CHAMETZ

There are many foods that are potentially *chametz* and must be avoided on Pesach, and this article will attempt to clarify which those are. **The focus will be on *chametz* and will not address the fact that many non-*chametz* items are, nonetheless, forbidden as *kitnios*.**

Introduction

Chametz is produced when one of the five primary grains – **wheat**, **barley, rye, spelt**, or **oats** – are in contact with water for more than 18 minutes. In earlier generations, it was quite clear to everyone which foods were *chametz*. Common examples were **bread, cookies, crackers, pasta, pizza, pretzels, sourdough,** and wheat **farina**. But, in fact, things are somewhat more complicated nowadays.

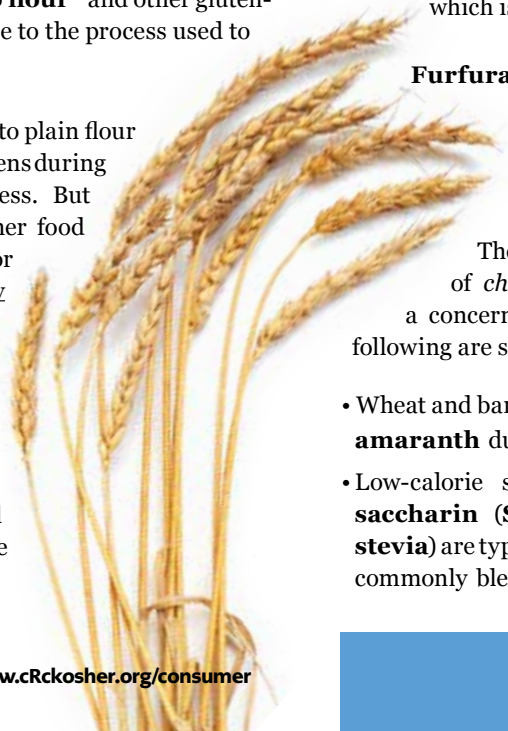
Less-Obvious *Chametz*

Some of the less-obvious foods which many people would, nevertheless, recognize as *chametz* are noted below.

Flour

One part of the processing of flour is known as "tempering", where the grains are moistened for many hours, which assists in the subsequent removing of the undesirable outer layers. That process renders the grain and flour as *"safek chametz"*, or possible *chametz*. In contrast, **"Molino flour"** and other gluten-free wheat flours are surely *chametz*, due to the process used to remove the gluten from the flour.

The status of *"safek chametz"* is specific to plain flour and is based on the question of what happens during the specially controlled tempering process. But when flour is an ingredient in any other food (other than special Pesach matzah or things made from it), that food is surely *chametz*, since it is mixed with water and other liquids. Some unexpected examples of that are **breakfast cereals**, **licorice**, **matzah** (when not certified for Pesach), **pet food**, **Play-Doh**, **soup mixes**, and **soy sauce**. In each of these cases, a quick perusal of the ingredient panel will indicate whether flour is present.



Oats

Most grains can be stored in a dried form for extended amounts of time, but oats will turn rancid unless they are first heat-treated to deactivate enzymes found therein. If that heat-treatment is performed with wet heat (e.g., steam), the oats will potentially become *chametz* during the process. If the oats had been treated with dry heat, they would remain *chametz*-free. Since it is virtually impossible to know how a particular brand was processed, all oats and oat flour are treated as *safek chametz*.

Colloidal oatmeal is finely ground oatmeal (mixed with other minor ingredients) for use in the relief of itchiness. When it is sold in cream-form (e.g., **Aveeno**) it does not pose a *Pesach* concern, since we consider creams to be inedible. At first glance, colloidal oatmeal in powdered form (which is used in baths) would appear to be forbidden, much like standard oats, but its actual status depends on the nuances of the *halacha* of *yichdo l'yeshiva* discussed in *Shulchan Aruch* 442:9, which is beyond the scope of this article.

Scan for *shiur* on *"yichdo l'yeshiva"*

Furfural is a flavor chemical which can be made from oats, corn, or certain other foods. If it is made from oats it is assumed to be *chametz*.

