Total Toxins Summary

VibrantWellness
Vibrant Wellness | 3521 Leonard Ct, Santa Clara, CA 95054
1(866) 364-0963 | support@vibrant-america.com | www.vibrant-wellness.com

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

High (>95th percentile)

Mycotoxins | Heavy Metals | Environmental Toxins

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Enniatin B1(ENN B1)	0.28		0 — 0.13 — 0.22	≤0.22 ng/g
Ochratoxin A (OTA)	7.12		0 — 3.83 — 6.8	≤6.8 ng/g
Sterigmatocystin (STC)	0.55		0 — 0.3 — 0.53	≤0.53 ng/g
Verrucarin J	11.35		0 — 5.18 — 9.2	≤9.2 ng/g
Aluminum	97.58		0 — 17.8 — 45.1	≤45.15 ug/g
Thorium	0.22		0 — 0.02 — 0.07	≤0.07 ug/g
Tungsten*	3.61		0 — 0.12 — 0.33	≤0.33 ug/g
Uranium*	0.15		0 — 0.02 — 0.04	≤0.04 ug/g
2-Hydroxyisobutyric Acid (2HIB)	3018.42		0 — 795 — 1215	≤1215.72 ug/g
Glyphosate	8.83		0 — 1.65 — 7.6	≤7.6 ug/g
N-Acetyl (3,4-Dihydroxybutyl) Cysteine*	1557.66		0 — 374 — 583	≤583 ug/g

* Indicates NHANES population data reference ranges.

Moderate (75th-95th percentile)

Mycotoxins

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Citrinin (CTN)	10.8		0 — 7.05 — 12.5	≤12.53 ng/g

SPECIMEN INFORMATION

Provoking Status: **unavailable** Agent: **unavailable** Dosage: **unavailable**

Results are creatinine corrected to account for urine dilution variations. Reference intervals are based upon NHANES(cdc.gov/nhanes) data if available, and are representative of a large population cohort under non-provoked conditions. Chelation (provocation) agents can increase urinary excretion of metals/elements.

Total Toxins Summary

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Moderate (75th-95th percentile)

Mycotoxins | Heavy Metals | Environmental Toxins

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Fumonisins B3	6.13		0 — 6.08 — 10.8	≤10.8 ng/g
Patulin	7.43		0 — 6.53 — 11.6	≤11.6 ng/g
Roridin A	4.77		0 — 4.28 — 7.6	≤7.6 ng/g
Verrucarin A	0.83		0 — 0.75 — 1.33	≤1.33 ng/g
Arsenic*	13.24		0 — 11.9 — 52	≤52 ug/g
Nickel	7.56		0 — 6.37 — 12.1	≤12.13 ug/g
Butylparaben*	0.88		0 — 0.25 — 4.39	≤4.39 ug/g
Diphenyl Phosphate (DPP)	1.27		0 — 1.1 — 3.7	≤3.7 ug/g
Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)*	36.96		0 — 14.1 — 37.7	≤37.7 ug/g
Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)*	19.9		0 — 8.99 — 23.4	≤23.4 ug/g
Mono-ethyl phthalate (MEtP)*	201.77		0 — 94.2 — 541	≤541 ug/g
N-Acetyl (2-Cyanoethyl) Cysteine (NACE)*	5.37		0 — 5.28 — 256	≤256 ug/g
N-acetyl phenyl cysteine (NAP)*	2.72		0 — 1.29 — 3.03	≤3.03 ug/g

* Indicates NHANES population data reference ranges.

SPECIMEN INFORMATION		
Provoking Status: **unavailable**	Agent: **unavailable**	Dosage: **unavailable**

Results are creatinine corrected to account for urine dilution variations. Reference intervals are based upon NHANES(cdc.gov/nhanes) data if available, and are representative of a large population cohort under non-provoked conditions. Chelation (provocation) agents can increase urinary excretion of metals/elements.

Total Toxins Summary

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Moderate (75th-95th percentile)

Environmental Toxins

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Triclosan (TCS)*	41.59		0 29.9 358	≤358 ug/g

* Indicates NHANES population data reference ranges.

Urine Creatinine

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Urine Creatinine	0.94		0 0.24 2.16	0.25-2.16 mg/mL

COMMENTS

Urine Creatinine

Urine tests that measure ratio of analytes by creatine concentration will not be altered by urine volume, hydration status, or time of testing. When using creatinine concentration to measure urine analytes, the only interference with the test is if the person's creatinine levels are very high (which may be seen in kidney disease, diabetes, or competitive body builder athletes), or when creatinine levels are very low (which may be seen in people with muscle wasting or sarcopenia who have lost their lean muscle mass stores). High urine creatinine may cause falsely lower urine analyte results. Low urine creatinine may cause falsely higher urine analyte results. This does not invalidate the findings; rather, critical analysis should be used to correlate results with clinical history and symptomatology for intervention decision-making.

SPECIMEN INFORMATION		
Provoking Status: **unavailable**	Agent: **unavailable**	Dosage: **unavailable**

Results are creatinine corrected to account for urine dilution variations. Reference intervals are based upon NHANES(cdc.gov/nhanes) data if available, and are representative of a large population cohort under non-provoked conditions. Chelation (provocation) agents can increase urinary excretion of metals/elements.

Mycotoxins

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PATIENT

NAME:	**Total Toxin DEMO**		
DATE OF BIRTH:	**01-01-1111**	GENDER:	**Male**
TELEPHONE:	**000-000-0000**	AGE:	**01**

ACCESSION ID:	**2208200031**
SPECIMEN COLLECTED:	
SPECIMEN RECEIVED:	
FINAL REPORT DATE:	**2022-08-30 15:45 (PDT)**
GENERATION DATE:	**2024-03-12 15:34 (PDT)**

FASTING:	**UNKNOWN**

PROVIDER:

PRACTICE NAME:	**DEMO CLIENT, MD**
PROVIDER NAME:	**DEMO CLIENT, MD**
PHLEBOTOMIST:	**0**

TELEPHONE:	**000-000-0000**
FAX #:	
ADDRESS:	**3521 Leonard Ct, Santa Clara, CA 95054**

-

Vibrant Wellness is pleased to present to you, 'Mycotoxins panel', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.

The Vibrant Mycotoxins Panel is a test to identify and quantify the level of a large set of mycotoxins from both food and environmental molds present in your urine. The results are provided in 3 tables subgrouping the mycotoxins into Aflatoxins, Trichothecenes and Other Mycotoxins.

