Fresh Takes on Refrigerated Soups

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Comforting, affordable and nutritious, and convenient, too, people turn to soup in challenging economic times. In the distant past, this meant making it from scratch. More recently, consumers could choose from canned or dried varieties.

Foodservice establishments used to always make soup from scratch. Now, with a less-skilled labor force, that's a less-likely scenario.

The newest soup segment, refrigerated soup, has been slow to catch on—especially in the consumer market. Foodservice operations have been quicker to embrace this category. But this segment is growing, as both consumers and foodservice operations become more familiar with, and recognize the potential of, fresher, easy-to-prepare refrigerated soups.

Reasons for refrigerated

"Given the need for a long shelf life, canned soups have more sodium and preservatives than refrigerated soups," says Dan Hemming, senior food technologist, Gilroy Foods & Flavors, Omaha, NE. "In addition, the canning process can create subtle off-flavors that can be perceived as 'cooked' or 'tinned.'"

Foodservice operators have historically favored scratch soups. "It's easy to prepare and versatile," says Lori Miller, R.D., L.D., director, market development and sales, Eatem Foods Company, Hudson, OH. "But refrigerated bulk soups win in time and labor savings. There is little preparation and an ease of handling. No waste, no prep, no ingredient inventory to maintain, just excellent product consistency, quality and flavor."

When he was a restaurateur, Volker Frick, executive chef, Kettle Cuisine, Chelsea, MA, dreamt of a quality refrigerated soup product that he could embellish with his own ingredients. "A French onion soup, for example, is a lot of work," he notes. "Why not provide a product that is great, apply what you know, and make it your own soup? It allows chefs to work on other parts of the menu. And you need an educated staff to make good soup. You don't need a talented staff if you have a good-quality refrigerated soup. Kitchens today don't have the raw ingredients that used to go into soup."

These higher-end, refrigerated soups have limited shelf life and few, if any, preservatives or stabilizers added, but also have a higher price point, giving them a limited market.

Retail vs. foodservice retherming

Refrigerated soups in retail have different considerations entirely than foodservice when it comes to end-user preparation. On the retail level, the soups are meant to be quickly reheated in a microwave, or on a stovetop, and immediately consumed. This makes them ideal products for convenience stores, gas station stores, kiosks and employee in-office kitchens. It also ensures the soup's freshness, since it is quickly consumed and rarely reheated.

Retail microwaveable soups often come in plastic containers or bowls. The seal is peeled back on one corner or removed to vent the soup, and it's microwaved and immediately consumed, often in the same container. Aseptic packaging is an emerging category for refrigerated soups.

For foodservice, soups typically come in large plastic pouches, which are placed in 180ºF to 190ºF water baths, not boiled (to prevent breaking of any creamed soups), and heated to 165ºF for proper food safety. This can take 45 minutes to 1 hour. Multiple soups can be heated in the same pot, and even put directly in a steam table if the holding time and table temperature will bring the soup to the proper temperature before serving. The soups also can be taken out of the pouches and heated in double boilers. These procedures are easy for an unskilled kitchen worker to manage. To embellish the soup, chefs can add signature ingredients and garnish, adding variety and the restaurant's own mark.

As with any soup in restaurants, refrigerated soups are held for service either in a steam table or in a double boiler. This is where abuse is most likely to occur, and where evaporation can alter the quality of the soup. There is the option of retherming only small portions at a time (unlike frozen soups where the entire package must be thawed and heated). But this also gives the refrigerated soups a shorter shelf life, since once the plastic pouch is opened, it must be used within a short period of time—usually three to five days, depending on the type of soup.

However, with the option of ½ gallon (4 lb.) and 1 gallon (8 lb.) packages that easily fit into a self-serve soup well, it is unlikely, with high enough volume, that soup would need to be re-refrigerated and reheated at another time.

Processing considerations

Refrigerated soups, remarkably, are made very similarly to from-scratch soups. The highest-end soups in this category are cooked one kettle at a time and rapidly chilled to ensure quality and extend shelf life. This pasteurizes the soup and maintains the soup's from-scratch quality, according to Patty Principato, vice president of research and development, StockPot division of Campbell Soup Company, Woodinville, WA.

The step-cooking sequence involves adding ingredients one at a time, and follows recipe temperature and time requirements. Hearty ingredients are cooked first, delicate vegetables are cooked last, and then everything is simmered to develop layered flavors and create ideal textures for each ingredient. The recipe is then immediately quick-chilled. The products are cased and shipped at or below 40ºF.

For a chicken noodle soup, for example, Frick says Kettle Cuisine starts by making the stock, and then sautéing diced onions until translucent in a small amount of clarified fat saved from making the stock from fresh chicken bones. In the kettle, diced carrots and celery are then sweated in a small amount of chicken fat. Stock is added, and raw, diced chicken breast and thigh meat is added and cooked until done. The sautéed onions are then added. Finally, the pasta noodles and seasoning go in before the soup is pumped into the plastic pouches and cooled rapidly.

The smaller batch cooking of these soups allows for techniques like sautéing vegetables and, because these soups are in the refrigerated category, they do not need to be heated to as high a temperature as a canned soup during processing. Ingredients used in refrigerated soups must, of course, be refrigeration-stable. Individually quick-frozen (IQF) poultry and meats, dry and concentrated stocks, as well as vegetable purées, blends, and flavors are often used by some companies to save on manufacturing costs.

"When developing soups on an industrial scale, it can be a challenge to develop the authentic flavors of small-batch cooking techniques," says Hemming. "We work with customers to develop the flavors of cooking techniques to emulate that of a small batch; for example, a roasted note for tomato soup or braised note for a meat stew. It's important when developing flavors to consider all of the ingredients and seasonings so that they can work in synergy for a well-rounded flavor profile."

