GABA γ- aminobutyric acid

1. Basice information of GABA
Name: γ- aminobutyric acid
Molecular formula:C4H9NO2
Molar mass: 103.1216
CAS No.:56-12-2
Lobular crystal (methanol-dirthyl), needle crystal (water-alcohol), the melting point is 203.7 centigrade. At 25 centigrade, the Ka is 3.7x10-11, and the Kb is 1.7x10-10.Freely soluble in water, slightly soluble in hot alcohol, practically insoluble in ether and in chloroform. It is decomposed into pyrrolidone and water when the temperature is above melting point.
Appearance: white or light yellow powder

Parameters	**limits**
γ-Aminobutyric Acid content %	≥99
Moisture %	≤5
Ash %	≤10
Arsenic (mg/kg)	≤0.3
Lead (mg/kg)	≤1.0
Microbiology	
Total Plate Count (cfu/g)	≤1000
E.coli (MPN/g)	≤3
Mold and Yeast(cfu/g)	≤50
Pathogenic Bacteria (salmonella, Shigella & SA)	Not Detected

Application: Beverage, coco, chocolate, candy, bakery and puffed food, does not include infant food.
Recommedded Dosage: Refer to announcement No.12 2009 of Ministry of Health.
Standard Package: 500g/bag for inner packing, 2kg/box for outer packing.Packing can be customized according to customers' requirement.
Storage: Store in cool, well-ventilated area. Keep container tightly sealed until ready for use.
Shelf life: 18 months from date of manufacture.

2. What is GABA
γ- aminobutyric acid is a natural non-protein amino acid. It is the chief inhibitory neurotransmitter in the mammalian central nervous system. And it is the transmitter of about 50% central nervous system synapses. It plays an important role in the cerebral cortex, hippocampus, thalamus, the basal ganglia and cerebellum. And it regulates the body's multiple actions. Its lackness will cause nervous, anxiety and tiredness. Generally, peoples who are under high-pressure long (such as people in the competitive environment, athlete and office workers) are easily lack of GABA. And they need supple GABA in time to sooth emotions.

3. Comparsion of GABA

Comparison of GABA (Fermentation method-low content)

No.	Items	Company A	Company B	Our company
		Test Specification of products		
1	Appearance	White or yellow powder	White or yellow powder	White or yellow powder
2	Taste & Smell	unique flavor	with normal smell and taste	with normal smell and taste
3	Form	loose crystal	Uniform powder	Uniform powder
4	Impurities	No visible impurties	No mildew and impurities	No mildew and impurities
5	Content	≥20%	≥20%	≥20%
6	Moisture	⩽10%	⩽10%	≤5%
7	Ash	-	⩽18%	≤10%
8	Heavy metal (Lead)	-	≤1.0mg/kg	≤1.0mg/kg
9	AS_2O_3	-	≤0.5mg/kg	≤0.5mg/kg
10	Aerobic Plate Count	≤1000 cfu/g	≤1000 cfu/g	≤1000 cfu/g
11	Coliform bacteria	⩽40 mpn/100g	≤50 mpn/100g	≤50 mpn/100g
12	Moulds & Yeasts count		≤100 cfu/g	≤100 cfu/g
13	Pathogenic bacteria (Salmonella, Shigella, Staphylococcus au)	-	Not detected	Not detected

Comparsion of GABA (Fermentation method-high content)

No.	Items	AJ192	Company A	Our company
		Test Specification of products		
1	Appearance	White crystals or crystalline powder	White crystals or crystalline powder	White crystals or crystalline powder
2	Identification	Compare the infrared absorption spectrum of the sample with that of the standard by potassium bromide disc method	-	Compare the infrared absorption spectrum of the sample with that of the standard by potassium bromide disc method
3	State of solution	≥98%	-	≥98%
4	Chloride	≤0.020%	-	≤0.020%
5	Ammonium	≤0.020%	-	≤0.020%
6	Sulfate	≤0.048%	-	≤0.048%
7	Iron	≤30ppm	-	≤30ppm
8	Heavy metal (Lead)	≤10ppm	-	≤10ppm
9	AS_2O_3	≤2ppm	-	≤2ppm
10	Arsenic	Conforms	-	Conforms
11	Loss on drying	≤0.5%	-	≤0.5%
12	Residue on ignition	≤1.0%	-	≤1.0%
13	Content	99.0%~101.0%	-	99.0%~101.0%
14	PH	PH7.0-8.0	-	PH7.0-8.0
15	Aerobic Plate Count	-	≤1000 cfu/g	≤1000 cfu/g
16	Coliform bacteria	-	⩽40 mpn/100g	≤50 mpn/100g
17	Moulds & Yeasts count	-	-	≤100 cfu/g
18	Pathogenic bacteria (Salmonella, Shigella, Staphylococcus au)	-	-	Not detected

4. GABA - difference between chemical grade and food grade

Chemical synthesis:

using dangerous solvent in the producing process, even toxic solvent, so the GABA produced by chemical synthesis method cannot be used infood production, and is not a natural food ingredient.

Biological synthesis:

applying pure microorganism techmiques (widely known as safety bacteria - Lactic acid bacteria), selecting premium and high-yield safebacteria, produce GABA by fermentation process.The GABA is high absorbent and belongs to natural food ingredient.

GABA, as new food resource, is the most safe and healthy when produced by biological synthesis method. Therefore, GABA produced by biological synthesis method is the ideal source of the green good and organic food products which are widely proposed in the 21 century, and is also wonderful source of food and pharmaceutical products which can help preventing Geriatric Diseases and improve the elders' health.

5. History of GABA

γ- aminobutyric acid (GABA) is a new food resource approved by Ministry of Healthy of PRC in the 12th announcement on 27th Sep.2009. GABA has been used widely in food, pharmaceutical and cosmetic products in Japan and US. Currently, GABA is additions to drink, cocoa products, chocolate and chocolate products, candy, bakery products and puffed food products.

6. The physiological role of GABA

A. Improve sleep function, relieve stress.

Medical scientists have proved that GABA is an inhibitory transmitter substance to the central nervous system. It can combine with anti-anxiety brain receptor and make it active, improve cerebral blood circulation, increase oxygen supply, promote mental stability and synergy with some other substance to prevent anxiety-related information arrive the central brain.

B. Lower blood pressure.

GABA can function in motor center of blood vessels of the spinal cord, and effectively promote vasodilation to lower the blood pressure. It reports that the effective active ingredient of astragalus membranaceus in GABA

C. Beauty, diet and Treatment.

The latest research shows that GABA is also effective in preventing skin aging, eliminating body odor, improving lipid metabolism, preventing arteriosclerosis, and improving weight loss. Foreign Medical Journal reports that the reduction of GABA in nerve tissue is related to Huntington disease, Alzheimer's disease and other neurological decline disease.

D. Reduce ammonia.

GABA can restrain decarboxylation of Glutamic acid ammonia, and thereby reduce the ammonia in blood. Glutanmic acid and ammonia combine and produce carbamide which can be excreted, and therefore release poison of ammonia and thus enhance liver function.

E. Improve brain activity.

GABA can enter the Krebs cycle of brain, promote metabolism of brain cell and improve glucose hidde

7. GABA used in various field
Snack food
Milk product
Energy drinks
Seasoning products
Pharmaceutical products
Cosmetics products