The report begins with the summary page which lists only the mycotoxins whose levels are >95th percentile (Red) and 75th-95th percentile (Yellow) of reference range, normalized to Urine creatinine levels. Additionally, the previous value is also indicated for your referral (if available). Following this section is the complete list of the mycotoxins and their absolute levels normalized to Creatinine in a quantile format along with the reference ranges. These levels are shown with three shades of color – Green, Yellow and Red. Reference ranges were determined using urine samples from 1000 apparently healthy individuals. The result in green corresponds to 0 to 75th percentile, the result in yellow corresponds to 75th to 95th percentile and the result in red corresponds to greater than 95th percentile of reference range. All content provided in the report are purely for informational purposes only and should not be considered medical advice. Any changes based on the information should made in consultation with your healthcare provider.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Mycotoxins panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to accept these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician/dietitian for medication, treatment, or lifestyle management. This product is not intended to diagnose, treat, or cure any disease.

Pediatric ranges have not been established for this test. It is important that you discuss any modifications to your diet, exercise, and nutritional supplementation with your physician before making any changes.

Mycotoxins Summary

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

High (>95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Enniatin B1(ENN B1)	0.28		0 — 0.13 — 0.22	≤0.22 ng/g
Ochratoxin A (OTA)	7.12		0 — 3.83 — 6.8	≤6.8 ng/g
Sterigmatocystin (STC)	0.55		0 — 0.3 — 0.53	≤0.53 ng/g
Verrucarin J	11.35		0 — 5.18 — 9.2	≤9.2 ng/g

Moderate (75th-95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Citrinin (CTN)	10.8		0 — 7.05 — 12.5	≤12.53 ng/g
Fumonisins B3	6.13		0 — 6.08 — 10.8	≤10.8 ng/g
Patulin	7.43		0 — 6.53 — 11.6	≤11.6 ng/g
Roridin A	4.77		0 — 4.28 — 7.6	≤7.6 ng/g
Verrucarin A	0.83		0 — 0.75 — 1.33	≤1.33 ng/g

Results are creatinine corrected to account for urine dilution variations.

Mycotoxins Summary

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Urine Creatinine

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Urine Creatinine	**0.94**		0 0.24 2.16	0.25-2.16 mg/mL

COMMENTS

Urine Creatinine

Urine tests that measure ratio of analytes by creatine concentration will not be altered by urine volume, hydration status, or time of testing. When using creatinine concentration to measure urine analytes, the only interference with the test is if the person's creatinine levels are very high (which may be seen in kidney disease, diabetes, or competitive body builder athletes), or when creatinine levels are very low (which may be seen in people with muscle wasting or sarcopenia who have lost their lean muscle mass stores). High urine creatinine may cause falsely lower urine analyte results. Low urine creatinine may cause falsely higher urine analyte results. This does not invalidate the findings; rather, critical analysis should be used to correlate results with clinical history and symptomatology for intervention decision-making.

Results are creatinine corrected to account for urine dilution variations.

Mycotoxins

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Aflatoxin

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Aflatoxin B1 (AFB1)	3.55		≤6.93 ng/g
Aflatoxin G1	0.95		≤6.53 ng/g
Aflatoxin M1	1.72		≤6.4 ng/g

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Aflatoxin B2 (AFB2)	1.07		≤8.13 ng/g
Aflatoxin G2	5.72		≤10.8 ng/g

Other

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Chaetoglobosin A (CHA)	17.45		≤31.87 ng/g
Dihydrocitrinone	5.41		≤16.53 ng/g
Fumonisins B1	0.28		≤6.13 ng/g
Fumonisins B3	6.13		≤10.8 ng/g
Mycophenolic Acid	1.23		≤6.4 ng/g
Patulin	7.43		≤11.6 ng/g
Zearalenone (ZEN)	0.29		≤0.67 ng/g

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Citrinin (CTN)	10.8		≤12.53 ng/g
Enniatin B1(ENN B1)	0.28		≤0.22 ng/g
Fumonisins B2	2.08		≤7.2 ng/g
Gliotoxin	47.25		≤207.87 ng/g
Ochratoxin A (OTA)	7.12		≤6.8 ng/g
Sterigmatocystin (STC)	0.55		≤0.53 ng/g

COMMENTS

Citrinin (CTN)

Citrinin (CTN) is a mycotoxin produced by several fungal strains in the Penicillium, Aspergillus and Monascus genera. It is generally formed in stored grains such as rice, wheat, oats, etc., but can also be found in other crops such as peanuts, olives, apples and cheese. Red yeast rice can be contaminated by citrinin, and studies are mixed regarding prevalence of a high presence in dietary supplements targeted for cholesterol management.12 The kidney is the predominant organ of CTN related toxicity which is thought to be linked to oxidative stress and mitochondrial dysfunction. CTN is usually found in foods together with another nephrotoxic mycotoxin, ochratoxin A, which generally is thought to have stronger nephrotoxic effects. Other reports effects from CTN include liver and bone-marrow toxicity.13.

Enniatin B1(ENN B1)

Enniatin B1 (ENN B1) is a mycotoxin produced by Fusarium spp. fungi. It occurs in grains such as rice and corn, as well as fish, fruits, nuts, coffee and cocoa products. Pre-clinical research indicates that ENN B1 has cytotoxic effects related to oxidative stress, cell cycle disruption, mitochondrial modifications, and apoptosis. Genotoxic effects and adverse effects from acute exposures have not been found in pre-clinical studies. Additive cytotoxicity, when ENN B1 is in the presence of other mycotoxins, has been demonstrated.9.

Fumonisins B3

Fumonisin B3 is a mycotoxin produced by Fusarium spp. such as Fusarium verticillioides and F. proliferatum. Many different fumonisins are reported, however, toxicology studies have mainly focused on fumonisin B1, with detection of co-occurring fumonisins B2 and B3 in food products observed. While less clinically relevant data is available for fumonisin B3, pre-clinical evidence suggests toxicity is less than fumonisins B1 and B2.11.

