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## – Chapter 7 –

# Sauce

**S**auce formula is a cherished secret of most pizzerias, probably because it's the main flavor component of pizza. Because it's the smallest percentage of ingredient costs, it is the least expensive way to enhance pizza quality. There are two main parts to pizza sauce: (1) the tomato base and (2) spices and seasonings. This chapter examines both and explains what to look for when purchasing ingredients. It also explains how to design and produce a distinctive sauce.

Lengths, weights, temperatures, and volume measurements are given in inches, pounds and ounces, degrees Fahrenheit, and quarts and cups (U.S. version). The following abbreviations are used: **lb** = pounds, **oz** = ounces, **F** = Fahrenheit, and **qt** = quarts. For conversion to other measurement systems, refer to the chapter on Measurements and Conversions.

### The Ready-to-Use Option

Most pizzerias create sauce from scratch starting with a base of unspiced canned tomato product. However, ready-to-use or fully prepared pizza sauce with seasonings is available. The main advantage is that it saves handling spices. It also eliminates mixing. The main drawback is that it makes your pizza taste like everyone else's pizza that's made with the same product.

Pre-mixed spices are also available. This option eliminates having to measure spices, but gives you freedom to choose the type of tomato base.

In both cases the challenge — and possibly the excitement — of creating a unique sauce formula is eliminated. For those who want the challenge of designing (or enhancing) a special sauce, the rest of this chapter is for them.

## Tomato Options

The base for pizza sauce is tomato. It can be produced from fresh tomatoes, powdered products, and canned products.

FRESH TOMATOES can form the base for a fine sauce. Italian-style plum or pear tomatoes are generally considered best for pizza. They're normally peeled, de-seeded, and put through a grinder or cutter-mixer. However, it's difficult to maintain consistency with fresh tomatoes because they vary from season to season and shipment to shipment. What's more, nearly all fresh tomatoes are harvested green and then ripened in transit using ethylene gas — resulting in less than optimum quality. By contrast, canned tomatoes are vine-ripened and processed within hours after picking, which yields a product of superior flavor and texture. Finally, because of its high water content, sauce made from fresh tomatoes might need to be simmered for hours to thicken it — which is time-consuming and can cause flavor loss and distortion.

TOMATO POWDER or crystals can be used as an extender. But not many pizzerias have adopted it.

CANNED PRODUCTS offer a wide range of choices, consistent quality, and ease of preparation. For these reasons canned tomato products are, by far, the most widely used ingredient in pizza sauce. In recent years the poly bag, or bag-in-box, option has emerged as a container for tomato products. Essentially, everything we say about canned products can also apply to the poly bag.

From here on when we refer to tomatoes or tomato products, we're talking about those that come in a can or poly bag.

### *Types of Canned Tomato Products*

Broadly speaking, there are three categories of canned tomato products: (1) single strength tomatoes (2) concentrated tomato products, and (3) combination products.

*Single strength tomatoes* include whole, diced, and chopped/ground tomatoes. They have not had water removed during processing, so they're the same concentration as fresh tomatoes. Because they receive only minimal heating, their flavor closely resembles fresh product.

To make *concentrated tomato products* — that is, sauce, puree and paste — tomatoes are crushed and screened to produce a fine consistency, then a large amount of water is evaporated off under vacuum.

As the name implies, *combination products* are a mixture of single strength tomatoes combined with concentrated product. An example is ground tomatoes in puree.

We examine each of these three categories separately.

## Single Strength Tomatoes

Because of their high water content, single strength tomato products normally aren't used in straight form for pizza sauce. For most pizzerias these products must be combined with a concentrated product, such as paste, puree, or pizza sauce, OR must be boiled down to proper thickness. Single strength tomatoes are also used by Italian restaurants for making chunky-style pasta and entree sauces.

Packers point out that concentrated products have more flavor than do tomatoes that are boiled down in the pizzeria to remove water. Why is that? Because, to distill down a pot of watery tomatoes on a range, the mixture must be cooked at boiling point (212 degrees F) for an extended time in an uncovered pot. This, first of all, changes the tomato's flavor and, second, causes much of the flavor and aroma to dissipate into the air. However, with concentrated tomato products the water is removed under vacuum, which allows evaporation to occur at a temperature much lower than 212 degrees. This results in less distortion and flavor loss.

