

Gina Pappagallo (gmp5vb)

November 14<sup>th</sup>, 2017

KINE 4400: Dietary Supplement Project

### **Overview**

Steel Supplements' AMPED-AF contains many of the same ingredients as any typical pre-workout supplement: beta-alanine, caffeine, betaine anhydrous, and tyrosine. However, the ingredients label on AMPED-AF contains some questionable information. What is this magical One3 blend that makes AMPED-AF so special, and what is Orchilean? Steel Supplements claims that AMPED-AF will "amplify energy, focus, alertness, strength, and pumps while giving essential nutrients to optimize anaerobic and aerobic capacity," but are the ingredients present in AMPED-AF proven by science to have these effects? According to one hundred and nineteen customer reviews on Steel Supplements' website, AMPED-AF is everything that the label boasts it is, but one unsatisfied customer reported being unable to sleep many hours after a small serving of this pre-workout. AMPED-AF appears to have some of the science in their product correct, but it does not appear to be a completely safe substance.

### **Intended Outcomes**

There has been no direct research conducted on AMPED-AF, but through researching the ingredients listed, the purpose behind each ingredient's presence in this supplement is clear. The main listed ingredients on AMPED-AF's label are vitamin B6, vitamin B12, L-citrulline, beta alanine, and betaine anhydrous. B vitamins are said to assist the body in converting carbohydrates in to glucose for energy, so it is clear that the intended outcome of adding vitamins B6 and B12 is to provide the body with additional energy while working out.

The beta alanine present is meant to assist in the production of carnosine so that the carnosine can inhibit the production of lactic acid and delay muscle fatigue. The amount of beta alanine present in AMPED-AF is within the recommended 3-6 grams. L-citrulline is meant to increase nitric oxide production

in the body so that blood flow to the muscles is increased. Betaine anhydrous has been found to improve sprint and cycling performance, indicating that it may increase power output, energy levels and an individual's capacity to perform anaerobic work. Together, these main ingredients are intended to extend an individual's ability to work at a high intensity and improve performance.

The fifth main ingredient of AMPED-AF is what Steel Supplements calls the "Energy and Focus Blend." The Energy and Focus Blend is made up of n-acetyl-l-tyrosine, caffeine, n-phenethyl, dimethylamine, l-theanine, Orchilean, higenamine, n-methyl tyramine, One3, Noopept, yohimbine HCl, and huperzine A. Caffeine, One3, and Orchilean all act as stimulants and are meant to improve focus and increase energy. Theanine comes from green tea leaves and is believed to improve mental regeneration. Yohimbine HCl and methyl-tyramine were found to improve reaction time as well as enhancing an individual's self-perceived energy levels and focus. Yohimbine HCl may also enhance lipid metabolism, supporting Steel Supplements' claim that AMPED-AF may act as a fat mobilizing agent. Huperzine was found by some studies to optimize acetylcholine release and improve muscle fiber recruitment throughout muscle contractions.

### **Safety**

The dosages of vitamins B6 and B12 in one serving of AMPED-AF are unnecessary for the average athlete, the only athletes that may need to be supplementing with B6 or B12 are those suffering from a deficiency (which may be vegetarians or the elderly). The absurdly high 500 mcg dose of vitamin B12 and the 40 mg dose of vitamin B6 are unnecessary, but not harmful because the excess will be excreted. The amount of beta alanine present (3.2 grams) falls in the recommended range of 3-6 grams and is therefore a safe amount for an athlete to consume in order to boost muscle carnosine levels. The amounts of betaine anhydrous and l-citrulline are also within the recommended daily intake ranges and do not appear to threaten an individual's health in any way. The concerning ingredients present in AMPED-AF are in the Energy and Focus Blend.