Mycotoxins

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Other

COMMENTS

Ochratoxin A (OTA)

Ochratoxin A (OTA), a renal toxin, is produced majorly by Aspergillus and Penicillium fungal species. Ochratoxin A has been found in barley, oats, rye, wheat, coffee beans, and other plant products, with barley having a particularly high likelihood of contamination. It is also frequently found in pork intended for human consumption. OTA is absorbed in the small intestine and distributed via the blood, to mainly the kidneys, where higher concentrations are found. OTA toxicity is linked to renal conditions such as Balkan endemic nephropathy and chronic interstitial nephrophathy. It is also a potential urothelial carcinogen via oxidative stress and direct genotoxic mechanisms. It has been theorized that increases in carcinogenicity and genotoxicity occur during co-exposure with citrinin (CIT), fumonisin (FB). OTA has a long elimination half-life and is linked to intestinal barrier disruption and stimulation of inflammatory cytokines.5.

Patulin

Patulin is a mycotoxin produced from several species of mold such as Aspergillus, Byssochlamys and Penicillium. Patulin is mainly obtained through ingestion of mycotoxins in fruit such as apples and apple-derived products such as juice, cider puree, etc., that have been colonized by blue mold. Gastrointestinal disturbances such as nausea and vomiting have been reported in humans exposed to elevated patulin levels, however chronic exposure can have neurotoxic, immunosuppressive, and teratogenic properties. Limits on patulin levels in commercial agriculture products have been established by many countries.14.

Sterigmatocystin (STC)

Sterigmatocystin (STC) is a mycotoxin produced by several Aspergillus species. STC can be present in a wide variety of crops such as grains, corn, nuts, cheese, coffee, etc., however rice and oats are affected the most.6 STC is an intermediate of the aflatoxin biosynthetic pathway. While its biological activity is like that of aflatoxins, studies show that the carcinogenic activity of STC is weaker than that of aflatoxin B1. Animal studies show hepatic necrosis and nephrotoxicity with acute exposure, and in-vitro studies show genotoxic effects. The clinical effects of STC in humans is relatively unclear therefore, this mycotoxin is not currently regulated in food production.7.

Trichothecenes

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Deoxynivalenol(DON)	8.67		≤67.47 ng/g
Nivalenol (NIV)	0.34		≤3.2 ng/g
Roridin E	0.41		≤1.33 ng/g
Satratoxin G	0.1		≤0.18 ng/g
T-2 Toxin	0.07		≤0.18 ng/g
Verrucarin J	11.35		≤9.2 ng/g

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Diacetoxyscirpenol (DAS)	<0.05		≤4.27 ng/g
Roridin A	4.77		≤7.6 ng/g
Roridin L2	1.12		≤6.8 ng/g
Satratoxin H	<0.05		≤0.18 ng/g
Verrucarin A	0.83		≤1.33 ng/g

COMMENTS

Roridin A

Roridin A is a macrocyclic trichothecene produced from Stachybotrys chartarum and it has been found in water damaged buildings as well as on mold contaminated grain and straw crops. Humans can be exposed to Stachybotrys through dermal contact, ingestion and inhalation. Macrocyclic tricothecenes are the most cell-toxic trichothecenes currently known. Pre-clinical studies show roridin A has the potential to cause apoptosis of olfactory neurons with resultant atrophy of the olfactory epithelium and olfactory bulbs after inhalation exposure. Pathology is potentiated by the simultaneous exposure to lipopolysaccharide, which is also released in water contaminated buildings. 33.

Mycotoxins

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Trichothecenes

COMMENTS

Verrucarin A

Verrucarin A is a Type D, macrocytic trichothecene mycotoxin which is produced by Stachybotrys, Fusarium, and Myrothecium species. It can occur from mold growth on water damaged buildings or naturally in crops used for human and animal consumption. While verrucarin A is a known toxic compound, it has been studied for selective anti-cancer effects. Known cytotoxic effects include inhibition of protein and DNA and RNA synthesis, interference with mitochondrial function, as well as effects on cell division and on cell membranes.20.

Verrucarin J

Verrucarin J is a trichothecene produced by Stachybotrys chartarum. They can grow in damp indoor environments and may contribute to health problems among building occupants. Verrucarin J molecules are small enough to be airborne and easily inhaled. Inhalation is the most dangerous form of exposure, but with Verrucarin J being lipophilic, mycotoxins can easily cross cell membranes, which means they can be absorbed through the mouth and even the skin. Verrucarin J can inhibit protein synthesis as well as DNA and RNA damage in human cells.

Mycotoxins

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Risk and Limitations

This test has been developed and its performance characteristics determined by Vibrant America LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration.

Mycotoxins do not demonstrate absolute positive and negative predictive values for mold related illnesses. Its clinical utility has not been fully established. Clinical history and current symptoms of the individual must be considered by the healthcare provider prior to any interventions. Test results should be used as one component of a physician's clinical assessment. Quantification of mycotoxins in urine is not FDA-recognized diagnostic indicator of mold exposure.

Mycotoxins testing is performed at Vibrant America, a CLIA certified laboratory. Vibrant America has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific mycotoxin due to circumstances beyond Vibrant's control. Vibrant may re-test a sample to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions.

Vibrant Wellness makes no claims as to the diagnostic or therapeutic use of its tests or other informational materials. Vibrant Wellness reports and other information do not constitute medical advice and are not a substitute for professional medical advice. Please consult your healthcare provider for questions regarding test results, or before beginning any course of medication, supplementation, or dietary changes. Users should not disregard, or delay in obtaining, medical advice for any medical condition they may have, and should seek the assistance of their health care professionals for any such conditions.

Heavy Metals

VibrantWellness
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1(866) 364-0963 | support@vibrant-america.com | www.vibrant-wellness.com

PATIENT

NAME:	**Total Toxin DEMO**		
DATE OF BIRTH:	**01-01-1111**	GENDER:	**Male**
TELEPHONE:	**000-000-0000**	AGE:	**01**

ACCESSION ID:	**2208200031**
SPECIMEN COLLECTED:	
SPECIMEN RECEIVED:	
FINAL REPORT DATE:	**2022-09-02 11:34 (PDT)**
GENERATION DATE:	**2024-03-12 15:34 (PDT)**

FASTING:	**UNKNOWN**

PROVIDER:

PRACTICE NAME:	**DEMO CLIENT, MD**
PROVIDER NAME:	**DEMO CLIENT, MD**
PHLEBOTOMIST:	**0**

TELEPHONE:	**000-000-0000**
FAX #:	
ADDRESS:	**3521 Leonard Ct, Santa Clara, CA 95054**

-

Vibrant Wellness is pleased to present to you, 'Heavy Metals panel', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.

The Heavy Metals is a test to measure levels of Heavy Metals Toxins in your urine that you might be exposed to.

