dispose of paint cans and related supplies if possible. Consider using low-VOC paints/coatings in the future.
	PVC Cement	**Normal**	PVC cement is used to join pieces of PVC pipe together, usually for plumbing.
	HFCs and CFCs (FreonsTM)	**Normal**	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.

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Mixed Building and Lifestyle Sources

Contamination Index Category	Severity	Description and Suggestions for VOC Reduction
Adhesives-Toluene Based	**Normal**	Adhesives are used in many locations in the construction and maintenance of the home,and normally these VOCs will dissipate over time. Additionally, toluene-based adhesives can be found in arts and crafts supplies and automotive products and should be located and removed or properly stored in a tight fitting container.
Gasoline	**Normal**	VOCs from gasoline are typically a result of off-gassing from gas containers and gas-powered equipment such as lawnmowers, snow blowers, mini-bikes, etc. that are stored in attached garages or basements. These items should be stored externally to the home. Additionally, gasoline VOCs can linger on clothing after refueling an automobile at a gas station.
Fuel Oil, Diesel Fuel, Kerosene	**Normal**	Often found in garages and basements. These fuels are not very volatile so will not readily get into the air, but they can linger for a long time and produce a strong, unpleasant odor.
Moth Balls (Naphthalene Based)	**Normal**	Insecticide/pesticide; use only in a tightly closed container. May also be present with p-Dichlorobenzene-based moth crystals.
Moth Crystals (p-Dichlorobenzene Based)	**Normal**	Insecticide/pesticide; use only in a tightly closed container. May also be present with Naphthalene-based moth balls.
Light Hydrocarbons	**Normal**	Building materials; aerosol cans; fuel for cooking/camping/lighters; liquefied petroleum gas (LPG); refrigerant; natural gas; propellant; blowing agent.
Light Solvents	**Normal**	Stoddard solvent; mineral spirits; some paints, varnish, enamels; wax remover; adhesives; automotive products; penetrating oils.
Methylene Chloride	**Normal**	Automotive products; degreasing solvent; paint stripper; adhesive remover; aerosol propellant; insecticide.

Notes

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 http://www.epa.gov/iaq/
- U.S. Environmental Protection Agency, An Introduction to Indoor Air Quality (IAQ) http://www.epa.gov/iaq/ia-intro.html
- World Health Organization, Indoor Air Pollution http://www.euro.who.int/en/what-we-do/health-topics/environment-and-health/air-quality/policy/indoor-air-quality
- California Environmental Protection Agency, Air Resources Board Indoor Air Program http://www.arb.ca.gov/research/indoor/indoor.htm
- American Lung Association, Healthy Air at Home http://www.lungusa.org/healthy-air/home/
- U.S. National Library of Medicine & National Institutes of Health, Medline Plus, Indoor Air Pollution http://www.nlm.nih.gov/medlineplus/indoorairpollution.html
- National Safety AG Database, Questions about Indoor Air Quality http://nasdonline.org/document/1448/d001242/questions-about-indoor-air-quality.html

Mold

- Centers for Disease Control and Prevention, Environmental Hazards & Health Effects, Mold http://www.cdc.gov/mold/default.htm
- U.S. Environmental Protection Agency, Mold http://www.epa.gov/mold/
- U.S. National Library of Medicine & National Institutes of Health, Medline Plus, Molds http://www.nlm.nih.gov/medlineplus/molds.html

Respiratory Health

- Breathe California of the Bay Area http://www.lungsrus.org/
- Centers for Disease Control and Prevention, Environmental Hazards & Health Effects, Air Pollution & Respiratory Health http://www.cdc.gov/nceh/airpollution/
- American Lung Association, Health House http://www.healthhouse.org/

Toxic Air Pollutants

- U.S. Environmental Protection Agency, Air Toxics http://www.epa.gov/ttn/atw/allabout.html
- Department of Health and Human Services, Agency for Toxic Substances & Disease Registry, Phenol http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=27
- Department of Health and Human Services, Agency for Toxic Substances & Disease Registry, Benzene http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=14
- Department of Health and Human Services, Agency for Toxic Substances & Disease Registry, Formaldehyde http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=39
- Department of Health and Human Services, Agency for Toxic Substances & Disease Registry, Toluene http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=29
- Hazardous Substance Data Bank http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB

Volatile Organic Compounds (VOCs)

- Lawrence Berkeley National Laboratory, Indoor Volatile Organic Compounds (VOCs) and Health http://www.iaqscience.lbl.gov/voc-introduction.html
- U.S. Environmental Protection Agency, Indoor Air Quality, Organic Gases (Volatile Organic Compounds - VOCs) http://www.epa.gov/iaq/voc.html
- U.S. National Library of Medicine & National Institutes of Health, Tox Town http://toxtown.nlm.nih.gov/text_version/chemicals.php?id=31
- Minnesota Department of Health, Volatile Organic Compounds (VOCs) in Your Home http://www.health.state.mn.us/divs/eh/indoorair/voc/
- Household Products Database http://hpd.nlm.nih.gov/

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