AMPED-AF is a GMP (Good Manufacturing Practices) Certified product, meaning that what is on the label is verified to be in the product, but does this certification maybe only look at the main listed ingredients? Within the Energy and Focus blend is two concerning trademarked products: Orchilean and One3. Orchilean is trademarked by DuraCap labs and is just a fancy name for Cymbidium Goeringii Extract – which is extract from an orchid. Orchilean’s presence may be what causes individuals to feel so alert and say that AMPED-AF is one of the most potent pre-workouts on the market. Cymbidium Goeringii extract is said to be three times more powerful than DMAA. This fact is concerning since DMAA is banned from dietary supplements. While the untested effects of Orchilean are reason for concern, One3’s presence is a greater concern. The second name of One3 on the label of AMPED-AF is “Pelargonium Graveleons,” which is a type of geranium. Geranium is known to contain MHA (methylhexaneamine), which was banned by the World Anti-Doping Agency in 2010, and a study found in the Medicine and Science in Sports and Exercise Journal found that athletes should be wary of taking any product that may contain geranium root extract because it may put an athlete at risk for testing positive for doping. Additionally, the Energy and Focus blend in AMPED-AF is concerning because no dosage amounts are present. A consumer does not know how much of each ingredient in the blend is actually going into their body.

### **Conclusions**

Despite the third party certification displayed on AMPED-AF, the product may not be safe for an athlete to consume since the presence of One3 may mean MHA is also present. Even though some ingredients, such as beta alanine, l-citrulline and betaine anhydrous, are included in the proper dosages, the remaining ingredients are present in unknown amounts allowing Steel Supplements to potentially under or over supply these ingredients. When purchasing this product, consumers may or may not be getting the correct doses of theanine, huperzine or yohimbine, making it arguable that purchasing Steel Supplements’ AMPED-AF may not be cost effective; individuals would be paying fifty-five dollars to not know what is actually going into their bodies.

## **Bibliography**

- Hoffman, Jay R, et al. "Examination of a pre-Exercise, high energy supplement on exercise performance." Journal of the International Society of Sports Nutrition, 6 Jan. 2017. [jissn.biomedcentral.com/articles/10.1186/1550-2783-6-2](https://jissn.biomedcentral.com/articles/10.1186/1550-2783-6-2).
- Jager, Ralf, et al. "Improving mental regeneration after physical exercise." Journal of the International Society of Sports Nutrition, vol. 5, no. 1, 17 Sept. 2008, [jissn.biomedcentral.com/articles/10.1186/1550-2783-5-S1-P3](https://jissn.biomedcentral.com/articles/10.1186/1550-2783-5-S1-P3).
- Jung, Peter Y, et al. "Effects of ingesting a pre-Workout dietary supplement with and without synephrine for 8 weeks on training adaptations in resistance-Trained males." Journal of the International Society of Sports Nutrition, 3 Jan. 2017, [jissn.biomedcentral.com/articles/10.1186/s12970-016-0158-3](https://jissn.biomedcentral.com/articles/10.1186/s12970-016-0158-3).
- "Orchilean (Cymbidium Goeringii)." MassiveJoes.com, [massivejoes.com/articles/supplements-simplified/orchilean-cymbidium-goeringii](https://massivejoes.com/articles/supplements-simplified/orchilean-cymbidium-goeringii).
- Pryor, J Luke, et al. "Effect of betaine supplementation on cycling sprint performance." Journal of the International Society of Sports Nutrition, 3 Apr. 2012, [jissn.biomedcentral.com/articles/10.1186/1550-2783-9-12](https://jissn.biomedcentral.com/articles/10.1186/1550-2783-9-12).
- Tseng, Yu-Hua, et al. "Investigation of Geranium Products Containing Doping Methylhexylamine." Medicine & Science in Sports & Exercise, vol. 46, no. 5S, May 2014, p. 480., [journals.lww.com/acsm-msse/Fulltext/2014/05001/Investigation\\_of\\_Geranium\\_Products\\_Containing.1464.aspx](https://journals.lww.com/acsm-msse/Fulltext/2014/05001/Investigation_of_Geranium_Products_Containing.1464.aspx).