Reference ranges are established based on NHANES study where applicable. Other reference ranges are established based on 1000 apparently healthy urine samples.

The report begins with the summary page which lists only the heavy metal toxins whose levels are >95th percentile (Red) and 75th-95th percentile (Yellow) of reference range, normalized to Urine creatinine levels. Additionally, the previous value is also indicated for your referral (if available). Following this section is the complete list of the heavy metal toxins and their absolute levels normalized to Creatinine in a quantile format along with the reference ranges. These levels are shown with three shades of color – Green, Yellow and Red. The result in green corresponds to 0 to 75th percentile, the result in yellow corresponds to 75th to 95th percentile and the result in red corresponds to greater than 95th percentile of reference range. All content provided in the report are purely for informational purposes only and should not be considered medical advice. Any changes based on the information should made in consultation with your healthcare provider.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Heavy Metals panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to accept these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician/dietitian for medication, treatment, or lifestyle management. This product is not intended to diagnose, treat, or cure any disease.

Pediatric ranges have not been established for this test. It is important that you discuss any modifications to your diet, exercise, and nutritional supplementation with your physician before making any changes.

Heavy Metals Summary

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

High (>95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Aluminum	97.58		0 17.8 45.1	≤45.15 ug/g
Thorium	0.22		0 0.02 0.07	≤0.07 ug/g
Tungsten*	3.61		0 0.12 0.33	≤0.33 ug/g
Uranium*	0.15		0 0.02 0.04	≤0.04 ug/g

* Indicates NHANES population data reference ranges.

Moderate (75th-95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Arsenic*	13.24		0 11.9 52	≤52 ug/g
Nickel	7.56		0 6.37 12.1	≤12.13 ug/g

* Indicates NHANES population data reference ranges.

Urine Creatinine

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Urine Creatinine	0.94		0 0.24 2.16	0.25-2.16 mg/mL

COMMENTS

Urine Creatinine

Urine tests that measure ratio of analytes by creatine concentration will not be altered by urine volume, hydration status, or time of testing. When using creatinine concentration to measure urine analytes, the only interference with the test is if the person's creatinine levels are very high (which may be seen in kidney disease, diabetes, or competitive body builder athletes), or when creatinine levels are very low (which may be seen in people with muscle wasting or sarcopenia who have lost their lean muscle mass stores). High urine creatinine may cause falsely lower urine analyte results. Low urine creatinine may cause falsely higher urine analyte results. This does not invalidate the findings; rather, critical analysis should be used to correlate results with clinical history and symptomatology for intervention decision-making.

SPECIMEN INFORMATION

Provoking Status: **unavailable** Agent: **unavailable** Dosage: **unavailable**

Results are creatinine corrected to account for urine dilution variations. Reference intervals are based upon NHANES(cdc.gov/nhanes) data if available, and are representative of a large population cohort under non-provoked conditions. Chelation (provocation) agents can increase urinary excretion of metals/elements.

Heavy Metals

VibrantWellness
Vibrant Wellness | 3521 Leonard Ct, Santa Clara, CA 95054
1(866) 364-0963 | support@vibrant-america.com | www.vibrant-wellness.com

LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Heavy Metals

* Indicates NHANES population data reference ranges.

TEST NAME	PERCENTILE (75th / 95th)	REFERENCE
Aluminum	97.58	≤45.15 ug/g
Arsenic*	13.24	≤52 ug/g
Beryllium*	<0.1	≤0.76 ug/g
Cadmium*	0.28	≤0.8 ug/g
Gadolinium	<0.05	≤0.45 ug/g
Mercury*	0.22	≤1.61 ug/g
Palladium	<0.1	≤0.2 ug/g
Tellurium	0.26	≤0.89 ug/g
Thorium	0.22	≤0.07 ug/g
Tungsten*	3.61	≤0.33 ug/g

TEST NAME	PERCENTILE (75th / 95th)	REFERENCE
Antimony*	0.03	≤0.16 ug/g
Barium*	1	≤5.59 ug/g
Bismuth	<0.1	≤2.53 ug/g
Cesium*	1.99	≤10.3 ug/g
Lead*	0.13	≤1.16 ug/g
Nickel	7.56	≤12.13 ug/g
Platinum*	<0.05	≤0.9 ug/g
Thallium*	0.1	≤0.43 ug/g
Tin*	<0.2	≤3.72 ug/g
Uranium*	0.15	≤0.04 ug/g

COMMENTS

Aluminum

Aluminum (atomic number 13) is the most widely distributed metal in the environment and has many consumer applications—including pots, pans, beverage cans, foil, antacids, antiperspirants, cosmetics, and food additives (e.g., baking powder, coloring agents, and anticaking agents). Therefore, aluminum intoxications may occur frequently. Exposures to aluminum may extensively occur in occupations associated with mining and processing of ore, scrap metal recycling, welding, etc. Humans living in environments contaminated by industrial wastes may also be exposed to high levels of aluminum. Intake of aluminum can occur by inhalation of aerosols or particles, ingestion of food, water, medicaments, skin contact, vaccination, dialysis, and infusions. The mechanisms of aluminum toxicity include changes in cell membrane permeability, inhibition of enzyme activity, protein denaturation/transformation, and disruption of iron homeostasis leading to iron overload-induced lipid peroxidation and increased reactive oxygen species. Aluminum poisoning can affect blood content, musculoskeletal system, kidney, liver, respiratory and nervous system. Early symptoms of aluminum toxicity include flatulence, headaches, colic, dryness of the skin and mucous membranes, and tendencies for colds. Later symptoms may include paralytic muscular conditions, loss of memory, and mental confusion.

Arsenic

Arsenic (atomic number 33) is a naturally occurring element distributed throughout the earth's crust and in groundwater. At lower levels, it is also found in the air and in food products. Ingestion and inhalation are the most common routes of exposure to arsenic. However, dermal exposure may lead to illness. Arsenic-contaminated water—used for drinking, food preparation, and irrigation of food crops—poses the greatest threat to public health. According to the American Cancer Society, the foods with the highest levels of arsenic are seafood, rice (including rice cereal), mushrooms, and poultry. Because tobacco plants can take up arsenic naturally present in the soil, people who smoke may have higher levels. The mechanisms of arsenic toxicity include inactivating enzymes involved in cellular energy pathways, DNA synthesis, and DNA repair. Acute exposure to arsenic can lead to gastroenteritis followed by hypotension. Chronic exposure can lead to the risk of developing skin lesions, cardiovascular diseases, diabetes, affected cognitive abilities, and cancer.

