

# Comparison of Zeolite Suspensions

<b>Product</b>	<b>Natural Cellular Defense</b>	<b>Spirit of Sunshine ZNatural</b>	<b>Trilogy Essentials ZNatural</b>
<b>Particle Size</b>	Over 95% of cages $\leq$ 5 microns	No detectable particles	No detectable particles
<b>Plasma Concentration</b>	Absorbed into the bloodstream. 1.03 picograms/dL	No zeolite detected	No zeolite detected
<b>Elemental Analysis</b>	Si, Al, Mg, Ca, K	Si, Al, Mg, Ca, Fe	K, Al, Si, Mg, Na
<b>Contamination</b>	Below reporting limits for heavy metals	Sb, As, Pb	Very low levels of Pb and Ni
<b>Micro-Analysis</b>	No bacterial or fungal growth	Bacterial growth and fungal growth detected	No bacterial or fungal growth
<b>Powder Diffraction Analysis</b>	Conclusively identified as "Clinoptilolite"	No particles to analyze	No particles to analyze
<b>Active Surface Area</b>	Highest ratio of surface area (1g~90ft <sup>2</sup> )	Very little available surface area	Very little available surface area
<b>Clinical Research</b>	Subject of more than 14 clinical studies	No clinical studies	No clinical studies

## Report of Analysis

### Materials Provided:

Spirit of Sunshine (SOS) ZNatural            2 bottles  
 Trilogy Essentials (TE) ZNatural            2 bottles  
 Waiora Natural Cellular Defense (NCD)    2 bottles

This study was undertaken to compare and contrast 3 detoxification supplement products, NCD, SOS and TE. Analyses conducted were particle size analysis, elemental analysis, powder diffraction analysis, measurement of serum concentration of product after ingestion and trace metal analysis by Atomic Absorption Spectroscopy (AAS) and 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 – Lubrizol Advanced Materials, Inc., Watson Analytical Services, LLC, Microbac Laboratories, Inc., and AnalytiKem Services, Inc.

*Data compiled by Rik Deitsch, biochemist and CEO of Nutra Pharma Corp.*

## Particle size analysis:

NCD – 0.43 to 42.7 microns, with 90% being 0.43 to 5.0 microns  
SOS – Beneath detection limits (BDL)  
TE – BDL

## Serum Concentration:

NCD – 1.03 picograms/dL  
SOS – BDL  
TE - BDL

## Elemental Analysis:

### Bulk minerals

<u>Analyte</u>	<u>mg/100 mg bulk material</u>		
	<b>NCD</b>	<b>SOS</b>	<b>TE</b>
SiO <sub>2</sub>	68.77	3.97	5.23
Al <sub>2</sub> O <sub>3</sub>	13.37	1.83	26.22
Fe <sub>2</sub> O <sub>3</sub>	0.51	0.31	0.26
CaO	2.93	0.41	0.12
MgO	3.47	0.61	3.19
SO <sub>3</sub>	<0.01	<0.01	0.10
NaO	0.92	0.07	1.51
K <sub>2</sub> O	2.71	0.33	50.12
TiO <sub>2</sub>	0.17	0.06	0.03
P <sub>2</sub> O <sub>5</sub>	0.06	0.13	0.21
Mn <sub>2</sub> O <sub>3</sub>	0.05	<0.02	<0.02
SrO	0.14	0.20	0.07
Cr <sub>2</sub> O <sub>3</sub>	0.01	<0.01	0.02
ZnO	0.04	0.02	0.03

### Trace Heavy Metals Analysis

<u>Analyte</u>	<u>(mg/kg)</u>		
	<b>NCD</b>	<b>SOS</b>	<b>TE</b>
Antimony (Sb)	0.006	0.013	0.009
Arsenic (As)	0.023	0.031	0.024
Barium (Ba)	0.010	0.009	0.010
Beryllium (Be)	<0.0001	<0.0001	<0.0001
Cadmium (Cd)	<0.0004	<0.0004	<0.0004
Chromium (Cr)	0.011	0.015	0.021
Lead (Pb)	<0.002	0.006	0.004
Mercury (Hg)	0.001	0.001	0.001
Nickel (Ni)	0.028	0.017	0.023
Selenium (Se)	<0.025	<0.025	<0.025
Silver (Ag)	<0.001	<0.001	<0.001
Thallium (Tl)	<0.01	<0.01	<0.01

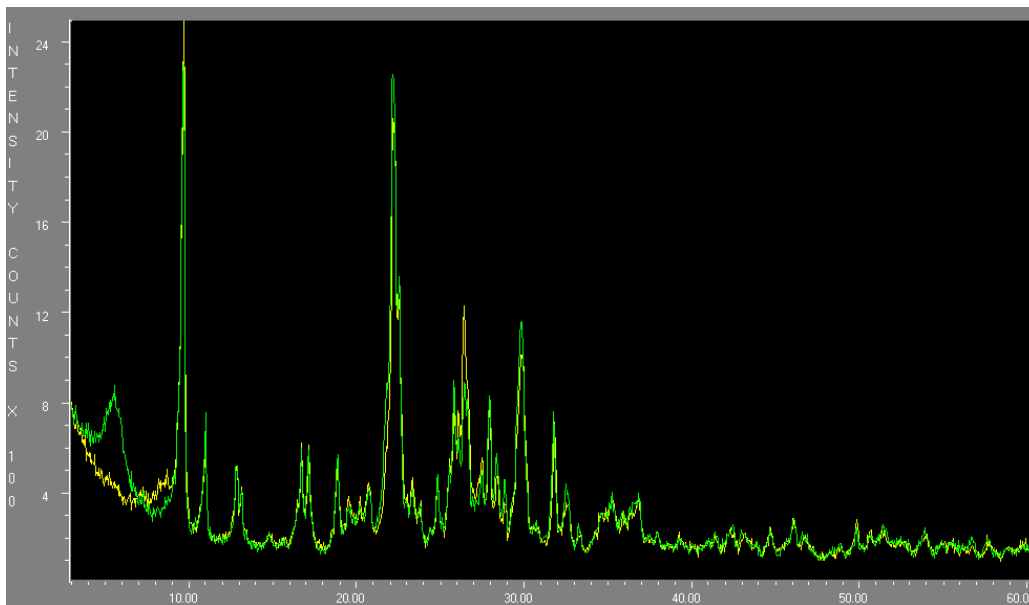
Analysis is of entire contents of the bottle from each sample.

## Powder diffraction:

NCD – Conclusive identification as clinoptilolite, 4.1 micron mean particle size

SOS – BDL

TE – BDL



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.

## Trace metals and Minerals

This analysis of the sub-micron fraction of all three products: All products were filtered to remove all larger particles. What remains in the NCD batch still fits the standard for Clinoptilolite taking loose ions into account, while the ions present in the SOS and TE products do not match the chemical formula for the component identified as present: 4,5 di-cyclo, disilico, dimagnesium, dialumino, oxyo, trihydrate, identified as a “Magnesium aluminosilicate”. This nomenclature would require a 1:1:1 ratio of Si:Mg:Al. SOS has a ratio of approximately 10:5:1 while TE has a ratio of approximately 1:3:1.

The conclusion is that neither the TE nor the SOS contains clinoptilolite or the stated compound on the product label.

## Microbiology

NCD – less than 10 CFU bacteria and yeast/mold (considered ‘no growth’)

SOS – 147 CFU bacteria and 283 CFU yeast/mold

TE – less than 10 CFU bacteria and yeast/mold (considered ‘no growth’)