



A Natural Start to A Natural Label



NFE-S
NATURAL
FLAVOR
ENHANCER



KIKKOMAN

Kikkoman NFE-S

Natural Flavor Enhancer

Flavor Enhancement and Clean Labeling. Naturally.

Looking to keep labels clean and enhance flavor without MSG or HVP? Kikkoman NFE-S can be your natural flavor solution.

What is NFE-S?

Made from fermented wheat protein, NFE-S is produced using specific microorganisms and enzymes to create a natural fermentation process similar to the one used to make naturally brewed soy sauce. The resulting product is then spray-dried to yield a powdered flavor enhancer that is high in amino acids—particularly glutamic acid and short-chain peptides.

Flavor enhancement with a clean-label advantage

NFE-S is a natural flavor enhancer that can be used as a replacement for hydrolyzed vegetable proteins and monosodium glutamate. No chemical hydrolyzation is involved in the production of NFE-S. Instead, our carefully controlled enzymatic technology is used to induce the natural fermentation process. NFE-S contains no MCP or DCP and can be listed on your ingredient statement as Fermented Wheat Protein (wheat protein, salt and maltodextrin).



Balanced umami flavor and neutral color

NFE-S is high in glutamic acid, which provides a clean, balanced, brothy umami flavor to a variety of products. Its mild aroma and neutral, light golden-tan color make it ideal for a broad range of applications, including meat, poultry, seafood, soups, dressings, marinades, dry mixes and seasoning blends.

Functional benefits

NFE-S offers excellent flavor retention during heat processing and freezing and is heat-stable. A fine, free-flowing powder, it is instantly dispersible and soluble in water.

Natural flavor enhancement starts here

Clean labeling and natural ingredients are in greater demand than ever. Kikkoman—the world's #1 producer of naturally brewed soy sauce and the leading soy sauce supplier to the food manufacturing industry—can help. And our 100% natural NFE-S is a great place to start.



Applications

NFE-S is ideally suited to products that require a clean, natural label. It can be used in place of hydrolyzed vegetable proteins and monosodium glutamate and can also be used with other flavor potentiators to produce a synergistic effect that improves and intensifies the taste of foods. The following applications showcase how NFE-S can provide natural flavor enhancement on its own, or in combination with other potentiators.



New England Clam Chowder

DESCRIPTION

NFE-S cuts through the richness of the dairy ingredients to add brothy flavor intensity to this classic chowder.

PREPARATION

Place potatoes in large pot and add enough water to cover by one inch. Bring to boil and let boil for 45 minutes to 1 hour, or until soft. Drain and set aside.

Cook the bacon until crisp. Crumble and set aside; strain bacon fat to remove particles.

Place bacon fat in 4-quart saucepan over medium-low heat. Add onion and celery and sweat vegetables until tender, about 10 minutes. Add flour to bacon fat and vegetables. Stir to make a roux.

Increase heat to medium-high and add milk, cream and clam juice. Bring to a boil, and hold for 1 minute. Reduce heat to medium-low again and add clams, potatoes and crumbled bacon (crumbled bacon can also be reserved for a garnish).

Simmer for 10-15 minutes. Stir in thyme, pepper, salt and NFE-S.

Ingredient	
Potatoes, 1/2" diced	1 pound
Bacon	4 slices
Onion, finely diced	2 ounces
Celery, finely diced	2 ounces
All-Purpose Flour	3 tablespoons
Milk, whole (add to clam juice to make)	2 cups
Cream, heavy	1/2 cup
Clam Juice (drained from canned clams)	1 cup
Clams, chopped	2, 6.5-ounce cans
Thyme, dry	0.50 gram
White Pepper	0.15 gram
Salt	—
Kikkoman NFE-S	8.0 grams

Wasabi-Flavored Potato Chip Seasoning

DESCRIPTION

NFE-S can be used on its own or synergistically with autolyzed yeast extract to heighten the flavors of this savory Asian-style snack seasoning blend.