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Heavy Metals

COMMENTS

Nickel

Nickel (atomic number 28) is extensively distributed in the environment, air, water, and soil. Nickel is used to make jewelry, coins, batteries, spark plugs, catalysts, stainless steel (including cooking and eating utensils), machinery parts, nickel alloys, industrial plumbing, and electroplating. Lung inhalation is the major route of exposure for nickel-induced toxicity. However, food is the major source of nickel exposure. The Agency for Toxic Substances and Disease Registry (ATSDR) estimates that average intake for adults is 100 to 300 micrograms per day. It may also be absorbed through the skin. The mechanisms of nickel toxicity include depletion of glutathione levels and bonding to the sulfhydryl groups of proteins. Contact with nickel may cause a variety of side effects on human health, such as contact dermatitis (nickel allergy), cardiovascular and kidney diseases, lung fibrosis, and lung and nasal cancer. The symptoms accompanied with its intoxication include low blood pressure, malaise, muscle tremor, tetany and paralysis, nausea, vomiting, hemorrhages, heart attack, oral and/or intestinal cancer, and kidney dysfunction.

Thorium

Thorium (atomic number 90) is a naturally occurring radioactive element present in the air, water, soil, and rocks. It is found in trace amounts in most animals. Thorium is used to make welding rods, fire brick, camera and telescope lenses, gas lantern mantles, and in the ceramics industry (glazes). It is also incorporated into metals used in the aerospace industry and nuclear reactions. Until the 1950s, thorium dioxide was used as a radiology contrast agent. Thorium is currently being used as a novel alpha-therapy for the treatment of resistant tumors. Thorium is a known human carcinogen. It can enter the body through the respiratory, gastrointestinal, and dermatological systems. Occupational thorium exposure can occur to those individuals working near radioactive waste disposal sites, and/or uranium, thorium, tin, phosphate mining, and gas mantle production industries. Symptoms and side effects of thorium toxicity are most likely to manifest in the hematological, hepatic, and respiratory systems, as well as possible cancers. The most common symptoms of thorium toxicity are respiratory distress and pneumonia, pulmonary hypertension, and fibrosis. Individuals who breathe thorium dust may develop lung disease. Studies have also shown that individuals exposed to thorium may have an increased risk of bone cancer because thorium may be stored in bone.

Tungsten

Tungsten (atomic number 74) is a naturally occurring element that is typically found in the solid form in rocks and minerals. It is used in light bulb filaments, as part of X-ray tubes, as a catalyst to speed up chemical reactions, as a component of steel in high-speed tools, in turbine blades, in darts, and in golf club components. Tungsten has the highest melting point of all metals and maintains tensile strength even at very high temperatures. Replacing lead and depleted uranium, heavy metal tungsten alloys are increasingly used in military applications such as helicopter rotors, kinetic energy penetrators for defeating heavy armor, guided missiles, and fragmentation warheads. Tungsten intoxications are relatively rare. However, breathing contaminated air, drinking contaminated water, skin contact with compounds that contain tungsten, or eating food that contains tungsten are the most common ways tungsten toxicity occurs. The symptoms associated with tungsten toxicity may include breathing problems, nausea, seizures, rapid onset of clouded consciousness which may lead to coma and encephalopathy, renal conditions, and hypocalcemia. Limited evidence from animal studies suggest tungsten exposure is carcinogenic, but this may be contributed to or modified by the presence of other heavy metals like nickel and cobalt in tungsten alloys.

Uranium

Uranium (atomic number 92) is a naturally occurring radioactive element found on earth found in nearly all rocks and soils. It is used as fuel for nuclear power plants and the nuclear reactors that run naval ships and submarines. It can also be used in nuclear weapons. Depleted uranium is used in military applications, including as a shield to protect against ionizing radiation, as armor in military vehicles, in munitions to help them penetrate enemy armored vehicles, and as a counterbalance on helicopter rotors. Uranium can be ingested through the lungs, and gastrointestinal (GI) tract, and can be absorbed through the skin. Uranium can stick to plant roots so unwashed root vegetables are a primary source of uranium in the diet. However, Brazil nuts are also found to have high levels. The majority of uranium that is inhaled through the lungs or ingested through the GI tract is not absorbed and leaves the body through the feces. However, water-soluble sources of uranium being ingested may lead to kidney problems. As a result, the kidneys are the most impacted organ system by uranium exposure, both chronic and acute. The primary mechanism of uranium toxicity is direct damage to DNA from alpha particle interactions. Therefore, uranium may also cause chromosomal abnormalities. The main manifestation of uranium exposure is cellular depletion of antioxidants and the formation of reactive oxygen species (ROS), as well as increased oxidative stress. Altered genomic stability and increased oxidative stress are hallmarks of aging. As a result, uranium intoxication may disrupt many biological processes which could lead to the risk of accelerated aging and developing age-associated conditions.

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Risk and Limitations

This test has been developed and its performance characteristics determined by Vibrant America LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration.

Heavy Metals Toxins panel does not demonstrate absolute positive and negative predictive values for any condition. Its clinical utility has not been fully established. Clinical history and current symptoms of the individual must be considered by the healthcare provider prior to any interventions. Test results should be used as one component of a physician's clinical assessment.

Heavy Metals Panel testing is performed at Vibrant America, a CLIA certified laboratory. Vibrant America has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific toxin due to circumstances beyond Vibrant's control. Vibrant may re-test a sample to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

The information in this report is intended for educational purposes only. While every attempt has been made to provide current and accurate information, neither the author nor the publisher can be held accountable for any errors or omissions.

Vibrant Wellness makes no claims as to the diagnostic or therapeutic use of its tests or other informational materials. Vibrant Wellness reports and other information do not constitute medical advice and are not a substitute for professional medical advice. Please consult your healthcare practitioner for questions regarding test results, or before beginning any course of medication, supplementation, or dietary changes. Users should not disregard, or delay in obtaining, medical advice for any medical condition they may have, and should seek the assistance of their health care professionals for any such conditions.

