

Cottonseed Oil 101

Course Reference Cards

Foundations of Cooking

Garde Manger

Purchasing & Receiving

Live Restaurant Operations

The Language of the Kitchen

TYPICAL SMOKE, FLASH & FIRE POINTS						
Commercially Available Edible Fats and Oils*						
OIL TYPE	SMOKE POINT		FLASH POINT		FIRE POINT	
	(C°)	(F°)	(C°)	(F°)	(C°)	(F°)
Palm Olein (IV-57)	230	446	324	615	352	666
Palm Hard Fraction (IV-35)	230	446	326	619	352	666
Palm	254	489	324	615	354	669
Coconut Oil	196	385	295	563	330	626
Canola	236	457	326	619	350	662
Hi Oleic Canola Oil	240	464	340	644	360	680
Corn Oil	235	455	325	617	354	670
Soya Oil	240	464	330	626	360	680
Low Linolenic Soya	237	458	331	628	362	684
Hydrogenated Soya Oil (IV 70)	230	446	330	626	360	680
Cottonseed Oil	232	450	319	606	360	680
Peanut Oil	230	446	334	633	360	680
Mid Oleic Sunflower Oil	211	412	319	607	359	678
HI Oleic Sunflower	244	471	319	606	360	680
Lard	240	464	330	626	360	680
Tallow	230	446	330	626	360	680
Rice Bran Oil	229	444	324	615	368	695
Rice Bran (High Oryzanol)	222	432	316	601	361	682

* Commercial samples were tested after deodorization and had a free fatty acid content of 0.05% or less.

Source: Institute of Shortening and Edible Oils, Inc.

Disclaimer: The values in this table represent typical smoke, flash and fire points for commercially available edible fats and oils. The values are based on a single test for each fat and oil source, thus they do not represent a statistically valid mean or indicate the range of values attributable to each of the source oils. Smoke, flash and fire points may vary within a source oil due to such factors as processing techniques and/or seasonal variations. In addition, there can be analyst subjectivity when using this test procedure (i.e. AOCS Cc 9a-48 method, Cleveland Open Cup). Therefore, to the extent practicable, ISEO recommends that individual companies conduct independent testing that accounts for such variability within source fats and oils unique to their business practices. Further, to the extent any company chooses to rely upon the accompanying data, ISEO strongly urges the employment of a prudent margin of safety below the ISEO test-based smoke, flash, and fire points.

NUTRITIONAL DATA				
OIL TYPE	CALORIES	TOTAL FAT	SATURATED FAT	VITAMIN E
Cottonseed 1 Tbsp/13.6g	120	13.6g	3.5g	4.8mg
Canola 1 Tbsp/14g	124	14g	1g	2.4mg
Olive 1 Tbsp/13.5g	119	13.5g	1.9g	1.9mg
Peanut 1 Tbsp/13.5g	119	13.5g	2.3g	2.1mg
Safflower 1 Tbsp/13.6g	120	13.6g	0.8g	4.6mg
Palm 1 Tbsp/13.6g	120	13.6g	6.7g	2.2mg

Source: U.S. Department of Agriculture, Agricultural Research Service. FoodData Central, 2019. fdc.nal.usda.gov.

FLAVOR CHART – COMMON SPICES & HERBS			
HERB/FLOWER/SPICE	FLAVOR PROFILE	WORKS WITH	CHEF PREFERENCE
HERBS & FLOWERS			
Basil	Sweet anise or licorice flavor	Tomatoes, chicken, salads, pesto, pasta, fresh cheese (mozzarella, chevre, feta, etc.)	Fresh
Bay	Deep, earthy – mint-like flavor	Stocks, soups, stew, gumbos	Fresh or dried
Cilantro	Very aromatic, crisp and fresh, soapy	Mexican and Thai dishes, white meats, grilled steak, salsas	Fresh
Chives	Mild onion flavor	Great as a finishing herb works with poultry, mild fish, salads and eggs	Fresh
Dill Weed	Tangy and pungent	Pickling, Mediterranean foods, mild fish, potatoes, yogurt sauces	Fresh
Lavender	Astringent and earthy – part of Herbs de Provence	Great on lamb with rosemary. sweet, mellow complement to ice cream and flavored butters.	Fresh
Mint	Strong, sweet, and somewhat peppery, refreshing	Great with lamb, shrimp, complex desserts, teas, berries	Fresh
Nasturtium	Blossoms are peppery	Nice accent in salads	Fresh
Oregano	Earthy and aromatic	Chicken, pork, certain seafood, tomato sauce, eggplant	Fresh or dried
Parsley	Clean and bright - refreshing	Pretty much any savory dish as a cleanser and bright visual finish	Fresh
Rosemary	Pungent and piney, very aromatic	Lamb, chicken, white beans, roast pork, grilled beef	Fresh or dried
Sage	Musty, earthy, somewhat bitter	Poultry, pork, sausage, stews, stuffing, sauces	Fresh or dried
Sorrel	Lemony and bright, sharp and sour	Salmon, egg dishes, fresh pasta for brightness	Fresh
Tarragon	Lemon and anise, sour and strong	Béarnaise, chicken, vinaigrettes, tomato	Fresh or dried
Thyme	Earthy, not pronounced can be lemony	Pork, poultry, seafood, vegetables, breads, soups, stews	Fresh or dried