Mixed In

There are other foods which are inherently free of *chametz*, but for one reason or another there is a concern that *chametz* may be mixed into them. The following are some common examples:

- Wheat and barley grains might become mixed into **quinoa** and **amaranth** during packaging.
- Low-calorie sweeteners (e.g., **aspartame** (**NutraSweet**), **saccharin** (**Sweet 'N Low**), **sucralose** (**Splenda**), and **stevia**) are typically too sweet to be used as-is and are, therefore, commonly blended into starch (see below), so that consumers

can use them by the teaspoon.

- Similarly, iodine is often diluted into starch before being applied to "**iodized salt**".
- **Ink** used to mark large pieces of meat may be *chametz*-based (and starch might be added to the bags that they are transported in).
- **Caraway**, **cumin**, **coriander**, **dill seeds**, and **fennel seeds** are variations of **anise** which the *Poskim* (and modern spice merchants) tell us occasionally have one of the five grains mixed into them.
- **Rice cereal** (flakes) for infants may occasionally have an oat flake mixed into it.
- Instant **coffee and tea** may have starch added to it as a processing aid during the drying process.

Not Chametz

In contrast to wheat flour and oats which, we have seen, are commonly processed with water, **rye flour**, **spelt flour**, and **barley** (a.k.a., **pearled barley**) do not have any contact with water during standard processing. [Pearling is the process of removing undesirable parts of the outer layers of barley kernels.] Thus, although these three items are examples of the five primary grains, they are not *chametz* in their common form. Of course, if they are used as an ingredient in a food – such as to make **rye crackers** – they will be mixed with water or other liquids and will become *chametz*. We will see some examples of how this is done with barley below.

Barley

We have seen that plain barley is not *chametz*, but, of course, once it comes in contact with water it will become *chametz*. One common way this is done commercially is by steeping barley grains in warm water until the starchy barley is converted into a sweet, sugar-like liquid known as "**malt**", "**malted barley**", or "**malted barley syrup**", and it is definitely *chametz*. It is commonly used in breakfast cereals, such as **Rice Krispies** and **Corn Flakes** and is also found in other foods.

The conversion of barley into malt is aided by an enzyme which the barley releases. Many companies will stop the conversion process in the middle to capture this enzyme, known as barley beta amylase, and use it to convert <u>other</u> starches into "sugars". One example is that it can be used to convert soy and rice into "**soy milk**" and "**rice milk**", which are sweet liquids made from bland tasting starting materials. If barley beta amylase was used for this conversion, its role is classified as a *ma'amid* and renders the soy or rice milk as *chametz* (even if the amount of barley would be *batel b'shishim*). Barley beta amylase can also be used to convert a starch into "**maltose**", which can be converted into "**maltitol**", and once again this would render those items as *chametz*, even if the other ingredients were not *chametz*.

Beer and Whisky

Beer is produced when yeast is introduced to malted barley (together with hops), and it is obviously *chametz*. In a whisky production, a wider variety of grains are used to create the alcohol, and, after fermentation, the alcohol is concentrated through a process known as "distillation", resulting in beverages that typically have 40-60% alcohol. It is quite common for at least one of the grains in a whisky to be from the five primary ones which can become *chametz*. Additionally, malted barley is invariably used to convert the grain's starches into "sugar" (a necessary step in creating whisky), such that whisky is assumed to be *chametz*, unless it is specially produced for Pesach.

Two major byproducts of beer and whisky/alcohol production are **brewer's yeast** and **carbon dioxide**. Brewer's yeast is the name given for the leftover yeast after beer production. It is definitely *chametz*. It is used as a flavoring in foods, including **potato chips**, **dips**, and **soups**, and others consume it "as-is" for

A reason why **slivovitz** and **mead** were the traditional alcoholic beverages consumed on Pesach is that they are produced from the sugar found in plums and honey, respectively, such that they do not contain any grains and do not require any form of enzyme to hydrolyze a starch. Nonetheless, they do require special Pesach certification.

its purported health benefits. Carbon dioxide captured from alcohol production is sold to companies producing **soda** or other **carbonated beverages**. There is much *halachic* discussion on the status of carbon dioxide recovered from a *chametz* fermentation, and the cRc's position is not to certify any item which contains carbon dioxide, unless we can verify that it is not *chametz*-based.