Ingredients, step by step

Like any soup, refrigerated soups are made in steps. Depending on the volume and price point, the ingredients in each step can range from the very freshest, from-scratch ingredients at the high end, to using more manufactured ingredients. And many soups start with stock. "Consistency, time and cost make it difficult to develop soup stocks in-house. Luckily, flavors and savory bases provide the consistency and authentic flavors for proprietary stocks," says Hemming. "We work with customers to develop custom stocks

to meet their needs, whether it is a rich, roasted chicken noodle soup or a braised beef, to a bright Chinese soup. These solutions save customers time and money while providing them with reliable results."

The vegetables that go into soups may be raw, or added as purées or blends made especially for a particular brand, dry, freeze-dried, infused, ready-cut and refrigerated, or IQF. The types of vegetables in a given soup not only impart important building-block flavors, but they also add an aesthetic and mouthfeel that can help a soup develop authenticity. Large vegetable chunks, for example, lend a home-style appeal, while blended or puréed soups have a more upscale appeal.

"Vegetable purées and blends can be made with or without visible vegetable chunks, depending on the customer's end goal," says Hemming. "One blend we've been working with is a South American blend with vivid pieces of diced chiles and bright specks of herbs in the convenience of a purée."

Garlic is one ingredient that most refrigerated-soup manufacturers use raw. It is most often bought peeled or preroasted. "Garlic is an interesting thing," says Jeff Stokes, vice president of sales, Christopher Ranch, Gilroy, CA. "When you chop it raw, it has an intense garlic flavor, but when it is prechopped, much of the volatile flavor that you want in garlic is lost." It also matters which variety of garlic is used. If one compares California garlic to Chinese garlic, California has a lower water content, higher oil content, higher allicin levels and one-third higher Brix, meaning it holds its flavor in the cooking process better. Soups made with Chinese garlic lose flavor more quickly as they sit.

Meat, poultry and seafood products also may be added raw, or in IQF form. Larger chunks and lesser cuts of meat most likely are added to braised-type stews and soups. More-delicate products like chicken breast, shrimp and other seafood are more likely added toward the end of the cooking process to prevent toughness and overcooking.

Companies may use real cream for some soups, often without the carrageenen added for stabilizing effect. Other companies may use dry nondairy creamers because of their lower cost and convenience, and for stability in the finished soup. When real cream and milk are used, care must be taken by the end user to make sure soups are not overheated, which might cause separation.

For cheese-based soups, process cheeses or cheese bases that are processed from natural dairy ingredients using emulsifying salts, as well as possibly starches or gums, are easy to use, says Diane Kussy, R&D section manager, Land O'Lakes, Inc., Arden Hill, MN. "They are available in loaf or block form and can be shredded or diced prior to incorporating into the soup formula. These products offer a wide variety of flavors—from very mild Cheddar to strongly flavored Italian or blue cheese profiles. And they allow manufacturers to deliver a rich, creamy-smooth texture in the finished soup."

Cheese and other dairy powders also can be used in refrigerated soups, notes Kussy, and may offer some distinctive benefits. While powders won't develop the same creamy-smooth texture as a process cheese (perhaps necessitating the addition of texturizing agents), they may serve as the main contributor of flavor, or boost flavors coming from process cheeses or other natural dairy ingredients.

Dry cheese powders also are easy to store, need no refrigeration and have an extended shelf life. These powders may also include a blend of starches and/or gums suitable for use in refrigerated soups, negating the need to add them separately.

If stabilizers are needed, modified starches, similar to those used for canned soups but with the addition of refrigerated storage-stability characteristics, are preferred. Gums are also sometimes added to provide additional body and to help keep purées and other cream-based soups from breaking down either in processing or in retherming.

Pasta requires special consideration, since these products can quickly break down in processing and reheating. While refrigerated soups are processed less aggressively than canned soups, for example, one still needs to add a pasta that will hold up. "The first thing is to design a pasta that will have a good body and thicker walls," says Bill Stabert, executive vice president, Philadelphia Macaroni Company, Philadelphia. "We start with picking a shape that is designed to hold up in longer cook times and processing. We also might add

egg whites to add protein content, which aids in binding starch molecules together. For a refrigerated soup, the addition of 2% egg white is the starting place." Some companies use soy protein, wheat protein or protein isolates to add the same stability, but he suggests egg whites seem to work the best. Thicker-walled shapes, like a thick, twisted noodle, for example, will also hold up better through processing and reheating.

High salt level has been one of the most-talked-about aspects of soup, especially canned soup. Most canned soup companies have reduced the sodium contents, but refrigerated soups often need less sodium to begin with to create an acceptable product, because they have a less onerous cook step and often use more sophisticated flavoring strategies. A well-flavored, well-balanced soup calls for less salt.

Sea salt is often the salt of choice for high-end refrigerated soups because of its naturally lower sodium content and natural flavor. "While 'salt is salt' according to the FDA, sea salt has an advantage over mined salt in that it has more trace minerals and mirrors the salt content in the human body," says Alan Fisher, president, Ocean's Flavor, Asheville, NC. "Sea salt is lower in sodium, and its taste does not dissipate over time under refrigeration."

Another low-sodium alternative is to use potassium-containing salt substitutes that can have up to 50% less sodium than regular salt. Sea salt is 14 times more costly than mined salt; salt substitutes almost 60 times higher.

"The first thing is to have enough balance in a soup that you add just enough salt so that it tastes right without adding too much," Frick says.

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