

BASIC COMMODITIES

SHORTENING, FATS & OILS

Fats are solid at room temperature and melt when heated. Those used in cooking include butter, margarine, lard, suet and hydrogenated fat.

Oils are liquid at normal temperatures, but solidify at lower temperatures. Those commonly used in cooking are peanut (groundnut/arachide) oil, coconut oil, mustard seed oil, sesame (teel) oil, olive oil and safflower oil.

Shortenings are fats that are used in the baking industry and in confectionery.

HYDROGENATION OF OILS

The conversion of oil into fat is known as hydrogenation. The process changes the physical properties of the oil. Hydrogenation consists of treating oil under pressure and at a suitable temperature with hydrogen, in the presence of a catalyst, usually nickel. Under these conditions, the unsaturated fatty acids present in the oil combine with the hydrogen. This chemical process brings about a physical change, the liquid oil changing into a solid fat. The unsaturated fatty acids are chiefly those of the oleic type and are converted into stearic acid which is solid. The varying consistencies available in fats is due to the process of hydrogenation being stopped at various stages.

SHORTENINGS

Fats can be used as shortenings or as a cooking medium. In confectionery, fats impart their characteristic flavor as well as shortening qualities. Their effect is to coat and break down the gluten strands, so that instead of being hard and tough to eat, foods containing shortening break off short and melt

readily in the mouth.

FACTORS TO LOOK FOR IN SHORTENINGS:

1. Creaming Value: This effect the volume of the item eg: cakes
The amount of air incorporated during creaming
2. Shortening value: The shortness it gives to the end product. Shortness is a quality essential in products such as biscuits & cookies.
3. Stability: Refers to keeping quality and shelf life.
4. Consistency: Hardness or Softness depending on the purpose.
hardness for puff pastry, softness for cakes.
5. Water absorption Will affect the emulsification value of the shortening.
power:

As shortening agents, fats add to the nutritional and satiety values of flour mixtures like doughs and batters. They also contribute to the taste and flavor. The type of fat and the way it is incorporated will affect the texture (eg: short crust pastry and flaky pastry). Baking must be done at correct temperatures. As the fat melts during baking, it must be absorbed by the flour. If the heat is insufficient, the melted fat will run out and result in a hard product. Fat which has been broken up into small particles during creaming will be more easily absorbed than fat left in large pieces.

Fat as a frying medium functions in three ways:

- it serves to transmit heat to the articles of food to be fried.
- it adds to the nutritive value (calories).
- It contributes to the flavor and taste and texture of the food.

Fat used as a frying medium must have

- a high smoke point
- low congealing point
- low moisture content
- high stability
- acceptable flavor which is neutral

RENDERING OF FAT:

Rendering of fat is the process of melting to extract fat from fatty tissues. A good supply of fat can be obtained in this way there are two methods to complete this process:

1. Cut the fat into small pieces, put them in a baking tray and heat in the oven till the fat has melted and only crisp brown pieces of tissue remains. Strain the fat through a clean cloth into a basin and store in the refrigerator.
2. Cut the fat into small pieces and cover with a little water. Boil, without the lid until the water has evaporated and the fat melts leaving behind only tissue. Strain and store as above.

In both cases, the temperature should not be too high as the fat will decompose.

CLARIFICATION OF FAT:

This method of cleaning the fat. Used fat is mixed with water and allowed to boil. It is then strained and allowed to cool. The fat solidifies on the surface. This cake of fat is lifted out and the bottom scraped off all impurities. The fat is then heated till it stops bubbling and the water particles have disappeared.

TYPES OF FATS AND OILS

FAT/OIL SOURCE PROPERTIES USES

Butter Cream Salted or unsalted, shallow frying
Difficult to handle when chilled, unsuitable for
Deep frying. Unique flavor, Good enriching qualities.

Margarine Groundnuts Not easy to spread. Economical for baking

Palm, coconut, Low cholesterol

Fish oils, Whey

Soft blend as above will spread even if

Margarine chilled excellent for cake & pastry making

Low fat Blended Low calorie content can be used for

baking

Spreads & vegetable oils but not for pastry.(Spreads when chilled)

Cholesterol

Free Spreads

Lard Pork White solid fat, good for

Short Crust

Pastry & Shallow frying.

