G-SCIENCE®

G-PUR® White Paper Synopsis

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Milestones of G-PUR® Development

- **2005** - A team of international researchers (chemists, biologists, geologists) started basic scientific research on **Clinoptilolite (CLN), the sole ingredient of G-PUR®**, focusing on safety and developing its purification process in Austria.
- **2006** - The **purification process** for CLN was developed, optimized and patented (patent granted).
- Out of multiple Zeolite deposits visited and analyzed around the globe, the **most suitable CLN raw material source** of ultimate quality was found in Slovakia.
- A small scale pilot production plant was set-up in Austria.
- **2014** - Supported with all relevant safety data, a **"New Dietary Ingredient Notification"** for the purified CLN was filed with the FDA.
- **2015-2016** - A state-of-the-art, **cGMP compliant processing plant** was set-up in Austria.
- **2016** - **G-SCIENCE ®, Inc.** became **FDA registered as "Food Facilities"** in the US and **marketing of G-PUR®** began.
- In cooperation with external, well-respected academic partners & universities **research studies and clinical trials for several CLN application** are intensified, currently ongoing or already finished.

Structural/Functional Claim Substantiation

Supported by scientifically valid and truthful studies

G-PUR®
PURIFIED CLINOPTILOLITE

Binds Dietary Cholesterol to help prevent its absorption

- Study in rabbits indicated high affinity of G-PUR® to bind dietary Cholesterol if added to their food and subsequently reducing Cholesterol bioavailability.
- In-Vitro studies also clearly showed that even in a complex matrix such as Bovine Serum, there was a significant attraction of Cholesterol to G-PUR®.
- Its mechanism of action was verified through internal lab experiments and is also extensively discussed in other scientific literature.

Structural/Functional Claim Substantiation

Supported by scientifically valid and truthful studies

G-PUR®
PURIFIED CLINOPTILOLITE

Binds Dietary Heavy Metals to help keep them from getting absorbed in the gastrointestinal tract

- Positively (+) charged cations such as Heavy Metals have strong affinity to CLN. Even at elevated pH, CLN will unlikely release the adsorbed heavy metals in the intestine.
- Several preclinical studies scientifically proved CLN binding Lead and Cadmium from the diet of pigs and mice. Pigs are considered as species that mimic the human digestion systems very well.
- Its mechanism of action was also verified in lab experiments and is extensively discussed in scientific literatures for different matrices that mimic the human digestive system.
- A randomized, placebo-controlled, double-blind clinical study to evaluate the effect of G-PUR on enteral lead isotope 204Pb-absorption shows by concomitant oral intake of CLN a reduction of enteral uptake of 204Pb in healthy humans by approximately 90% (Samekova K. et al., 2021).

Structural/Functional Claim Substantiation

Supported by scientifically valid and truthful studies

G-PUR®
PURIFIED CLINOPTILOLITE

Binds Dietary Mycotoxins to help keep them from getting absorbed by the gastrointestinal tract

- Due to the negative surface charge of CLN, mycotoxins get attracted to it as verified in lab experiments in different matrices.
- Highly toxic and carcinogenic Aflatoxins were found to be almost irreversibly adsorbed by CLN and excreted through the digestive tract, leading to reduced Aflatoxins levels in milk from cows fed with CLN.
- Scientific studies with similar aluminosilicate compounds in human subjects showed the same results as evidenced by the reduction of Aflatoxin biomarkers in serum.
- For more than two decades, CLN is successfully being used in Europe as feed additive for various animals to prevent them from being harmed by ingested mycotoxins.