FLAVOR CHART – COMMON SPICES & HERBS			
HERB/FLOWER/SPICE	FLAVOR PROFILE	WORKS WITH	CHEF PREFERENCE
SPICES			
Cardamom	Pine and menthol	Poultry, sausages, breads, Danish pastry	Dried
Celery Seed	More pronounced celery flavor	Vegetables, potatoes, soups, salad dressings	Dried
Chili Pepper Flakes	Can be very hot – moderate on the Scoville scale	Soups, stews, more proteins – can easily overpower cooked greens	Dried
Chili Powder	Musty, spicy, some types can be hot or smoky	Chili, stews, Mexican sauces, beans, poultry	Dried
Cinnamon – Ground	Pungent, somewhat spicy, sweet and a different type of heat	Fruits, fruit desserts, apples, pumpkin, lamb, curries	Dried
Cinnamon Sticks	Same	Same	Dried
Ground Cloves	Sweet and zingy, somewhat peppery	Fresh pork, ham, curries, soups, spicy fruit sauces	Dried
Whole Cloves	Same	Same	Dried
Coriander Seed	Mellow citrus – stronger when roasted	Enchiladas, baked beans, mole	Dried
Cumin Seed and Powder	Sharp and bittersweet, somewhat hot (spicy)	Chili, stews, pickles and some Mexican-style soups	Dried
Curry	Mixed spice so flavor varies depending on the ingredients. Can be earthy and spicy, but may also take on sweet undertones.	Soups, stews, marinades, vegetables like cauliflower and rice	Dried
Fennel Seed	Licorice flavor	Middle Eastern lamb and fish dishes, breads, some confectionary dishes	Dried
Fennel Pollen	Sweet, warm and mild anise flavor	Sausages, pork, chicken and wherever you want a more intense anise flavor	Dried
Ground Ginger	Floral, peppery and a bit of citrus	Lots of baking applications, gingerbread, ginger ale, pies	Dried
Ginger Root	Sweet, peppery and pungent. Pronounced flavor.	Stir fry, soups like pho, lo mein, other Vietnamese and Thai dishes	Fresh
Mustard Seed & Ground	Range from sweet and mild to quite hot and spicy	Potatoes, chicken, seafood, salads	Dried

FLAVOR CHART – COMMON SPICES & HERBS

HERB/FLOWER/SPICE	FLAVOR PROFILE	WORKS WITH	CHEF PREFERENCE
SPICES			
Nutmeg	Bittersweet and woody with hints of clove	Béchamel, custards, sauces, vegetables like spinach, eggnog	Dried
Paprika	Will vary depending on type of peppers – range from sweet and mild to very hot. Musty flavor.	Spanish paella, Hungarian dishes, an ingredient in rubs and marinades, barbecue, colorful garnish as well.	Dried
Black & White Pepper	Range from mild to bold heat	A broad variety of dishes, dressings, marinades, stocks and sauces that require a controlled amount of spicy heat. Pepper can enhance or change a dish depending on how it is controlled. It intensifies over time and with the application of heat.	Dried
Pink Pepper	Chili-type heat with fruity undertones	Steaks, dressings, grilled and poached fish, pairs well with other spices and herbs such as juniper, cinnamon, rosemary, mint and saffron.	Dried
Saffron	Sweet, floral and complex. Floral surround aroma and beautiful orange color.	Chicken, rice dishes, risotto, paella	Dried
Turmeric	Deeply earthy and bitter – primary ingredient in most curries	Frittata, roasted vegetables, curries	Dried
Vanilla	Sweet, creamy and caramel	A full range of desserts from cakes and cookies, ice cream to puddings. Also a rich accompaniment to certain seafood dishes especially lobster and shrimp.	Fresh