Not suitable for creaming with sugar.

Economical

Suet Lamb or Hard white fat, good for Short crust, steamed

Beef puddings & stuffings

Corn Oil Corn Refined . All purpose especially deep frying

Sunflower/ Sunflower & Refined. All purpose cooking medium

Safflower oil /Safflower seeds

Sesame/ Sesame seeds/

Gingelly oil (teel)

Olive Oil Olives Distinctive taste & flavor, Salad dressings

Cooking medium, but not deep frying

Soya bean Soya beans Distinctive All purpose cooking medium

Oil

Coconut Coconuts Strong aroma & flavor. Used a lot in Kerala

Oil and Coastal cuisine

Mustard Mustard Strong aroma & flavor Used in North Indian
Oil plant & Bengali cuisine and in pickles

Arachide Groundnuts Distinctive flavor. All purpose cooking
Oil medium

Pure Ghee Cream Rich flavor used extensively in Indian
Cooking and sweets

Solid Palm Neutral flavor Suitable for all types of cooking
Vegetable
Oil

In short, Fats & Oils can be classified as:

Animal Sources: Lard, Suet

Dairy Sources: Butter, Pure Ghee

Vegetable Sources: Refined oils

Margarine

BASIC COMMODITIES I RAISING AGENTS

Raising agents are also known as leavening agents. Leavening is the production or incorporation of gases in a baked product to increase volume and to produce taste and texture as well as shape. These gases must be retained in the product until the structure is set enough by the coagulation of gluten and /or egg protein to hold its shape. Exact measurement of leavening agents is important, because small changes can produce major defects in baked products.

TYPES OF RAISING/LEAVENING AGENTS

Biological: Yeast

Chemical: Baking powder, Baking soda, Baking ammonia

Mechanical: Air, Steam

YEAST

Fermentation is the process by which yeast acts on carbohydrates and changes them into carbon dioxide and alcohol. This release of gas produces the leavening action in yeast products. The alcohol evaporates completely during and immediately after baking. The process of fermentation is brought about by an enzyme called zymase.

Yeast is a microscopic plant. As a living organism, it is sensitive to temperatures.

45°F (7°C) Inactive; storage temperature

60-70°F (15-20°C) Slow action

70-90°F (20-32°C) Best growth, proofing temperature for dough

Above 100°F (38°C) Reaction slows

140°F (60°C) Yeast is killed

Yeast will contribute to flavor in addition to leavening action. There are various market forms of yeast, which are available.

Dried Yeast: is a mixture of yeast and cornflour or cornmeal, which are pressed into cakes and dried. The yeast continues to live, but in an inactive state. When furnished with warmth and moisture, it begins to develop and multiply, but this process is slow. Dried yeast has to be soaked in lukewarm water and mixed with very soft dough for a preliminary period before the other ingredients are added.

Activated Dried Yeast: This develops more rapidly than dried yeast and is the

type that is most commonly used these days. It can be added straight into the flour. It is also less perishable than compressed yeast (see below). The shelf life of both dry and activated dry yeast is longer when stored in the refrigerator.

Compressed Yeast: This is a moist mixture of yeast plants and starch. The yeast remains active and will grow and multiply rapidly when added to dough. It has to be kept refrigerated and will keep well only for a few days. If held in the freezer, it retains its activity for a longer period.

CHEMICAL LEAVENERS

Chemical leaveners are those that release gases produced by chemical reactions.

Baking Soda: is the chemical sodium bicarbonate. If moisture and acid are present, soda releases carbon dioxide gas, which will leaven the product. Heat is not necessary for the reaction, although the gas will be released at a faster rate if the temperature is increased. For this reason, products leavened with soda must be baked immediately otherwise the gases will escape and the leavening power will be reduced. Acids that react with soda in a batter or dough would include honey, molasses, buttermilk, fruits, cocoa and chocolate. Sometimes, acids, such as cream of tartar are added to induce the production of carbon dioxide.