Environmental Toxins

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PATIENT

NAME:	**Total Toxin DEMO**		
DATE OF BIRTH:	**01-01-1111**	GENDER:	**Male**
TELEPHONE:	**000-000-0000**	AGE:	**01**

ACCESSION ID:	**2208200031**
SPECIMEN COLLECTED:	
SPECIMEN RECEIVED:	
FINAL REPORT DATE:	**2022-08-30 15:45 (PDT)**
GENERATION DATE:	**2024-03-12 15:34 (PDT)**

FASTING:	**UNKNOWN**

PROVIDER:

PRACTICE NAME:	**DEMO CLIENT, MD**
PROVIDER NAME:	**DEMO CLIENT, MD**
PHLEBOTOMIST:	**0**

TELEPHONE:	**000-000-0000**
FAX #:	
ADDRESS:	**3521 Leonard Ct, Santa Clara, CA 95054**

-

Vibrant Wellness is pleased to present to you, 'Environmental Toxins Panel', to help you make healthy lifestyle, dietary and treatment choices in consultation with your healthcare provider. It is intended to be used as a tool to encourage a general state of health and well-being.

The Vibrant Environmental Toxins Panel is a test to measure levels of Environmental Toxins in your urine. The panel is sub-grouped into Pesticides, Pthalates, Parabens, Acrylic, Alkyl phenols and Volatile Organic Compounds.

Reference ranges are established based on NHANES study where applicable. Other reference ranges are established based on 1000 apparently healthy urine samples.

The report begins with the summary page which lists only the environmental toxins whose levels are >95th percentile (Red) and 75th-95th percentile (Yellow) of reference range, normalized to Urine creatinine levels. Additionally, the previous value is also indicated for your referral (if available). Following this section is the complete list of the environmental toxins and their absolute levels normalized to Creatinine in a quantile format along with the reference ranges. These levels are shown with three shades of color – Green, Yellow and Red. The result in green corresponds to 0 to 75th percentile, the result in yellow corresponds to 75th to 95th percentile and the result in red corresponds to greater than 95th percentile of reference range. All content provided in the report are purely for informational purposes only and should not be considered medical advice. Any changes based on the information should made in consultation with your healthcare provider.

The Vibrant Wellness platform provides tools for you to track and analyze your general wellness profile. Testing for the Environmental Toxins panel is performed by Vibrant America, a CLIA certified lab CLIA#:05D2078809. Vibrant Wellness provides and makes available this report and any related services pursuant to the Terms of Use Agreement (the "Terms") on its website at www.vibrant-wellness.com. By accessing, browsing, or otherwise using the report or website or any services, you acknowledge that you have read, understood, and agree to be bound by these terms. If you do not agree to accept these terms, you shall not access, browse, or use the report or website. The statements in this report have not been evaluated by the Food and Drug Administration and are only meant to be lifestyle choices for potential risk mitigation. Please consult your physician/dietitian for medication, treatment, or lifestyle management. This product is not intended to diagnose, treat, or cure any disease.

Pediatric ranges have not been established for this test. It is important that you discuss any modifications to your diet, exercise, and nutritional supplementation with your physician before making any changes.

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

High (>95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
2-Hydroxyisobutyric Acid (2HIB)	3018.42		0 795 1215	≤1215.72 ug/g
Glyphosate	8.83		0 1.65 7.6	≤7.6 ug/g
N-Acetyl (3,4-Dihydroxybutyl) Cysteine*	1557.66		0 374 583	≤583 ug/g

* Indicates NHANES population data reference ranges.

Moderate (75th-95th percentile)

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Butylparaben*	0.88		0 0.25 4.39	≤4.39 ug/g
Diphenyl Phosphate (DPP)	1.27		0 1.1 3.7	≤3.7 ug/g
Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)*	36.96		0 14.1 37.7	≤37.7 ug/g
Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)*	19.9		0 8.99 23.4	≤23.4 ug/g
Mono-ethyl phthalate (MEtP)*	201.77		0 94.2 541	≤541 ug/g
N-Acetyl (2-Cyanoethyl) Cysteine (NACE)*	5.37		0 5.28 256	≤256 ug/g
N-acetyl phenyl cysteine (NAP)*	2.72		0 1.29 3.03	≤3.03 ug/g
Triclosan (TCS)*	41.59		0 29.9 358	≤358 ug/g

* Indicates NHANES population data reference ranges.

Results are creatinine corrected to account for urine dilution variations. Reference intervals are based upon NHANES(cdc.gov/nhanes) data if available, and are representative of a large population cohort under non-provoked conditions.

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Urine Creatinine

TEST NAME	CURRENT RESULT	PREVIOUS RESULT	CURRENT RESULT / PREVIOUS RESULT	REFERENCE
Urine Creatinine	**0.94**		0 0.24 2.16	0.25-2.16 mg/mL

COMMENTS

Urine Creatinine

Urine tests that measure ratio of analytes by creatine concentration will not be altered by urine volume, hydration status, or time of testing. When using creatinine concentration to measure urine analytes, the only interference with the test is if the person's creatinine levels are very high (which may be seen in kidney disease, diabetes, or competitive body builder athletes), or when creatinine levels are very low (which may be seen in people with muscle wasting or sarcopenia who have lost their lean muscle mass stores). High urine creatinine may cause falsely lower urine analyte results. Low urine creatinine may cause falsely higher urine analyte results. This does not invalidate the findings; rather, critical analysis should be used to correlate results with clinical history and symptomatology for intervention decision-making.

Results are creatinine corrected to account for urine dilution variations. Reference intervals are based upon NHANES(cdc.gov/nhanes) data if available, and are representative of a large population cohort under non-provoked conditions.

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Environmental phenols

* Indicates NHANES population data reference ranges.

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
4-Nonylphenol	0.06		≤2.06 ug/g
Triclosan (TCS)*	41.59		≤358 ug/g
Bisphenol A (BPA)*	1.25		≤5.09 ug/g

COMMENTS

Triclosan (TCS)

Triclosan (TCS) is an antibacterial and antifungal agent present in some consumer products, including toothpaste, soaps, detergents, toys, and surgical cleaning treatments. Humans are exposed to triclosan through skin absorption when washing hands or in the shower, brushing teeth, using mouthwash, or doing dishes, and through ingestion when swallowed. Additional exposure is possible through ingesting plants grown in soil treated with sewage sludge or eating fish exposed to it. Triclosan has been associated with a higher risk of food allergies. Triclosan has also been found to be a weak endocrine disruptor. Prenatal triclosan exposure was associated with increased cord testosterone levels in the infants.

Herbicides

* Indicates NHANES population data reference ranges.

