COTTONSEED OIL

AMERICA'S ORIGINAL, HEALTHFUL COOKING OIL

Thanks to concerns about diet and health, as well as a growing fascination with creating new foods and getting the best features from ethnic cuisines, consumers and food industry professionals alike have expressed renewed enthusiasm about the benefits of America's Original Vegetable Oil... Cottonseed Oil.

THE TEST OF TIME

In the United States, cotton is grown from Virginia to California, and as far north as southern Kansas. Because the cotton plant produces about twice as much seed as fiber, there was motivation as early as the late 18th Century to find a commercial use for cottonseed. Around the end of the 1860's, a commercially viable method to extract the oil was invented, and Cottonseed Oil has been in use continuously since then. Nowadays, the U.S. annually produces over one billion pounds of cottonseed oil. As much as one-fourth may be exported. High quality Cottonseed Oil products are readily available throughout the entire year. The cottonseed itself is very similar to other oilseeds such as sunflower seed, having an oil bearing kernel surrounded by a hard outer hull. The oil is extracted from the kernel. Like all vegetable oils, Cottonseed Oil is cholesterol free.

Naturally, cotton growing and Cottonseed Oil processing must meet all of the rigid and demanding government regulations and requirements for food crops and food processing. Refined and deodorized, Cottonseed Oil is one of the purest food products available. Few foods can be as highly purified and refined, and still maintain their nutritional quality.

BENEFITS BEYOND HEALTH

Cottonseed Oil enhances, rather than masks, the fresh natural flavors of foods. It's neutral taste makes it perfect for frying seafood, snack foods and Oriental foods, especially stir-fry. In snack foods, where oil becomes part of the product, Cottonseed Oil is recognized as being superior because of its low flavor reversion especially when used at high temperatures. And, toward the end of its useful life, Cottonseed Oil won't produce objectionable flavors as some oils do.

Another of Cottonseed Oil's benefits is the high level of antioxidants (Vitamin E) that contribute to its long life in the cooker or on the shelf. Studies show that these natural antioxidants are retained at high levels in fried products, preserving their freshness and creating longer shelf life.

COTTONSEED OIL PRODUCTS

Cottonseed Cooking Oil has a bland, neutral flavor that will not mask food flavors. It is ideal for frying and is used for preparing full flavored potato chips. Cottonseed Salad Oil is recommended for fine cooking, salad dressings and mayonnaise applications.

New refining technology has made it possible to produce oil products "custom made" to satisfy almost any commercial need. High quality Cottonseed Salad and Cooking Oil meets the requirements of almost any food application imaginable. Blended with other fats and oils, Cottonseed Oil will improve their quality and functionality. Since Cottonseed Cooking and Salad Oil is naturally stable, hydrogenation is not necessary for most uses. Therefore it is free of trans fatty acids.

COTTONSEED OIL: COOKING TIPS

Following are some handy tips to make better use of Cottonseed Oil, or any vegetable oil.

Storage

While vegetable oils will maintain their freshness for several months, it is wise to only buy a container size that you will use over a couple of months. (Consider shortening if you need a longer shelf life). Store oil in a tightly sealed container in a cool, dark location. Don't worry if the oil becomes cloudy if stored in the refrigerator or other cold place, the cloudiness will disappear upon warming.

Cooking Temperature
Do not allow the oil to exceed 193°C (380°F) during frying, and preferably a temperature of about 182°C (360°F) should be maintained. On the other hand, if the temperature is too low, the food will have a greasy or oily texture. To help maintain proper temperatures, do not place large quantities of cold foods in the heated oil at one time.

Avoid Copper
Another important tip is to avoid the use of copper. Do not use a thermometer with copper components, or use copper utensils or a copper scrubber to clean the cooker. Even the most minute particles of copper will cause the oil to deteriorate rapidly. This is true for all fats and oils.

Also be sure to remove food particles frequently while cooking or the oil will turn dark and have a bitter taste. It will also deteriorate faster. Finally, dry or drain wet or damp foods as much as possible. Moisture will cause bubbling, foaming and spattering.

HANDY OIL TERMINOLOGY

Refining: Involves washing the oil with alkaline water solutions. Acidic compounds, such as free fatty acids and other fatty materials are removed during refining.