Baking Powder: is a mixture of baking soda and an acid such as cream of tartar and diluted with cornflour to give a product of the desired strength. The cornflour also serves to separate the acid and the base, thereby increasing the stability of the mixture. General proportions used are 1 to 2 tsps / 500 GMS of the flour or foundation ingredients. Baking powders are more versatile since they do not depend on acids for their leavening power. Do not include more baking powder in a recipe, as it will create an undesirable flavor.

Baking Ammonia: is the chemical ammonium carbonate. It decomposes during baking to form carbon dioxide gas and ammonia gas. Only heat and moisture are required for it to work. No acid is required for reaction to take place. Baking ammonia releases gases very quickly and can only be used in small products like cookies or in products like choux pastry where rapid leavening is desired. Because it decomposes quickly, it leaves no residue, which could affect the flavor.

MECHANICAL AGENTS

Air: is incorporated in a batter primarily by two methods. This air expands during baking and will leaven the product.

1. Creaming – is the process of beating fat and sugar together. Besides breaking up the fat into minute particles, it also incorporates air into the mixture. It is an important technique in cake making and in cookie making as well. Some pound cakes and cookies are aerated entirely by this method.
2. Foaming – is the process of beating eggs, with or without sugar, to incorporate air. Foams made with whole eggs are used for sponge cakes, while meringues, angel food cakes and soufflés are aerated with only egg whites.

Steam: When water turns to steam, it expands to 1600 times its original volume. Because all baked products contain some moisture, steam is an important leavening agent. Bakery products such as eclairs and cream puffs rely on steam for aerating. If the starting temperature for the baking of these products is high steam will be produced and rapidly aerate the product.

BASIC COMMODITIES I FLOUR

Flour is one of the basic and foundation ingredients used in the kitchen, especially in the bakery.

WHITE WHEAT FLOUR (refined flour):

White wheat flour is milled from the kernels of wheat after the outer covering called bran and the germ is removed. Wheat flour contains 63 – 73% starch and 7 – 15 % protein. The rest is moisture, fat, sugar and minerals. Wheat flour is the source of the protein gluten, which is one of the most essential elements in baking. Actually, there are two proteins found in flour – glutenin and gliadin; which combine together in the presence of moisture to form Gluten. Bakers select flour on the basis of its gluten content. Flours high in gluten are called hard flour and those low in gluten are called weak flour. From the Bakery point of view, we need to learn about 3 types of flour:

1. Bread flour is strong flour, which is used to make bread including hard rolls, and any product that requires high gluten. Bread flour feels rough and slightly coarse when rubbed between the fingers. If squeezed into a lump, it falls apart as soon as the hand is opened. Its color is creamy white.

2. Cake flour is weak or low gluten flour. It has a very soft smooth texture and a pure white color. Cake flour is used for cakes and other delicate products that require low gluten content. Cake flour feels very smooth. It stays in a lump if squeezed in the palm of the hand.

3. Pastry flour is lower in gluten than bread flour but higher than cake flour. It is creamy white in color. Pastry flour is used for piecrusts as well as some sweet dough and for biscuits and muffins. Pastry flour feels the same as cake flour.

All-purpose flour is available in the market and is quite popular in the retail market. This flour is formulated to be slightly weaker than bread flour so that it can be used for pastries as well. A professional baker however prefers to use flours that are formulated for specific purposes, because these give the best results.

WHOLE WHEAT FLOUR (atta)

Whole-wheat flour is made by grinding (milling) the entire wheat kernel, including the bran and the germ (which is the embryo of a new wheat plant). The germ is high in fat content and therefore tends to turn rancid quickly. Whole-wheat flour therefore does not have a very long shelf life like Refined Flour. Since it is made from wheat, whole-wheat flour contains gluten and can be used for bread making. However, bread made from 100% whole-wheat flour will be heavy, as the gluten strands are cut by the sharp edges of the bran flakes. Also, the fat from the wheat germ contributes slightly to the shortening action. This is why most whole wheat breads are strengthened with refined flour.