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
2,4-Dichlorophenoxyacetic Acid (2,4-D)*	0.08		≤1.55 ug/g
Atrazine mercapturate*	0.01		≤0.05 ug/g
Atrazine *	0.01		≤0.05 ug/g
Glyphosate		8.83	≤7.6 ug/g

COMMENTS

Glyphosate

Glyphosate is the most used herbicide worldwide, and its residues can be found in food, drinking-water, crops, animal feed, groundwater, rain, and air. Residues have also been found in the urine of 60–80% of the general population in the United States. Potential health harms linked to glyphosate-based herbicides include microbiome disruption, increased risk of celiac disease, endocrine disruption, reproduction and fertility effects, cardiovascular disorder, central nervous system dysfunction, learning impairment, anxiety, depression, and renal disease. In 2015 the IARC, the specialized cancer agency of the WHO, classified glyphosate as a Group 2A carcinogen. Non-Hodgkin lymphoma has been significantly associated with occupational exposure to glyphosate in the literature. Multiple myeloma has also been associated with glyphosate exposure. Mechanisms shown in pre-clinical research for carcinogenicity and other health harms include increased production of reactive oxygen species (ROS), DNA adduct formation, mutagenic effects, and chromosomal damage.

Mitochondrial Marker

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Tiglylglycine (TG)	0.07		≤3.24 ug/g

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Other Markers

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TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Diphenyl Phosphate (DPP)	1.27		≤3.7 ug/g
Perchlorate (PERC)*	2.1		≤10.7 ug/g
N-acetyl-S-(2-carbamoylethyl)-cysteine*	10.07		≤199 ug/g

COMMENTS

Diphenyl Phosphate (DPP)

Diphenyl phosphate (DPP) is an aryl phosphate ester (APE) used as an industrial catalyst and chemical additive and is the primary metabolite of flame retardant APEs. DPP is used in the manufacture of phosphoric acid diesters such as triphenyl phosphate, trixylenyl phosphate, isodecyl diphenyl phosphate, cresyl diphenyl phosphate and isopropylphenyl diphenyl phosphate. It is widely used as a protective agent for hydroxyl group in organic synthesis. It finds application as an additive for paints and coatings. DPP impacts cardiac development. DPP has the potential to impair mitochondrial function as well as induce renal toxicity, hepatoxicity, and hemotoxicity.

Parabens

* Indicates NHANES population data reference ranges.

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Butylparaben*	0.88		≤4.39 ug/g
Methylparaben*	57.43		≤653 ug/g
Ethylparaben *	1.44		≤99.3 ug/g
Propylparaben*	34.53		≤222 ug/g

COMMENTS

Butylparaben

Butylparaben belongs to the paraben family and is one of the most common antimicrobial preservatives in cosmetics such as such as makeup, moisturizers, hair-care products, and shaving creams. It is also used in medication suspensions, and as a flavoring additive in food. When exposed to high levels of butylparaben via inhalation, irritation to the respiratory tract results; symptoms include coughing and shortness of breath. Ingestion of large doses of butylparaben may cause irritation to the gastrointestinal (GI) tract. Butylparaben is an endocrine disruptor.

Pesticides

* Indicates NHANES population data reference ranges.

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
2,2-bis(4-Chlorophenyl) acetic acid (DDA)	1		≤19 ug/g
Diethyl phosphate (DEP)*	0.23		≤15.7 ug/g
Diethylthiophosphate (DETP)*	0.66		≤3.92 ug/g
Dimethyldithiophosphate (DMDTP)*	0.4		≤6.12 ug/g
3-Phenoxybenzoic Acid (3PBA)*	0.37		≤5.44 ug/g
Diethyldithiophosphate (DEDTP)*	0.02		≤0.3 ug/g
Dimethyl phosphate (DMP)*	3.25		≤33.6 ug/g
Dimethylthiophosphate (DMTP)*	3.55		≤33.7 ug/g

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Phthalates

* Indicates NHANES population data reference ranges.

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)*		36.96	≤37.7 ug/g
Mono-2-ethylhexyl phthalate (MEHP)*	0.93		≤8.47 ug/g

TEST NAME	PERCENTILE 75th	PERCENTILE 95th	REFERENCE
Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)*		19.9	≤23.4 ug/g
Mono-ethyl phthalate (MEtP)*	201.77		≤541 ug/g

COMMENTS

Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)

Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP) is a metabolite of mono(2-ethylhexyl) phthalate (MEHP), which belongs to the most common environmental toxin phthalates. Phthalates, often known as plasticizers, are a group of chemicals used to make plastics more flexible and harder to break. They are widely used in cosmetics, adhesives, detergents, lubricating oils, automotive plastics, and plastic clothes. People are exposed to phthalates by eating or drinking contaminated foods but also by breathing in air that contains phthalate vapours or dust. Inhaling phthalates can irritate the nose and throat, causing coughing and wheezing, headaches, dizziness, and nausea. MEHHP measured from the blood of pregnant women has been significantly associated with the decreased penis width, shorter anogenital distance, and the incomplete descent of testes of their newborn sons. Phthalates have been classified as endocrine disruptors which may cause reproductive damage, depressed leukocyte function, and even cancer. Phthalate exposure has also been associated with diabetes and insulin resistance, breast cancer, obesity, metabolic disorders, and immune disorders. Phthalate exposure and adverse child neurodevelopment, including autistic behaviours and lower cognitive and motor development, have also been reported.

Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)

Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP) is a metabolite of mono(2-ethylhexyl) phthalate (MEHP), which belongs to the most common environmental toxin phthalates. Phthalates, often known as plasticizers, are a group of chemicals used to make plastics more flexible and harder to break. They are widely used in cosmetics, adhesives, detergents, lubricating oils, automotive plastics, and plastic clothes. People are exposed to phthalates by eating or drinking contaminated foods but also by breathing in air that contains phthalate vapours or dust. Inhaling phthalates can irritate the nose and throat, causing coughing and wheezing, headaches, dizziness, and nausea. MEHHP measured from the blood of pregnant women has been significantly associated with the decreased penis width, shorter anogenital distance, and the incomplete descent of testes of their newborn sons. Phthalates have been classified as endocrine disruptors which may cause reproductive damage, depressed leukocyte function, and even cancer. Phthalate exposure has also been associated with diabetes and insulin resistance, breast cancer, obesity, metabolic disorders, and immune disorders. Phthalate exposure and adverse child neurodevelopment, including autistic behaviours and lower cognitive and motor development, have also been reported.