COOKING METHOD / PROCESS	ADVANTAGES OF USING COTTONSEED OIL
Baking	Where oil is appropriate as a fat in baking, cottonseed oil provides a perfect neutral base.
Braising	During the searing phase, cottonseed oil provides a high smoke point and flavor neutrality.
Deep Frying	Most deep frying takes place between 375-400 degrees F. Cottonseed's 450-degree threshold will lead to even browning, less fat absorption and longer fat life in the deep fryer.
Grilling	To ensure that grilling allows for pronounced grill marks and searing without carbon residue. Oil with a high smoke point is essential.
Marinating	Some flavors are soluble in oil thus cottonseed oil, with its neutral profile, is a perfect vehicle for transporting those prominent flavors in a marinade.
Pan Frying	High smoke point and flavor neutrality in pan frying are essential traits to ensure proper caramelization and a neutral flavor canvas.

VEGETABLE CUT DIMENSIONS & MEASUREMENTS	
Batonnet	1/4" x 1/4" x 2 1/2-3"
Brunoise	1/8" x 1/8" x 1/8"
Brunoise (petite)	1/16" x 1/16" x 1/16"
Chiffonade	Shred
Concasser	Coarse chop
Dice (small)	1/4" x 1/4" x 1/4"
Dice (medium)	1/2" x 1/2" x 1/2"
Dice (large)	3/4" x 3/4" x 3/4"
Julienne	1/8" x 1/8" x 2 1/2"
Matchstick	1/16" x 1/16" x 2"
Oblique	Bias cut to match dice size
Tourne	2" long – 7 sides

MEASUREMENT CONVERSIONS		
U.S.	U.S. SPECIFIC	METRIC CONVERSION
Teaspoon		5 mL
Tablespoon	3 teaspoons	15 mL
$\frac{1}{4}$ cup	4 tablespoons or 2 oz. (volume)	60 mL
$\frac{1}{2}$ cup	8 tablespoons or 4 oz. (volume)	120 mL
$\frac{3}{4}$ cup	12 tablespoons or 6 oz. (volume)	180 mL
Cup	16 tablespoons or 8 oz. (volume)	240 mL
Pint	2 cups or 16 oz. (volume)	475 mL
Quart	4 cups or 32 oz. (volume)	950 mL
$\frac{1}{2}$ gallon	2 quarts or 64 oz. (volume)	1.9 L
Gallon	4 quarts or 128 oz. (volume)	3.8 L
Ounce		28 g
Pound	16 oz. (weight)	450 g

Fahrenheit to Celsius: deduct 32, then multiply by 5, then divide by 9

Celsius to Fahrenheit: divide by 5, then multiply by 9, then add 32

METHODS OF COOKING	
METHOD	DESCRIPTION
Blanch	To partially cook in a liquid i.e., water, stock, fat.
Boil	Cook in a liquid with rapid agitation at 212 degrees F.
Braise	Sear to engage the Maillard Reaction and then cook covered in a small amount of liquid – water, stock, slightly acid solution with wine or vinegar – either in an oven or stove top.
Broil	To cook in contact with a flame and high heat from above the product.
Deep Fry	To cook immersed in fat at 350-400 degrees F.
Pan Fry	To cook stove top in a small amount of fat or oil while the product remains stationary.
Grill	To cook in contact with high heat and/or flame from under the product.
Poach	To simmer in a small amount of liquid water, stock, acidic solution or fat.
Sweat	To cook stove top in a small amount of fat/oil until the ingredient(s) are translucent. Do not impart color via the Maillard Reaction.
Roast	To cook in an oven covered or uncovered at temperatures in excess of 325 degrees F.
Sauté	To cook at moderate heat on the stove top in clarified butter or a butter/oil blend while keeping the pan in motion.

DRESSINGS, VINAIGRETTE & MAYONNAISE

Cottonseed oil is a perfect foundational oil for dressings, vinaigrettes and mayonnaise when a neutral flavor profile is required. The oil provides the basis for a stable dressing when an emulsifier is used or a temporary suspension in the case of vinaigrettes. This allows the chef and manufacturer to develop a flavor profile that suits the objectives of the product without pushing its own flavor components in the process.

Many of the commercial mayonnaise products on the market use cottonseed oil or a blend containing cottonseed oil in their product, as is the case with commercial compound salad dressings. For the same reasons, cottonseed oil can serve as a standard oil used in professional kitchens.