Bran flour is flour to which bran flakes have been added. The bran may be coarse or fine depending upon the specification.

RYE FLOUR

Next to Whole and White Wheat Flour, Rye is the most popular flour used for bread making. Rye flour does not develop gluten and breads made with it will be heavy unless some hard wheat flour is added to it. Rye flour is available in three shades: light, medium and dark. Rye meal or pumpernickel is a coarse meal made from the whole rye grain. It looks like oatmeal. Rye blend is a mixture of rye flour and hard wheat flour.

OTHER FLOURS

Products milled from other grains are occasionally used to add variety to baked goods. These include corn meal, buckwheat, soy flour, potato flour, oat flour and barley flour. The term meal is used to describe products that have not been as finely ground as flour. All these products must be used along with wheat flour as they do not form sufficient gluten.

STARCHES

In addition to flour, some other starch products are used in the bakery. Unlike flour, they are used primarily as thickening agents for pies, puddings and fillings.

1. Cornstarch has a special property that makes it valuable for certain purposes. Products thickened with cornstarch set almost like gelatin when cooled.
2. Waxy maize also has valuable properties. They do not break down when frozen and are good for products that need to be frozen and stored. Also, it is very clear when cooked and give a brilliant clear appearance.
3. Instant Starches are those which have been pre cooked or pre gelatinized, so they will thicken cold liquids without further cooking. They are useful when heat will damage flavor of the products (strawberries).



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THICKENING AGENTS

A sauce must be thick enough to cling lightly to the foods; otherwise it will run off and lie in a puddle at the bottom of the dish. This does not mean that it should be heavy and pasty either. Starches are the most common thickening agents used in sauces but there are others as well.

- Roux : Cooked mixture of butter and flour
- Beurre manie : uncooked mixture of butter and flour
- Whitewash: blend of milk and flour
- Slurry: blend of water and flour
- Corn starch: blend of corn flour and water. Used when a clear glossy texture is required.
- Arrowroot: used like cornstarch but gives an even clearer sauce.
- Waxy maize: Used when sauce is to be frozen. Flour and other starches break down and lose their thickening power when they are frozen. Waxy Maize does not.
- Breadcrumbs: Both fresh and dry will thicken sauces very quickly as they have already been cooked.
- Egg Yolks: used as thickening in emulsion sauces such as mayonnaise and Hollandaise.
- Egg Yolk and Cream Liaison: Thick cream also adds thickness and flavor to the sauce. Egg yolks have the power to thicken because of the coagulation of the protein present in the yolk, when heated. Besides thickening, the liaison also gives richness, flavor & smoothness to the sauce.

OTHER FLAVORING INGREDIENTS

In order to vary the basic sauce, other flavoring and seasoning ingredients are added to the sauce. They provide character to the finished sauce. This also makes it possible for sauces to accompany different dishes, as the different flavors will vary and complement a variety of tastes.

STANDARDS FOR QUALITY SAUCES

1. Consistency & Body:

Most sauces should be smooth with no lumps. They should not be too thick and pasty. They must be thick enough to coat the foods lightly.

2. Flavor:

The flavor of the sauce should be distinctive and well balanced. There must be a proper degree of seasoning with no starchy taste. The flavor should be selected to enhance or complement the food.

3. Appearance:

The appearance should be smooth with a good shine and gloss. It should have the requisite color: rich brown for the espagnole, pale ivory for the veloute and white (not gray) for the béchamel.

STANDARD RECIPE FOR LEADING/MOTHER SAUCES:



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BASIC COMMODITIES SUGAR

Sugar occurs naturally in almost all plant structures. However, for general and commercial purposes, it is obtained from two major sources:

- Sugarcane
- Sugar Beet

CLASSIFICATION OF SUGAR

Sugar may be classified under one or a combination of the following:

- The source, sugarcane or sugar beet
- The country of origin
- The method of processing which in turn will determine the type of sugar produced, e.g: cube sugar, powdered sugar
- Its uses e.g. specific sugars are bought for certain purposes like icing sugar is meant basically for icings.
- The chemical group – sugars may be classified into two chemical groups
Mono saccharides & di saccharides

MARKET FORMS OF SUGAR

Commercially, sugar is available in two forms:

- Solid
- Liquid

SOLID FORMS

1. Granulated sugar: By far the most important sugar product on the market and is also known as sucrose. Granulated sugar is marketed as fine (the type most commonly used) or ultra fine (used in the making of cakes and instant beverages).