Bleaching: An adsorbent clay material is added to the oil. Heating activates the adsorbent. The oil is then filtered to remove the adsorbent along with the undesirable color pigments. The result is a clear, light oil.

Deodorization: Oil is injected with 400-500 degree F steam oil under high vacuum. The steam removes volatile compounds such as monoglycerides, some pigments, free fatty acids, fatty oxidation products and other undesirable organic compounds. This produces an oil that has a bland, neutral flavor with no flavor transfer to the food. It is this process that makes refined vegetable oils one of the most sanitary and pure foods available.

Winterization: Chilled cottonseed oil separates into a large clear phase and a smaller cloudy phase made up of higher melting point fats. The cloudy phase can be filtered out leaving the clear "winterized" fraction which is referred to as salad oil. It is perfect for mayonnaise where solidification would otherwise break the mayonnaise emulsion.

Fats and Oils: Fats usually come from animal sources and are solid at room temperature. Oils come from plants and are liquid. In many cases the terms are used interchangeably, as in the case of nutrition labeling which uses only the term "fat". Fats are the most concentrated form of food energy and have about 9 Calories per gram (120 Calories per tablespoon), while starches and protein have about 4 Calories per gram.

Hydrogenation: Treatment of fats and oils with hydrogen gas in the presence of a catalyst at various levels results in the addition of hydrogen to the carbon-carbon double bond. Hydrogenation produces oil with the mouth feel, stability, melting point and lubricating qualities necessary to meet the needs of many commercial specialty applications. Selective hydrogenation can produce various levels of hardening, from very slight to almost solid.

Beta-Prime Crystals: Fully hydrogenated Cottonseed Oil results in an oil with a unique value due to its formation of beta-prime crystals upon solidification. The ability to form these types of crystals is important for good aeration, smooth appearance and excellent creaming properties when used in margarine and shortenings.

Trans Fats or Trans Fatty Acids: Named for the position of hydrogenated atoms attached to an unsaturated double bond. These forms are found in nature and in hydrogenated oils and can act similar to saturated fat in the body.

TYPICAL FATTY ACID COMPOSITION

FATTY ACID	COTTONSEED COOKING OIL	COTTONSEED SALAD OIL	*PARTIALLY HYDROGENATED
Myristic (14:0)	0.8	0.8	0.9
Palmitic (16:0)	24.4	22.3	22.5
Palmitoleic (16:1)	0.4	0.4	0
Stearic (18:0)	2.2	2.0	5.5

Oleic (18:1)	17.2	16.7	50.0
**Linoleic (18:2)	55.0	57.6	20.3
**Linolenic (18:3)	0.3	0.3	0.3
SUMMARY			
% Saturates	27	25	29
% Monounsaturates	18	17	50
% Polyunsaturates	55	58	21

* Partially hydrogenated cottonseed oil (Iodine Value, approximatley 80)
** Essential Fatty Acids; Linolenic is an Omega-3 Fatty Acid

TYPICAL ANALYTICAL VALUES FOR COTTONSEED OIL PRODUCTS

	Cottonseed Cooking Oil (RBD)*	Cottonseed Salad Oil (RBWD)**	Hydrogenated Cottonseed Shortening	Hydrogenated Cottonseed Oil "Flakes"
Lovibond Color (Red Max.)	2.0-6.0	2.0-4.0	2.0-2.5	2.0-2.5
Free Fatty Acid (as Oleic % Max.)	0.05	0.05	0.05	0.05
Peroxide Value (Meq/kg. Max.)	1.0	0.5	0.5	0.5
Iodine Value	103-116	103-116	50-70	2-5
AOM Stability (hrs.)	15	15-25	100-200+	350+
Cloud Point (°F)	30-38	-	-	-
Melting Point (°F)	50-60	-	100-118	140
Pour Point (°F)	-	25-30	102-140	140+
Smoke Point (°F)	430	430	-	-
Cold Test (hrs.)	-	5.5-12	-	-
Flavor	Bland	Bland	Bland	Bland
Density (lb/gal @ 108°C)	-	7.51	7.46	-

- * RBD - Refined, Bleached & Deodorized
- ** RBWD - Refined, Bleached, Winterized & Deodorized