

# Comparison of Zeolite Suspensions

<b>Product</b>	<b>Natural Cellular Defense</b>	<b>ACZnano</b>
<b>Particle Size</b>	Average 3.78 micron (range 0.34 – 35.8 micron); >95% less than 5 microns	Average 3.1 micron (range 1.9 - 11 micron); no sub-micron
<b>Plasma Concentration</b>	Absorbed into the bloodstream. 1.03 picograms/dL	N/D
<b>Elemental Analysis</b>	Si, Al, Mg, Ca, K	indeterminate/insufficient sample
<b>Contamination</b>	Below reporting limits for heavy metals	indeterminate/insufficient sample
<b>Micro-Analysis</b>	No bacterial or fungal growth	No bacterial or fungal growth
<b>Powder Diffraction Analysis</b>	Conclusively identified as “Clinoptilolite”	Si:Mg:Al ratio not consistent with “Clinoptilolite”
<b>Active Surface Area</b>	Highest ratio of available surface area (1g~90ft <sup>2</sup> )	Unknown
<b>Clinical Research</b>	Subject of more than 14 clinical studies	

## Report of Analysis

### Materials Provided:

ACZnano 2 bottles (120 mls)

Waiora Natural Cellular Defense (NCD) 7 bottles (105 mls)

This study was undertaken to compare and contrast 2 detoxification supplement products, NCD and ACZnano. Analyses conducted were particle size analysis, elemental analysis, powder diffraction analysis, measurement of serum concentration of product after ingestion and trace metal analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS). Microbial analysis was conducted on the products to evaluate presence of contaminants. Data is compiled from several laboratory sources – Watson Analytical Services, LLC, Microserv Laboratories, Inc., and AnalytiKem Services, Inc.

## **Particle size analysis:**

NCD – 0.34 to 35.8 microns; with greater than 95% less than 5 microns

ACZnano – 1.9 to 11 microns; average size 3.1 microns with no sub-micron particles detected

## **Serum Concentration:**

NCD – 1.03 picograms/dL

ACZnano – Not done; no long term consumer available

## **Elemental Analyses:**

### **Trace metals and Bulk Minerals**

This analysis was performed on the <5 micron fraction of both products as well as the raw material. Suspensions were filtered to remove all larger particles. When dried, the remaining powder for NCD and the raw powder fits the standard range of ratios of Si:Mg:Al defined for Clinoptilolite mineral under elemental analysis, however the ACZnano product had a ratio of 1:2:1.5, which does not meet the analytical standards for the mineral. It is unknown if this is a result of extra minerals being added during the production of ACZnano, diluting the ratio of pure clinoptilolite. NCD contains extremely low to no detectable heavy metals, with levels in the product being substantially reduced over the raw, mined material. ACZnano contains low concentrations as well, but without significant clinoptilolite in the product.

### **Trace Heavy Metals Analysis**

See attached spreadsheet

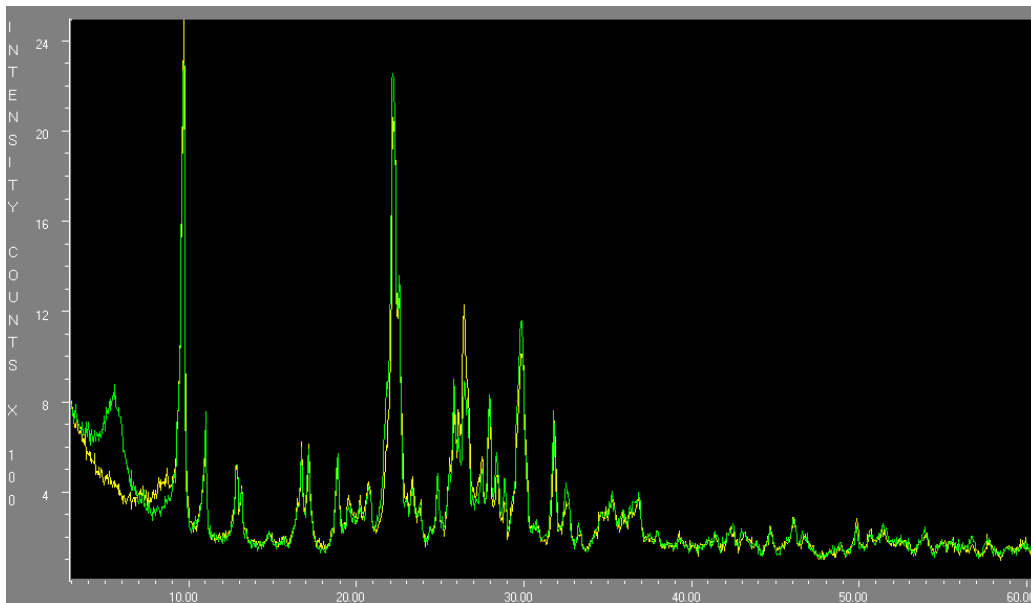
### **Microbiology**

NCD – less than 10 CFU bacteria and yeast/mold (considered ‘no growth’) with no preservatives. No organic compounds identified by HPLC.

ACZnano - less than 10 CFU bacteria and yeast/mold.

## Powder diffraction:

NCD – Conclusive identification as clinoptilolite, 4.1 micron mean particle size  
ACZnano- insufficient material in bottle for this analysis



The “green line” represents a tracing of authentic clinoptilolite. The “yellow line”: represents a sample of NCD attained by filter removal of the liquid phase of the product. They two are almost exactly the same, with the exception of the loss of some signal below 10.00, specifically a free-ion peak around 5, which represents contaminating heavier metals removed in the activation process.

**Notes:** ACZnano claims a dose of “100 mg sub-micronized zeolite clinoptilolite” in a dose of 5 sprays. Analysis of the product reveals an average recovery of 1.6 mg of an indeterminate solid in 5 sprays or approximately 100 mg in the entire 60 ml bottle. This did not give sufficient sample size to identify the components in the product. The current testing fails to provide any evidence that the ACZnano even contains clinoptilolite zeolite. It certainly provides enough data to show that the NCD provides a greater amount of zeolite – especially sub-micron zeolite – per bottle.