



## **X-Ray Diffraction (XRD) Analysis**

### **Results and Discussion**



## X-Ray Diffraction Analysis of Pure Body

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While many companies market zeolite supplements, Touchstone Essentials is the only one to offer a full line of independent third-party testing—including x-ray diffraction analysis—to substantiate the contents of the product.

The following report of x-ray diffraction analysis is provided by Inovatia Laboratories, who have no vested interest in the outcome of the testing.

X-ray diffraction analysis is the method by which multiple beams of x-ray create a three-dimensional picture of the density of electrons of any crystalline structure. The purpose is to identify—with a high degree of certainty—the composition of the molecules, on an atomic scale. This makes it the most reliable method to determine the composition of zeolite.

### **Why is the composition of the zeolite important?**

The first reason is safety. Clinoptilolite has well-established safety studies, peer-reviewed research, and enjoys GRAS status (Generally Recognized As Safe) with the FDA. Many other types of zeolites exist, and while most are inert, some, like asbestos or erionite, can be toxic. So verifying the source of the zeolite is important for any supplement to be ingested.

The second reason is purity. As a naturally mined mineral, zeolite deposits have varying levels of different types of zeolite. Ideally, the zeolite deposit should have a high percentage of Clinoptilolite, which is the zeolite widely recognized for its effectiveness in attracting and trapping positively charged heavy metals and other toxic substances within and on itself.

In looking at the x-ray diffraction analysis provided, we see clear evidence that Pure Body is 100% naturally occurring zeolite (sodium aluminum silicates and potassium aluminum silicates), of which 81.4% is pure white Clinoptilolite. This represents one of the highest ratios found in zeolite deposits available in the United States.

The actual spectrographs of the sample of Pure Body (referenced by the laboratory's chain of custody number as R12-007) are also provided as an additional level of verification.

Understanding the composition of the zeolite is just one part of what makes a safe and effective supplement. Chemical analysis is also needed to verify the zeolite cages can effectively provide cationic exchange with heavy metals and toxins in the body. Additionally, the size of the particles is particularly important, since particle size determines absorption into the bloodstream.

These additional tests are available as part of Touchstone's commitment to product efficacy and integrity. For all independent analysis, please visit [TouchstoneEssentials.com](http://TouchstoneEssentials.com).



The sample, R12-007, was rather straight forward producing a crystalline pattern for which matches with high FOM (Figure of Merit) were obtained from the ICDD (International Center for Diffraction Data) data base. The certainty on the matches for this sample is high.

Sample	Crystallographic Phase	Wt% +/-2
R12-003-01 Powder	Na <sub>4.12</sub> Si <sub>36</sub> O <sub>72</sub> .23H <sub>2</sub> O And/or KNa <sub>2</sub> Ca <sub>2</sub> (Si <sub>29</sub> Al <sub>7</sub> )O <sub>72</sub> .24H <sub>2</sub> O Clinoptilolite Sodium (Calcium Potassium) Aluminum Silicate Hydrate Base Centered Monoclinic C2/m PDF# 01-071-1425	81.4
	K(AlSi <sub>3</sub> O <sub>8</sub> ) – Microcline Potassium Aluminum Silicate Triclinic PDF# 01-070-6187	17.3
	Na <sub>20</sub> (Al <sub>20</sub> Si <sub>76</sub> O <sub>192</sub> ) – Sodium Aluminum Silicate Hexagonal P63/mmc PDF# 01-074-2762	1.3