2. Powdered sugar: This is obtained from granulated sugar, thru the process of pulverization. It is available in various degrees of fineness depending on

the purpose that it is used for.

3. Brown sugar (perish the thought, it's not what you are thinking!): is composed of sugar crystals which are suspended in flavored and colored molasses syrup and is often referred to as demerara sugar. Demerara sugar is brown sugar that comes from demerara in the West Indies.

4. Cube sugar: This is ultra fine granulated sugar which is compressed into small individual portion sized cubes. Very popular in fine dining restaurants. Sometimes is made out of powdered sugar as well.

5. Icing sugar: This is powdered sugar which has a small percentage of cornflour worked into the mixture. It gives a much smoother texture to the final product and as the name suggests, it's used to produce various icings.

6. Maltose: Also known as malt sugar is used as a sweetener, flavoring and coloring agent. It is also used in the manufacture of beer besides being used in malt beverages, instant beverages, milk shakes and candy.

7. Lactose: Lactose is commercially extracted from solutions of whey, by crystallization. It is added to bakery products because its presence contributes to the surface browning of baked products.

8. Invert sugar: Invert sugars are desirable in baked products and in candies because they resist crystallization and also retain their moisture.

LIQUID FORMS

Liquid sugars are available in the form of syrups. These syrups are liquid containing large amounts of sugar. Syrups can have a variety of flavors that make them a useful addition to other foods. The most frequently used syrups are:

1. Molasses: known commonly here in India as jaggery(gur), but in the liquid form. It is a by-product of the sugar industry (sugarcane). However, black jaggery is obtained from the date palm and is also referred to as palm jaggery. In the manufacture of sugar from cane, the sugar goes thru various stages of crystallization and refinement. The left overs and by products are used to produce molasses.

2. Maple syrup: Maple syrup is obtained from the sap of mature sugar maple trees. The characteristic flavor of maple syrup is obtained from the volatile oils in the sap that is then concentrated by boiling. Maple syrup is very popular in the USA where it is popularly served with flapjacks (American pancakes). It is also popular in Canada and the maple leaf even figures on the Canadian flag.

3. Honey: is made by bees from the nectar of flowers and is stored for future use in cell like structures called honeycombs. One property of honey that is very useful in cookery and bakery is its ability to retain water. Cakes and cookies that have honey as an ingredient will retain their moisture for a fairly longer time.

4. Corn syrup: Is used mainly to sweeten foods in the commercial production of foodstuffs. Corn syrup is a liquid sweetener consisting mainly of glucose or dextrose. It is made by converting cornstarch into simple sugar compounds by the use of enzymes.

5. High fructose corn syrup: This product is being used increasingly in commercial food production because of its intense sweetness. It is used in the manufacture of soft drink concentrates, fruit squashes, candy and some bakery products.

6. Glucose: is present in fruits in the natural form but commercially is sold as dextrose. It is used extensively in the commercial production of candy. It is also used widely in making Icings like gum paste, pastillage and such products.

FUNCTIONS OF SUGAR

1. As a sweetener in products such as cakes, cold drinks and commonly in tea and coffee.
2. To soften gluten in flour and to make baked products more tender to eat and lighter in texture.

3. To color baked products such as the crust of bread.
4. To retain moisture and prevent baked products in particular from drying out quickly.
5. To act as a preservative in jams, marmalades and canned fruit.
6. To help as an activator. Sugar helps yeast to grow faster by providing it with a readily available source of food and nourishment.
7. As an anti coagulant, sugar helps to delay the coagulation of protein in egg.
8. It is used as the main ingredient in icings and candies.



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