PROPORTIONS CHART WITH VARIOUS VINEGARS & ACIDIC LIQUIDS		
PRODUCT TO BE DRESSED AND UNIQUE ACIDIC PRODUCTS	PROPORTION (GENERAL)	VARIABLES/DETAILS
Delicate Greens	4 parts oil, 1 part acid	Common vinegars – if fruity acidic products are used – see below
Hearty Greens	3 parts oil, 1 part acid	Common vinegars – if fruity acidic products are used – see below
Starchy Ingredients	3 parts oil, 1 part acid	Common vinegars – If fruity acidic products are used – see below
Meats, Poultry, Game	3 parts oil, 1 part acid	Common vinegars – If fruity acidic products are used – see below
Fruity Vinegars	2 parts oil, 1 part acid or more	Balsamic, infused fruit vinegars (berries, figs, etc.), citrus, wine
Other Ingredients That May Contain Acid	2 parts oil, 1 part acid or more	Mustards, pickles, olives, capers, etc.

CHECKLIST FOR GREAT PLATE PRESENTATIONS IN GARDE MANGER

The visual presentation of food appeals to the first human sense that consumers activate. How the food looks on the plate will stimulate the other senses in anticipation of flavor, thus dedication to presentation is an important part of a chef's job.

Here are some pointers:

1. MAKE SURE THAT THE INGREDIENTS ARE FRESH AND PREPARED IN A MANNER THAT PROTECTS THEIR VISUAL INTEGRITY.
2. MAKE SURE THAT THE PLATE OR BOWL USED FOR PRESENTATION IS THE RIGHT SIZE AND ABLE TO FRAME THE FOOD BEING OFFERED. THINK ABOUT THE IMPORTANCE OF THE RIGHT FRAME FOR A PAINTING.
3. WHITE SPACE SELLS! DON'T CROWD THE PLATE. LET THE INGREDIENTS STAND OUT.
4. PAY ATTENTION TO TEXTURES: GREENS SHOULD BE CRISP AND COLD, VEGETABLES SHOULD STILL HAVE A BIT OF SNAP, PROTEINS SHOULD NOT BE OVERCOOKED, ETC.
5. IF PLATING A SALAD: EVERY MENU ITEM SHOULD BE COMPRISED OF A BASE, THE PRIMARY INGREDIENT MIX, A HIGHLIGHT COMPLEMENTARY GARNISH AND A DRESSING OF SOME TYPE.
6. ALTHOUGH SOME GUESTS MAY PREFER TO ADD THEIR OWN DRESSING OR VINAIGRETTE, THE COOK IS BEST PREPARED TO MIX A SALAD WITH THE RIGHT PROPORTION OF DRESSING.
7. IF PLATING AN APPETIZER OR AMUSE-BOUCHE: THINK ABOUT TEXTURES, COLORS, FRESHNESS TO THE EYE, MOISTURE, FRAMING AND PORTION SIZE. THESE ARE INTRODUCTIONS TO A MEAL NOT THE MEAL ITSELF. THEIR FLAVORS SHOULD BE ENTICING, BUT NOT OVERWHELMING. SET THE STAGE FOR THE ENTRÉE TO COME.
8. BALANCE COLORS, TEXTURES, INDEPENDENT AND COLLABORATIVE FLAVORS DURING THE PLANNING PROCESS. EVERY BITE SHOULD MARRY ALL OF THESE PARTS OF THE EXPERIENCE.

Cottonseed oil is available to commercial restaurant operations in either gallon containers or 35-pound bulk for those operations that use it for deep frying.

TIPS FOR DEEP FRYING IN COMMERCIAL RESTAURANTS

1. Make sure that your fryer is clean. Filtering the oil and cleaning out the fryer each day is recommended for quality product and extending the life of the oil used.
2. Any breaded items should be added to baskets over a dry bin to catch excess crumbs that will change the nature of the oil and shorten its life.
3. Make sure that the oil is up to temperature, typically between 350-400 degrees F.
4. Do not over fill baskets. This will cool down the oil and cause the items to clump.
5. If frying battered items, shake off excess batter and gradually add the item to a basket already immersed in the hot oil.
6. Give the oil ample time to recover to temperature in between batches.
7. Periodically skim excess crumbs and food particles from oil to help extend its life.
8. Oil and water do not mix. Items with high water content will cause the oil to bubble and expand so the potential for dangerous overflow is real. Gradually add items until the oil settles down.
9. Most items will need to be flipped in the fryer for equal cooking and browning.
10. Frying fresh-cut potatoes for pommes frites will require that potatoes are soaked in cold water for a few hours to bleed out some of the starch. Dry the potatoes, blanch in the oil and chill before finish frying. Blanch at 350 degrees F and finish at 375.
11. Cottonseed oil is ideal for deep frying due to its high smoke point and neutral flavor.