In short, boiling down single strength tomatoes to produce a pizza sauce of proper thickness is not a recommended procedure. If maximum fresh tomato flavor is desired, the best approach is to blend ground tomatoes with puree, or buy a combination product that already consists of tomatoes and puree.

Single strength tomatoes come three ways: Whole, diced or chopped, and ground.

## *Whole Tomatoes*

Whole tomatoes are packed either in tomato juice or in puree. For using in a pizza sauce, whole tomatoes must be either machine-ground or hand-crushed. Products are usually packed with calcium chloride to retain firmness. Various shapes of tomatoes — i.e., round, pear, and square-round — may be used. Some companies use round- and pear-shaped only, claiming that these products yield better flavor.

## *Diced, Chopped and Crushed/Ground Tomatoes*

Tomatoes also come in diced, chopped, and crushed or ground forms.

DICED TOMATOES are 3/4-inch by 3/4-inch cubes and, because of their uniformity, have a manufactured appearance. They usually come peeled and are packed in either tomato juice or puree.

CHOPPED TOMATOES, sometimes called strips or filets, have an irregular, hand-cut appearance. They have a nice look for pizza and are gaining in popularity.

CRUSHED/GROUND TOMATOES have smaller pieces than chopped. This product is made either with peeled or unpeeled tomatoes. For a smoother sauce, purchase the peeled form. For a rougher, more natural look, purchase the unpeeled. In addition, since much of the tomato's flavor is just under the skin, unpeeled ground tomato tends to be more flavorful than peeled. It's also less expensive.

Some manufacturers make a distinction between crushed and ground tomatoes by noting that crushed tomatoes are made by pressing tomatoes between metal plates while ground tomatoes go through a grinder (such as might be used for grinding meat or cheese). Grinding tends to produce smaller pieces of skin than does crushing. Makers of ground tomatoes claim that their product receives less bruising.

## **Concentrated Tomato Products**

Concentrated products are the most commonly used tomato base in pizza sauce. There are basically two kinds: (1) puree and paste and (2) pizza sauce (also called concentrated crushed tomatoes).

## *Puree and Paste*

As defined by the FDA (Food and Drug Administration) Standard of Identity, puree and paste are made by crushing mature red tomatoes, straining out the skins, seeds and other coarse substances (called insolubles), and reducing the remaining liquid (which contains soluble solids) to concentrated form by heating under vacuum. Seasonings such as salt, spice and flavoring may or may not be added. Check the label to find out. For industrial consumers who purchase the product in drums, it can be obtained in either “coarse” or “fine” texture. Coarse texture has a slightly granular finish. Fine texture has a smooth, uniform finish that is created by straining the product through finer screens.

From a manufacturing standpoint puree and paste are basically the same — the only difference being their concentration, or percent of natural tomato soluble solids (NTSS), referred to as *soluble solids*, for short. The USDA (U.S. Department of Agriculture) specifies that tomato puree must contain between 8.0 to 23.9 percent soluble solids and paste must contain 24 percent or higher. In addition, each one is divided into four levels ranging from light to extra heavy. The chart below shows the breakdown.

Some manufacturers also list the product’s specific gravity on the label. *Specific gravity* is a number that shows how the weight of a product compares to water. So, for example, a product with specific gravity of 1.10 would weigh 1.10-times greater than an equal volume of water. The higher the specific gravity, the higher the solids content of a particular tomato product. The following chart shows both percent of soluble solids and approximate specific gravity (S.G.) for each category of puree and paste.

<b>PUREE</b>	<b>% Soluble Solids</b>	<b>Specific Gravity</b>
LIGHT	= 8 to 10.1% solids	1.037–1.046
MEDIUM	= 10.2 to 11.2% solids	1.047–1.052
HEAVY	= 11.3 to 14.9% solids	1.053–1.069
EX. HEAVY	= 15 to 23.9% solids	1.07–1.11
<b>PASTE</b>	<b>% Soluble Solids</b>	<b>Specific Gravity</b>
LIGHT	= 24 to 27.9% solids	1.11–1.13
MEDIUM	= 28 to 31.9% solids	1.13–1.15
HEAVY	= 32 to 39.2% solids	1.15–1.17
EX. HEAVY	= 39.3% or more solids	