Alcohol and Vinegar

We have already seen that whisky will commonly contain one of the five primary grains. But companies also produce alcohol for industrial uses (described below) where the alcohol's taste is unimportant, and those alcohols will often be made from any available grain (e.g., corn in the United States). [It is also not as common for that alcohol to be made with barley beta amylase.] This type of alcohol is typically referred to by its proper chemical name, **ethanol** (or **ethyl alcohol**), and some examples of where it might be used are as follows:

Some of the items discussed in this article as being possible *chametz* will actually not be *chametz* if they are purchased in the United States. This is because these are items which can be made from any starch, and each manufacturer will typically use the starch which is readily available at the best price. In the United States, such items are, therefore, commonly made from corn *(kitnios);* in Europe they stand a good chance of being made from wheat *(chametz);* and in the Far East they are likely made from rice *(kitnios)* or sweet potato (innocuous). Thus, the *chametz* status very much depends on where the item was produced.

- **Flavors** contain many chemical components, and many of those components are created using ethanol. For example, ethyl caproate is made by reacting ethanol with caproic acid, and the combined chemical provides an apple flavor.
- One way to **decaffeinate** coffee beans or tea leaves is by pouring ethyl acetate over them.
- There are reports that **pecan** companies process and remove infested nuts using ethanol.
- Many non-food items, such as **mouthwash**, **liquid deodorant**, and **hand sanitizers** contain ethanol.

Note: In many cases, the ethanol used in these non-beverage uses is "denatured", meaning that something is added to it to render it foul tasting or dangerous to consume. If and how that affects the *chametz* status is beyond the scope of this article.

Ethanol can be subjected to a second fermentation which converts it into acetic acid, and when acetic acid is diluted to a 5% strength, we refer to it as "**vinegar**". For this reason, vinegar is a Pesach-sensitive ingredient, because if the vinegar comes from alcohol made from a *chametz* starch, the vinegar is *chametz*. This is surely the case regarding **malt vinegar**, whose name clearly denotes that it is made from malted barley. The status of other vinegars depends on the status of the alcohol they are made from – Which grains were used? Was barley beta amylase used? And were *chametz* "nutrients" added to assist with the (second) fermentation? Were the vinegar or ethanol produced on equipment used for *chametz*? Without knowing the answers to those questions, one cannot say with certainty whether the vinegar is acceptable for use on Pesach.

Scan for *shiur* on denatured alcohol

Vinegar is also used is a wide variety of condiments such as **ketchup**, **mustard**, **pickles**, **olives**, prepared **horseradish**, **salad dressing**, and **mayonnaise**, and the presence of vinegar is one of the reasons why each of these items requires *hashgacha* for Pesach.

Starch and Glucose

Many products contain starch, and as we have seen in the introduction, the source of that starch might well be *chametz* grains, *kitnios*, or something innocuous, and which grain is used very much depends on where the starch was made. Other names by which starch might be listed in an ingredient panel include **dextrin** and **maltodextrin**.

For example:

- The ingredient panel for **Benefiber** lists "wheat dextrin", which is a form of starch and is *chametz*.
- Disposable **gloves** and **balloons** are often lined or coated with starch.

Just like starchy barley can be converted into sweet malt, so, too, the starches in other grains can be converted into a sweet liquid known as glucose (**dextrose**, etc.). Glucose is widely used in the fermentation industry as a material which is fed to microorganisms so that they can either reproduce themselves or so that they can excrete/produce some other desirable product. Some of the many items made this way are **citric acid**, rennet (used in **cheese**-making), **yeast**, **xanthan gum**, **monosodium glutamate** (MSG), **antibiotics**, and certain **vitamins**. Glucose can also be "hydrogenated" into **sorbitol**, which is a sweetener commonly used in **toothpaste** and is also used in other low-calorie foods. Sorbitol is also the starting material for **ascorbic acid** (i.e., **Vitamin-C**) and "**polysorbates**" (which are used as emulsifiers). As noted, depending on the source of the starch the glucose (and resulting products) may be *chametz*, *kitnios*, or completely innocuous.

As noted at the beginning of the article, we have focused on* chametz*, but many of the items discussed are forbidden as* kitnios*, which is a separate subject.