DETERMINING YIELD * YIELD COST ON PROTEINS

The basis for accurate selling prices on your menu and the ability to generate profit begins with understanding the real plate cost of an item's ingredients, the amount of production waste and how a cook might find ways to utilize that "waste" in other manners.

The following is a standard method for determining usable yield and real ingredient cost.

The formula is: AP weight – waste = EP weight. Get your yield percentage by converting the edible product weight into a percentage. The formula is EP weight/AP weight x 100 = yield %.

(all prices and yields are fictitious)

INGREDIENT YIELD TEST:

Item: Prime Rib of Beef

Date: 10-10-2020

At Purchase (AP) Price Per Pound: \$4.28

AP Weight: 22 lbs.

Total AP Cost = \$94.16

Weight at service - EP (includes trim waste and cooking shrink): 18.5 lbs.

Cooked Cost/pound: Total AP Cost / EP weight

\$94.16 / 18.5 lbs. = \$5.09

Yield %: EP weight / AP weight * 100

18.5 lbs. / 22 lbs. = 84%

This determination of yield allows for more accurate planning and determination of accurate selling prices.

APPLICATION	DETAIL
Griddle	Griddle work whether it is for breakfast items like homefries, pancakes, French toast or omelettes require flavor neutrality and a high smoke point. Cottonseed oil is a perfect answer.
Deep Frying	High smoke point, stability, minimal absorption and flavor neutrality lead cottonseed oil to the top of the list for deep frying.
Pan Frying	High smoke point, stability, minimal absorption and flavor neutrality lead cottonseed oil to the top of the list for pan frying.
Cost Savings and Stability at the Saute Station	Adding neutral oil like cottonseed to clarified butter will stretch the high cost of butter while improving the smoke point and stability of the fat for sauté work.
Transporting Seasoning at the Grill	Using oil as a transport for flavoring steaks and chops as well as whole vegetables and fish is commonly used at the grill station. Salt and pepper, and maybe a touch of garlic and even strong herbs like rosemary suspended in a neutral oil with help with grill marks and provide a consistent vehicle for flavoring those items during cooking.

KITCHEN SURVIVAL TERMINOLOGY AND CHATTER	
TERM OR SLANG	DEFINITION
Covers	The number of guests served.
Deuce, 4-Top, 6-Top, Etc.	The number of guests at a table.
Mise	Your station organization, advance prep – everything in its place.
Order	What the expeditor wants to alert a station to prepare. The line cook then needs to determine when to start that order and how to set his or her station on alert.
Order Fire	Start the order immediately and plate as soon as it is ready.
Fire	Start an order and wait for the expeditor to signal that it is time to finish.
Re-Fire	An order that is returned and needs to be fixed, or an order that needs to be replaced.
All-Day	Request for the expeditor to review the active orders to a station line cook.
The Pass	The shelf where finished plates are presented to servers.
The Rail	The place where active orders are clipped for cooks and expeditor to read and reference.
Dupe Or Ticket	The actual order from the point of sale printer.
The Line	The configuration of line cook stations i.e., grill, sauté, fry, griddle, etc.
A'la Minute	An item that is prepared from start to finish at a station and one that typically takes a short period of time to prepare.

KITCHEN SURVIVAL TERMINOLOGY AND CHATTER	
TERM OR SLANG	DEFINITION
Blanch	To partially cook in liquid.
Shock	To stop the cooking associated with blanching by immersing the product in ice water.
On the Fly	Put all of your attention into making this item NOW.
The Push	Those peak times during service when the system is stressed to its maximum.
Trail or Stage	To shadow a cook while learning a station or to tryout for a position as an extension of the job interview.
Slammed	When a line cook's abilities are pushed to the max.
Weeded or in the Weeds	That point when the cook is pushed to the limit of his or her ability or beyond. They need help!
Spent	Total physical and mental exhaustion. Happens frequently on a very busy service.
Deer in the Headlights	When a cook loses track of action at their station and can no longer focus and prioritize the necessary steps. Someone needs to step in.
86	An item runs out. This is a signal to all involved that they must remove it from the menu.
SOS	Sauce on the side.