Bonded arginine silicate: raising the bar

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INGREDIENTS | SPORTS

Bonded arginine silicate is a clinically tested sports nutrition ingredient for consumers engaged in fitness and muscle-building training programmes

Bonded arginine silicate (Nitrosigine) is a clinically tested, safe, patented complex of bonded arginine silicate for use as an ingredient in sports nutrition products that benefit consumers engaged in fitness and muscle-building training programmes. This non-stimulant ingredient, which is made in the USA, has been shown in a clinical study to significantly boost nitric oxide (NO) levels.[1]

Increased NO levels have been shown to increase blood flow to working muscles. Nitrosigine is fast acting — producing increased arginine levels in as quickly as 30 minutes, and long lasting — delivering this benefit for up to 3 hours with just a single dose.[1]

Nitric oxide dilates blood vessels and increases blood flow and oxygen supply. Sports nutrition workout products emphasise the important role of NO in optimising performance during exercise and have traditionally utilised high doses of the amino acid arginine to create this effect. But, most forms of arginine have poor bioavailability owing to their rapid breakdown after absorption.

Nitrosigine is unique; it's made of bonded arginine silicate that provides the synergistic properties of both ingredients. In addition, to its superior haemodynamic impact, Nitrosigine's ability to raise serum silicon suggests that it can improve arterial health.[1]

This is a unique added benefit. Silicon levels are present in higher levels in healthy arteries, helping to maintain the integrity of the lining of these blood vessels. Silicon makes the inner lining of arterial tissue less susceptible to damage and blood flow blockages. Nitrosigine supplementation significantly increased silicon serum levels during a 1.5 hour period.[1]

Clinical studies

Nitrosigine — backed by preclinical trials and a clinical study — provides unique benefits. In preclinical studies, Nitrosigine has shown positive effects on blood flow markers, providing unique benefits compared with arginine HCl. For example, preclinical studies have shown that Nitrosigine can promote blood vessel elasticity five times more effectively than arginine HCl.[2,3] And, a clinical study with Nitrosigine has shown that, with continued use, NO levels build with time.[1] With Nitrosigine, fitness enthusiasts can truly get a powerful boost to their desired training goals.

Nitrosigine recently achieved US FDA New Dietary Ingredient (NDI) notification status. It has also been affirmed as Generally Recognised As Safe (GRAS) for use in dietary nutrition bar and beverage products.

Sports nutrition companies are recognising the value of Nitrosigine and how it can enhance their product formulas. Many new products containing Nitrosigine are already on the market and others are in development.

Supported by Science

Nitrosigine's clinical study abstract, published in *The Journal of the Federation of American Societies for Experimental Biology*, focused on healthy men between the ages of 20 and 38. During the study, each individual was given 1500mg/day of Nitrosigine during a course of 14 days. Notably, after the first dose, plasma arginine levels increased substantially within 30 minutes, and silicon levels surged after an hour.[1]

Nutrition 21 is committed to the development of novel, efficacious, clinically supported ingredients and has engaged with renowned sports nutrition and strength training expert, David Sandler, to support this effort. Mr Sandler contributes to innovation in the sports nutrition industry and has worked as a consultant, coach and active athlete for more than two decades. NBR spoke to David to find out more about bonded arginine silicate.

NBR: When should Nitrosigine be used?

DS: Products containing Nitrosigine can be used daily. It has been engineered to take effect in just 30 minutes and remain effective for up to 3 hours.

NBR: What benefits can users expect to get from Nitrosigine?

DS: Preclinical data showed that Nitrosigine supplementation significantly increased silicon blood levels compared with normal dietary intake, as well as nitric oxide levels (NO). Increasing NO levels can help to stimulate additional blood flow to working muscles. Furthermore, with continued use, NO levels build up with time, which leads to better blood flow and vessel flexibility. And the ingredient also helps to support certain critical blood protein levels that are linked to good cardiovascular health.

NBR: How does silicon impact training?

DS: Silicon is important and can strengthen and provide flexibility to your arterial walls, helping to increase blood flow. Silicon is difficult to absorb through dietary intake, but Nitrosigine was shown in preclinical and clinical studies to increase silicon absorption.

NBR: Can Nitrosigine be taken on a continual basis?

DS: Yes. With continued daily use, nitric oxide levels have been shown in a clinical study to build up with time.

NBR: Are there any side-effects?

DS: No serious adverse side-effects have been reported. Extensive safety studies have been done with Nitrosigine and submitted as part of the FDA's New Dietary Ingredient (NDI) notification packet. Plus, it's now affirmed as GRAS for use in dietary nutritional bars and beverages. Nitrosigine is a non-stimulant and is safe to take with other nutrition products.

References

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3. S.D. Proctor, *et al.*, 'Metabolic Effects of a Novel Silicate Inositol Complex of the Nitric Oxide Precursor Arginine in the Obese Insulin-Resistant JCR:LA-cp Rat,' *Metabolism* **56**(10), 1318–1325 (2007).

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