PREPARATION

Combine all ingredients until thoroughly blended. Apply to warm, unsalted potato chips at 5-7%.

Ingredient	NFE-S	NFE-S + AYE
Maltodextrin	15.50 grams	18.05 grams
Salt, flour grind	38.50 grams	39.70 grams
Corn Syrup Solids, 42DE, fine	10.00 grams	10.00 grams
Essicum (Jungbunzlaur)	12.00 grams	12.00 grams
Ginger Powder	3.00 grams	3.00 grams
Wasabi Powder	10.00 grams	10.00 grams
Artificial Wasabi Flavor F614F002 (T. Hasegawa USA)	2.55 grams	2.55 grams
White Pepper	0.25 gram	0.25 gram
Horseradish Flavor 22-58-67 (Kalsec)	0.20 gram	0.20 gram
Toasted Sesame Oil (Sesame Solutions)	0.50 gram	0.50 gram
Green Bits	2.50 grams	2.50 grams
Kikkoman NFE-S	5.00 grams	1.00 grams
High-Nucleotide AYE	—	0.25 grams



Simple Injection Chicken

DESCRIPTION

NFE-S, working on its own or in synergy with autolyzed yeast extract, heightens and rounds the flavors in this seasoned poultry application.

PREPARATION

Mix rosemary extract into salt and phosphate. Add remaining dry ingredients and mix until uniform. Combine ingredients for Brine Mix and add Dry Formula, stirring until all phosphate has dissolved. Inject chicken at 10%. Continue to process as normal.



	Ingredient	NFE-S	NFE-S + AYE
DRY FORMULA	Rosemary Extract W/S	4.00 grams	4.00 grams
	Salt, Culinox 999 (Morton)	67.50 grams	77.40 grams
	Phosphate – Brifisol 512 (BK Gulini)	45.00 grams	45.00 grams
	Grill Flavor SD-10 (Red Arrow)	4.00 grams	4.00 grams
	Butter Flavor 8X (Butter Buds)	1.50 grams	1.50 grams
	Kikkoman NFE-S	50.00 grams	10.40 grams
	High Nucleotide AYE	—	2.08 grams
BRINE MIX	Water, ice-cold	78.20 grams	80.96 grams
	Seasoning Mix	16.80 grams	14.04 grams
	Onion Juice (Vegetable Juices)	3.00 grams	3.00 grams
	Garlic Juice (Vegetable Juices)	2.00 grams	2.00 grams

Cheesy Potatoes Au Gratin

DESCRIPTION

NFE-S, working on its own or in synergy with autolyzed yeast extract, enhances the savory flavors of cheese in this all-American side dish.

PREPARATION

Preheat oven to 400°F. Combine all ingredients in 2-quart oven-safe casserole dish. Bake at 400°F for 35-40 minutes. Stir once halfway through cooking. Let stand 5 minutes to thicken sauce.

Ingredient	NFE-S	NFE-S + AYE
Potato Slices, dehydrated	70.00 grams	70.00 grams
Water, boiling	2 cups	2 cups
Au Gratin Sauce Mix 7163 (Commercial Creamery)	48.20 grams	49.55 grams
Kikkoman NFE-S	1.80 grams	0.375 grams
High-Nucleotide AYE	—	0.075 grams





Product Information



Product Code

(05452) NFE-S Natural Flavor Enhancer

Ingredients

Wheat Protein, Salt and Maltodextrin
(Maltodextrin, the carrier used in the spray-drying process, is made with non-GMO sweet potatoes.)

Flavor and Appearance

- | | |
|------------|---|
| Aroma | – Mild, bouillon character; neutral, rich aroma |
| Taste | – Salty |
| Appearance | – Light golden-tan; fine, free-flowing product |

Packaging

20 kg (44 lb.) carton

Applications

Ideal for 100% natural products or any product that requires a clean label, including meat, poultry, seafood, soups, dressing, marinades, dry mixes and seasoning blends.



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