Table 1. Results

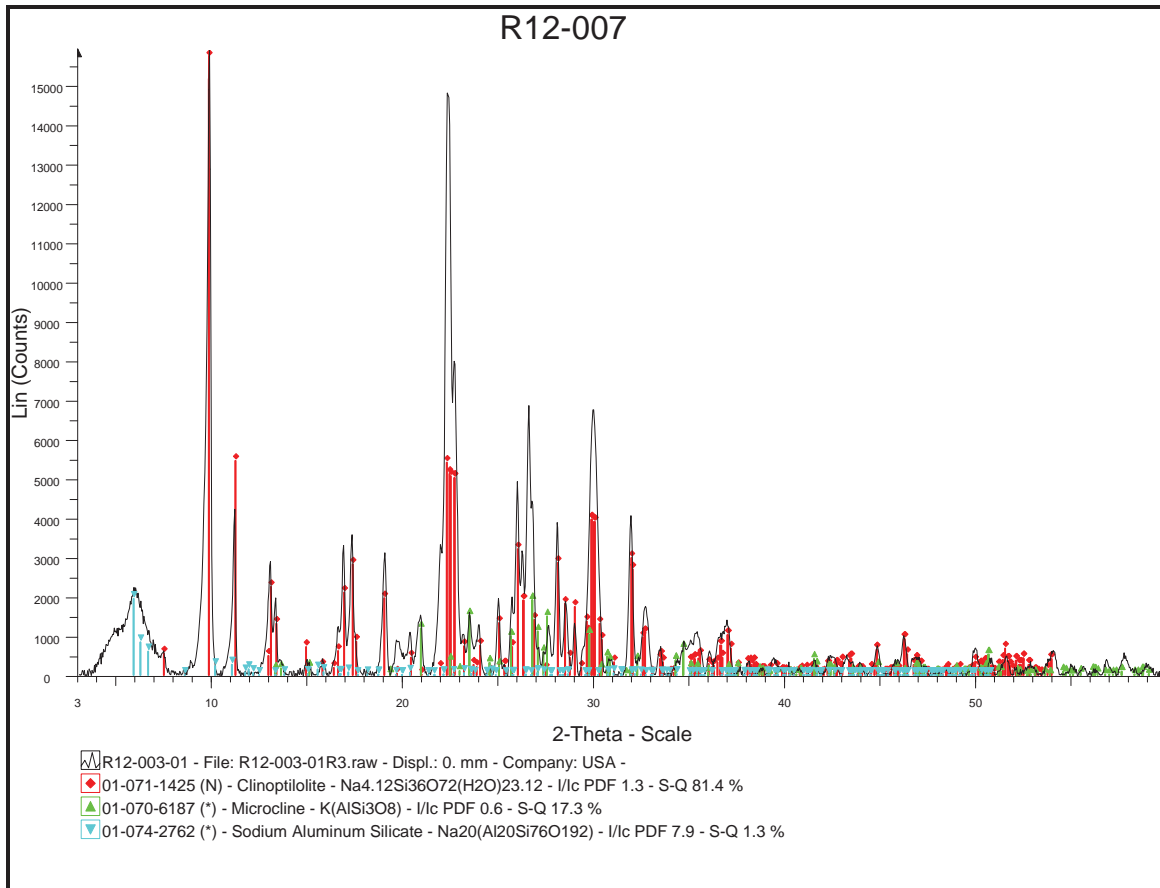


Figure 1. Plot for R12-007

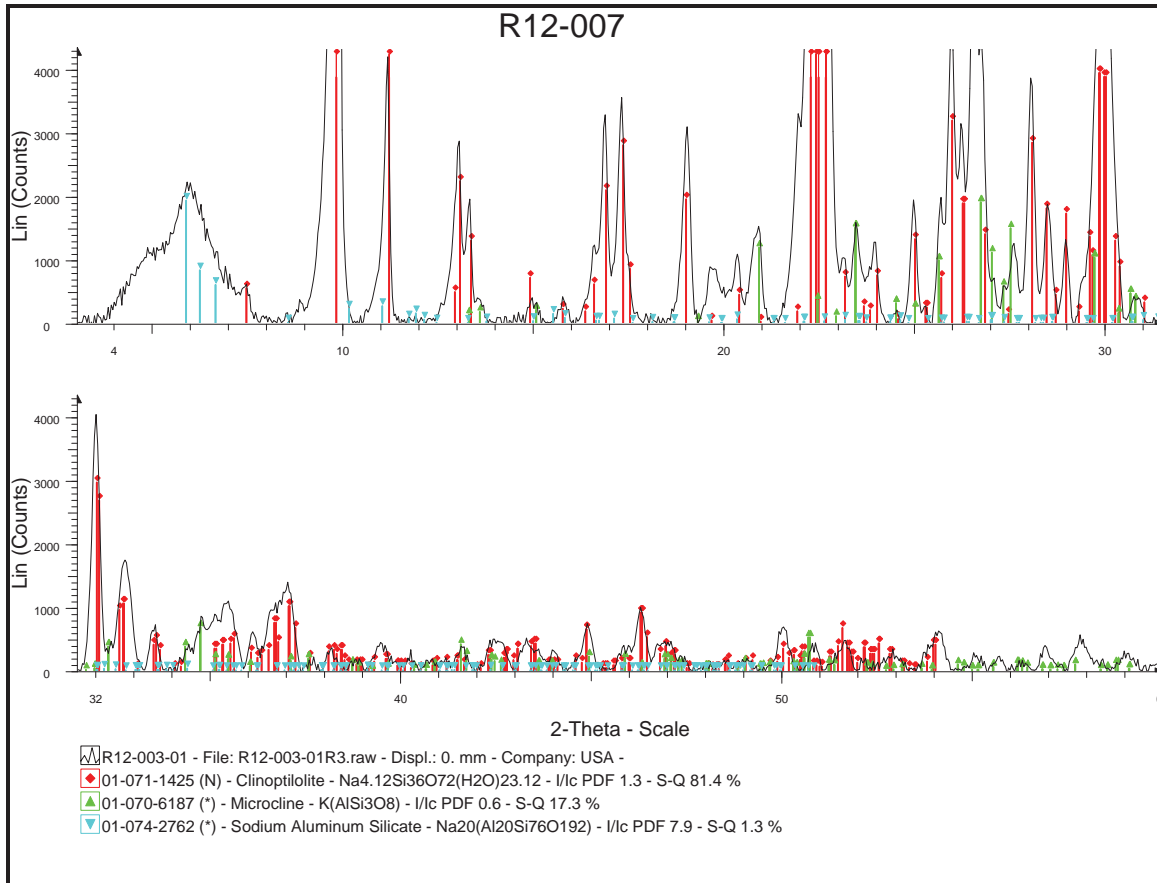


Figure 2. Plot for R12-007