

## **Testing for Heavy Metals:** How We Assure Quality Products from Beginning to End

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When it comes to your health, we are here for you. We know the smallest difference in quality will affect you on your wellness journey. And this all comes down to the products we create — the ingredients we select, the research and science behind the formulation, our testing and manufacturing, and the end result.

Let's take a closer look at Carbon Technology — the proprietary formulation we use in the bulk of our products — to give you an idea of our process of making solutions that work.

# WHAT IS THE SOURCE OF CARBON TECHNOLOGY?

Carbon Technology is made of specially selected fulvic and humic acid extracts locally in the United States. But what exactly are fulvic and humic acids?

Fulvic and humic acids are the result of soil-based microbes breaking down old plant material. In essence, they "recycle" it and turn it into a nutrient-rich supply of organic matter. Humic acids can be broken down and extracted further into fulvic acid extracts. (1)

That said, there are different natural deposits of humic and fulvic acids. The quality and reaction capability depends on sourcing and extraction methods. Various companies have different extraction methods and so their products may differ in effectiveness, formulation, and purity.

When considering the quality of CellCore Biosciences' Carbon Technology, it's important to know that:

• It is derived from proprietary deposits of humic and fulvic acids located in the United States. These are high-quality and plant-based. This is relevant because the composition of humic acids varies with the geographic location and climate. (2)

- Our biochemists purify, extract, and carefully formulate our Carbon Technology. We don't use raw, unrefined compounds. The characteristics and properties of humic substances vary with the extraction methods and formulation. So not all humic products are created equal. (2)
- Fulvic and humic acids are not well-known or understood by many scientists and conventional medical practitioners. But the expert biochemists who formulate our Carbon Technology products have spent decades working with fulvic and humic acids. They know how to ensure their safety and efficacy and harness the highest potential energy available.

#### **QUALITY ASSURANCE TESTING**

We commission independent, third-party testing of our products by a lab accredited by the American National Standards Institute. The lab also meets rigorous international standards (ISO/IEC 17025:2017).

The lab tests all of our new product lots and conducts spot checks quarterly. This testing includes evaluating levels of the top four heavy metals of concern: arsenic, cadmium, lead, and mercury.

All of our products test well below recommended limits. If they don't meet these standards, we don't accept the lot and will not make them available to you. For example, if lead is more than 5 parts per million (ppm), we reject the lot.

## DOES CARBON TECHNOLOGY CONTAIN HEAVY METALS?

Yes, Carbon Technology contains heavy metals. The fulvic and humic acid extracts used to make Carbon Technology naturally contain heavy metals. But these are organic, non-toxic heavy metals.

Some of these are heavy metals your body needs, like iron and zinc. You may more commonly know them as minerals, but they're actually heavy metals.

Keep in mind organic heavy metals are bioavailable. This means the iron and zinc are in a form your body can absorb and use to promote health. In contrast, heavy metals that harm your health are inorganic. That means they're not bound to carbon or derived from living materials.

So the type of heavy metal in a supplement makes all the difference.

#### HEAVY METALS WITHIN SAFE LIMITS

What does it mean that our Carbon Technology contains heavy metals within safe limits? That can be a little challenging to define because there is no "official" safe limit for heavy metals in supplements. Various organizations have suggested limits, but they differ somewhat.

A challenge with these limits and standard lab testing is that it doesn't consider organic versus inorganic heavy metal content. As already discussed, it's generally the inorganic heavy metal content that is of concern.  $(\underline{3})$ 

The United States Pharmacopeia — one group that verifies supplement quality — has suggested the following limits for heavy metal limits in supplements: (4)

- Arsenic (inorganic): 3 parts per million (ppm)
- Cadmium: 3 ppm
- Lead: 10 ppm
- Mercury: 3 ppm

For example, a recent test of our ViRadChem Binder showed it had 0.216 parts ppm of mercury. This means that for every million particles tested only 0.2 of them were mercury. This is a very small amount and under the above suggested limit.

### WHY DOES CARBON TECHNOLOGY CONTAIN HEAVY METALS?

When the organic heavy metals in Carbon Technology come into contact with the damaging, inorganic heavy metals in your body, they latch onto them. These complex carbon molecules are highly energized. The organic heavy metals act like a magnet to pull harmful heavy metals out of your body.

If they were removed from Carbon Technology-based binders, the binders wouldn't work. Because of the organic heavy metals, they don't drop the inorganic heavy metals along the way. They carry them all the way out in your stools. ( $\underline{5}$ ,  $\underline{6}$ )

Older binders may have difficulty latching onto toxins without dropping them. But Carbon Technology has strong electrostatic force to attract and trap the toxins it binds. (5, 7)

## YOUR HEALTH IS OUR TOP PRIORITY

CellCore Biosciences began with a simple goal: to create solutions that work.

We developed these Carbon Technology products due to our own complex, chronic health conditions and those of our families. We saw the benefits firsthand and knew we needed to share them with the world. In short, we wouldn't sell products that we aren't confident to take ourselves and give to our families.

#### SOURCES:

- Prado, A et al. "Aspects of Protonation and Deprotonation of Humic Acid Surface on Molecular Conformation." (2011) <u>https://www.scielo.br/scielo.php?script=sci\_arttext&pid=S0103-50532011000800011</u>
- Yamada, P et al. "Inhibitory Effect of Fulvic Acid Extracted from Canadian Sphagnum Peat on Chemical Mediator Release by RBL-2H3 and KU812 cells26." (2007) <u>https://pubmed.ncbi.nlm.nih.gov/17485833/</u>
- 3. Lewis, A et al. "Organic Versus Inorganic Arsenic in Herbal Kelp Supplements." (2007) <u>https://pubmed.ncbi.nlm.nih.gov/18087569/</u>
- 4. Liva, R et al. "Facing the Problem of Dietary-Supplement Heavy-Metal Contamination: How to Take Responsible Action." (2007) <u>http://imjournal.com/resources/web\_pdfs/0607\_liva.pdf</u>
- Ayangbenro, Ayansina Segun, and Olubukola Oluranti Babalola. "A New Strategy for Heavy Metal Polluted Environments: A Review of Microbial Biosorbents." (2017) <u>https://pubmed.ncbi.nlm.nih.gov/28106848/</u>
- Tang, W et al. "Impact of Humic/Fulvic Acid on the Removal of Heavy Metals from Aqueous Solutions Using Nanomaterials: A Review." (2014) <u>https://pubmed.ncbi.nlm.nih.</u> gov/24095965/
- Zhou, Shungui et al. "Influence of Humic Acid Complexation with Metal Ions on Extracellular Electron Transfer Activity." (2015) <u>https://pubmed.ncbi.nlm.nih.</u> gov/26593782/