Mono-ethyl phthalate (MEtP)

Mono-ethyl Phthalate (MEtP) is a metabolite of diethyl phthalate, which belongs to the most common environmental toxin group, phthalates. Phthalates, often known as plasticizers, are a group of chemicals used to make plastics more flexible and harder to break. They are widely used in cosmetics, adhesives, detergents, lubricating oils, automotive plastics, and plastic clothes. People are exposed to phthalates by eating or drinking contaminated foods but also by breathing in air that contains phthalate vapours or dust. Inhaling phthalates can irritate the nose and throat, causing coughing and wheezing, headaches, dizziness, and nausea. Phthalates have been classified as endocrine disruptors which may cause reproductive damage, depressed leukocyte function, and even cancer. Phthalate exposure has also been associated with diabetes and insulin resistance, breast cancer, obesity, metabolic disorders, and immune disorders. Phthalate exposure and adverse child neurodevelopment, including autistic behaviours and lower cognitive and motor development, have also been reported.

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LAST NAME	FIRST NAME	GENDER	DATE OF BIRTH	ACCESSION ID	DATE OF SERVICE
DEMO	DEMO	Male	01-01-1111	2208200031	

Volatile organic compounds

*** Indicates NHANES population data reference ranges.**

TEST NAME	PERCENTILE (75th / 95th)	REFERENCE
2-Hydroxyethyl Mercapturic Acid (HEMA)*	0.79	≤4.75 ug/g
2-Methylhippuric Acid (2MHA)*	20.28	≤248 ug/g
4-Methylhippuric Acid (4MHA)	45.74	≤752.72 ug/g
N-Acetyl (2,Hydroxypropyl) Cysteine (NAHP)*	0.36	≤403 ug/g
N-Acetyl (Propyl) Cysteine (NAPR)*	4.26	≤46.1 ug/g
Phenyl glyoxylic Acid (PGO)*	25.17	≤518 ug/g

TEST NAME	PERCENTILE (75th / 95th)	REFERENCE
2-Hydroxyisobutyric Acid (2HIB)	3018.42	≤1215.72 ug/g
3-Methylhippuric Acid (3MHA)	1.38	≤612.83 ug/g
N-Acetyl (2-Cyanoethyl) Cysteine (NACE)*	5.37	≤256 ug/g
N-Acetyl (3,4-Dihydroxybutyl) Cysteine*	1557.66	≤583 ug/g
N-acetyl phenyl cysteine (NAP)*	2.72	≤3.03 ug/g

COMMENTS

2-Hydroxyisobutyric Acid (2HIB)

2-Hydroxyisobutyric Acid (2HIB) is most often the result of exposure to methyl tertiary-butyl ether (MTBE) or ethyl tertiary butyl ether (ETBE), which are gasoline additives used as octane enhancers. MTBE has been found to pollute large quantities of groundwater when gasoline with MTBE is spilled or leaked at gas stations. In addition, MTBE and ETBE are volatile and may be inhaled or absorbed through the skin by drivers during fueling or from exhaust exposure. Long term exposure to MTBE or ETBE may link to hepatic, kidney, central nervous system toxicity, and even cancer.

N-Acetyl (2-Cyanoethyl) Cysteine (NACE)

N-acetyl (2-cyanoethyl) cysteine (NACE) is a result of exposure to acrylonitrile and NACE is the major metabolite. Acrylonitrile is a colourless liquid with a pungent odor. It is used in the production of acrylic fibers, resins, and rubber. Use of any of these products could lead to exposure to acrylonitrile. Smoking tobacco and cigarettes is another potential exposure. Exposure to acrylonitrile can lead to headaches, nausea, dizziness, fatigue, and chest pains. The European Union has classified acrylonitrile as a carcinogen. Workers exposed to high levels of airborne acrylonitrile are diagnosed more frequently with damage to their lungs, liver, and central nervous system.

N-Acetyl (3,4-Dihydroxybutyl) Cysteine

N-Acetyl (3,4-Dihydroxybutyl) Cysteine (NADB) is a metabolite of 1,3-butadiene, which is important industrially as a monomer in the production of synthetic rubber. Individuals that come into contact with rubber, such as car tires, could absorb up to 1,3 butadiene through the skin. Although butadiene breaks down quickly in the atmosphere, it is nevertheless found in the ambient air in urban and suburban areas as a consequence of its constant emission from motor vehicles. Butadiene has been listed as a carcinogen, and long-term exposure is associated with cardiovascular disease, leukemia, and other cancers.

N-acetyl phenyl cysteine (NAP)

Benzene synthesizes N-acetyl phenyl cysteine (NAP) as a metabolite. Environmentally, benzene is an important solvent. The major sources of benzene exposure are tobacco smoke, automobile service stations, exhaust from motor vehicles, and industrial emissions. Ingestion and dermal absorption of benzene can also result from contact with contaminated water. Benzene may cause drowsiness, dizziness, rapid or irregular heartbeat, and headaches in people who breathe it in. Long term exposure to benzene may increase the risk of cancer, aplastic anemia, bone marrow failure, acute leukemia, and cardiovascular disease. Benzene is extremely toxic and targets the liver, kidney, lung, heart, and brain as well as causing DNA strand breaks and chromosomal damage. Benzene and its metabolites induce oxidative stress, which causes genomic instability through DNA damage. Changes to genomic stability have been linked to aging. Thus, NAP toxicity may accelerate aging owing to its contribution to genomic instability, which is a hallmark of aging.

Environmental Toxins

VibrantWellness
Vibrant Wellness | 3521 Leonard Ct, Santa Clara, CA 95054
1(866) 364-0963 | support@vibrant-america.com | www.vibrant-wellness.com

Risk and Limitations

This test has been developed and its performance characteristics determined by Vibrant America LLC., a CLIA certified lab. These assays have not been cleared or approved by the U.S. Food and Drug Administration.

Environmental Toxins panel does not demonstrate absolute positive and negative predictive values for any condition. Its clinical utility has not been fully established. Clinical history and current symptoms of the individual must be considered by the healthcare provider prior to any interventions. Test results should be used as one component of a physician's clinical assessment.

Environmental Toxins Panel testing is performed at Vibrant America, a CLIA certified laboratory. Vibrant America has effective procedures in place to protect against technical and operational problems. However, such problems may still occur. Examples include failure to obtain the result for a specific toxin due to circumstances beyond Vibrant's control. Vibrant may re-test a sample to obtain these results but upon re-testing the results may still not be obtained. As with all medical laboratory testing, there is a small chance that the laboratory could report incorrect results. A tested individual may wish to pursue further testing to verify any results.

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