Modified Activated Clinoptilolite (**MAC**) FAQs

1. What is MAC?

Clinoptilolite is a naturally occurring volcanic mineral with a unique crystalline structure, and is a type of zeolite. Both scientific research and empirical evidence show that clinoptilolite has a unique ability to safely bind and remove toxins from the body. **MAC** is Clinoptilolite that has gone through an advanced, double-patented purification (modifying) and activation process. This ensures the cleanest, most pure clinoptilolite, resulting in the highest medicinal functioning to bind toxins.

2. Will MAC interact with medications and other supplements?

Due to **MAC**'s high absorption capacity, it is possible that other drugs/ medications taken in parallel may be, to some extent, bound and removed. To avoid this, it is recommended to leave one hour between taking MAC and other medications and supplements.

3. How long can MAC be used for?

MAC is designed for daily use and can be taken continuously as directed without any adverse effects. In cases of high toxin load, at least 3-4 months continuous use is recommended. Once improved, a month's course 3-4 times a year will assist in reducing the overall ongoing toxic load that accumulates as a result of a western lifestyle.

Clinical Data* obtained from in vivo studies shows that the intake of **MAC** over a long period of time (60 months), and higher doses, do not have a negative influence on the status of nutrient minerals such as zinc, calcium, potassium and magnesium.

(Report on Influence of **CLINOPTILOLITE** and **MANC**® on the natural balance of micronutrients.)

4. I am very sensitive "detoxer". Can I use MAC?

Yes. Modified Activated Clinoptilolite is very safe to use. It is rare to experience detoxification symptoms due to **MAC**.

When people experience detoxification side-effects, it is often due to the increased mobilisation, and insufficient elimination of toxins.

The liver processes toxins and excretes them into the small intestine for elimination via the bile, however these toxins are often re-absorbed into the system (via entero-hepatic recycling), placing additional burden on the liver.

MAC attracts and binds mobilised toxins, enabling efficient excretion from the body.

If detox symptoms are experienced while taking **MAC**, this may indicate that the **MAC** has reached its toxin saturation limit. In this case, it may be beneficial to increase the dose to provide additional binding and removal of toxins from the gastrointestinal tract.

It has been suggested that highly sensitive people initially begin using MAC at a lower dose, gradually building up to the recommended dose.

5. Is MAC safe during pregnancy?

While there is no safety data on the use of **MAC** during human pregnancy, various animal studies have shown that there is no adverse effect when **MAC** is used during pregnancy and lactation. **MAC** is not absorbed through the gastrointestinal tract, making it generally very safe to use.

6. Does MAC assist in removing excess copper?

Anecdotal evidence exists that **MAC** will remove excess copper because of its action on relieving the burden on the liver. As toxins and heavy metals are bound to **MAC** and eliminated from the body, this reduces the burden on the liver due to a reduction in re-circulation of toxins. The liver is able to function more effectively and can therefore bind circulating copper for excretion. If the copper toxicity is coupled with a zinc deficiency, taking a zinc supplement at the same time (not within an hour of taking **MAC**) will assist in balancing this ratio.

7. Does MAC remove beneficial minerals such as calicum, magnesium and zinc?

MAC does not remove beneficial minerals from the body. Clinical Data* has shown that the intake of clinoptilolite in long-term users (60 months) showed no negative effect on mineral status.

*(Report on Influence of **CLINOPTILOLITE** and **MANC**® on the natural balance of micronutrients)

MAC FAQs

8. How does clinoptilolite differ from benonite clay?

Bentonite is a clay substance also known as montmorillonite. It is named for the clay deposits around Fort Benton, Wyoming, however bentonite deposits are found worldwide. Proponents of bentonite claim that it has an electrical charge to attract toxins and that it may be used to absorb and hold toxins, heavy metals and other impurities. Unfortunately many bentonite clays are already contaminated with impurities and toxins, rendering them less effective (at best). Additionally, these harmful toxins could increase the toxin load through contamination.

9. How does MAC reduce levels of heavy metals in remote organs and tissues?

Every cell in the body is continuously experiencing a process of detoxification, excreting toxins into the extra-cellular matrix and the bloodstream, eventually presenting to the liver for processing and excretion from the body. As blood circulates, stored toxins are continuously excreted from cells, swept up and carried back to the liver where they are processed (conjugated) and mixed with bile before entering the first part of the gastrointestinal tract (duodenum). As the bile moves through the intestines, the toxins are bound by the **MAC** and excreted in the faeces. The bile is re-absorbed without the toxins. This decreased re-circulation of toxins to the liver is a huge relief to the liver's detoxification processes, thereby improving the entire body's detoxification pathways.

10. How does MAC help with histamine intolerance?

MAC passes through the digestive tract and binds to excess histamine. This supports the body's own diamine oxidase enzyme and decreases the amount of circulating histamine, resulting in a decrease of symptoms associated with excess histamine.

In the case of histamine intolerance, it is recommended that **MAC** be combined with a low histamine diet. The binding of histamine by the clinoptilolite means that it is carried out of the body rather than being absorbed. Reducing histamine concentrations throughout the body contributes to a decrease in inflammation in cells with histamine receptors.

11. Does MAC cause constipation?

MAC uses water to assist passage through the digestive tract. It is recommended to consume a minimum of 1.5-2 litres of water per day to help prevent constipation and to assist toxin excretion coming from tissues and organs.

12. What is the advantage of binding of ammonia?

Ammonia is a common degradation product formed by the metabolisation of protein. This burdens the liver and can cause neurodegenerative diseases. Ammonia is formed primarily in the intestines, muscles and kidneys, and is generated in the small intestine during the breakdown of glutamine. In the large intestine, ammonia is formed during the breakdown of proteins and urea by the gut flora. The ammonia is released directly into the blood in the portal vein and thus to the liver, where it must be detoxified. **MAC** binds ammonia in the GIT, thereby relieving the burden from the liver and restoring its capacity to effectively perform its many tasks.