



GLYCINE

One of the amino acids constituting proteins, Glycine occurs widely in nature. For example, such seafoods as prawn, sea urchin and scallop contain a large amount of free Glycine which creates characteristic flavor in those foods.



● **Packing:** Kraft paper bag with polyethylene inner bag, 20kg net.
 Carton box with 20 polyethylene inner bags, each 1kg net.

PHYSICAL PROPERTIES

- (1) Chemical formula: $\text{NH}_2\text{-CH}_2\text{-COOH}$
- (2) Molecular weight: 75.07
- (3) Appearance: White crystalline powder
- (4) Melting point (dec): 232 ~ 236°C
- (5) Solubility: Easily soluble in water,
Slightly soluble in ethanol

SPECIFICATION

The following specification is based on the Japanese Standard of Food Additives.

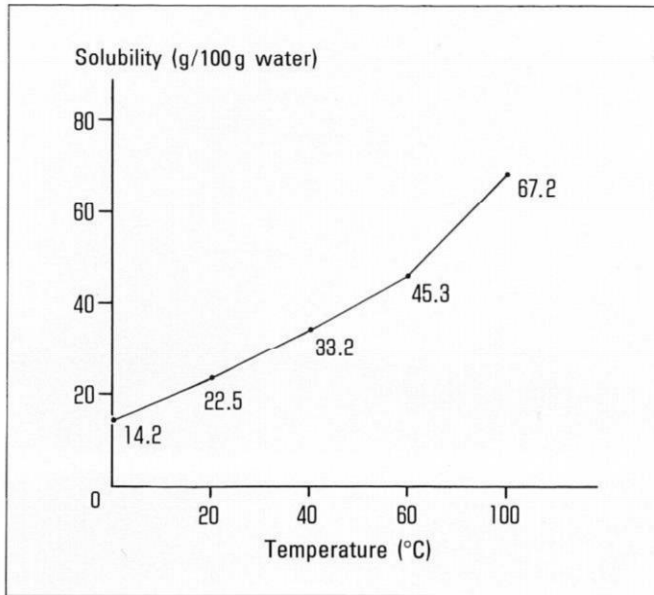
Assay	98.5 ~ 101.5%
State of solution	Transparent and colorless
pH	5.5 ~ 7.0
Chloride (as Cl)	0.021% max
Heavy metals (as Pb)	20 ppm max
Arsenic (as As_2O_3)	4.0 ppm max
Loss on drying	0.30% max
Residue on ignition	0.10% max
Check tests (2 different types)	Conforming

CONTENT IN NATURAL FOODS

	Kind of foods	Content (%)
SEAFOOD	Prawn	2.50
	Sea urchin	2.00
	Scallop	1.80
	Crab	1.30
MEAT	Beef	0.81
	Chicken	1.00
	Pork	0.86
VEGETABLES	Soybean	0.47
	Green peas	0.31



SOLUBILITY IN WATER



CHARACTERISTICS AND APPLICATIONS

- (1) SWEETENER:** Glycine has a light sweet taste, with an intensity of 70% sweetness of sucrose.
- (2) PALATABLE TASTE:** Glycine is contained in various foods, and relating palatability and elegant sweetness of foods respectively. There is a synergistic effect with other seasonings such as monosodium glutamate, ribonucleotides and organic acids and their salts, resulting in increments of palatability of foods.
- (3) SOFTENING EFFECT:** Glycine exists in the form of $H_3N^+ \cdot CH_2COO^-$ in aqueous solution. It shows, therefore, alkaline nature against acidic substances, and acidic nature against alkaline substances, resulting in a softening effect on bitterness, saltiness and sourness of foods with a buffer action on shifting of pH value.
- (4) ANTIOXIDATIVE ACTIVITY:** While amino acids generally serve as chelating agent for metallic ions, Glycine is stronger than other amino acids in this respect. Thus Glycine is effective in preventing autooxidation of foods.
- (5) ANTIMICROBIAL ACTIVITY:** Glycine prevents growth of *Bacillus subtilis* and *Escherchia coli*, thus improving the shelf life of foods.

APPLICATIONS AND EXAMPLES OF USES (In Japan)

	Foods	Bases for addition	Addition rate (%)
Surimi based products	Kamaboko (Fish cake)	Raw fish meat	0.3 ~ 1.0
	Fried kamaboko	Raw fish meat	0.3 ~ 1.0
Squid products	Seasoned squid (Chinmi)	Squid meat	0.1 ~ 0.5
Fish roe products	Salmon roe (Ikura)	Salmon roe	0.1 ~ 0.5
Daily dishes	Packed rice cake (Mochi)	Rice cake	0.3 ~ 0.5
	Flour paste	Final product	0.5 ~ 1.0
	Curry	Final product	0.5 ~ 1.0
	Soy sauce pickles	Soy sauce	0.2 ~ 0.5
	Mustard pickles	Final product	0.1 ~ 0.2
	Canned foods	Syrup	0.1 ~ 1.0
Seasonings	Soy sauce	Final product	0.2 ~ 0.5
	Bean paste (Miso)	Final product	0.3 ~ 0.7
	Worcester sauce	Final product	0.1
	Vinegar and vinegar pickles	Final product	0.1 ~ 0.5
	Sauce for buck wheat noodle (Sobatsuyu)	Final product	0.1 ~ 1.0
Noodles	Chinese noodle	Wheat flour	0.1 ~ 1.0
	Japanese noodle	Wheat flour	0.1 ~ 1.0
Liquor	Synthetic sake	Final product	0.1
Beverages	Nutritional drinks	Final product	0.5 ~ 1.0
	Fruit juices	Final product	0.1 ~ 0.2
Confectionary and relating products	Jams	Final product	0.5 ~ 1.0
	Bean paste (An)	Final product	0.5 ~ 1.0
	Japanese sweet cake	Final product	0.5 ~ 1.0
	Pea-nuts cream	Final product	0.5 ~ 1.0
	Baked confectionary (in general)	Wheat flour	0.1 ~ 0.8