The Kashrus of Lubricants, Release Agents, Silicon, Parchment Paper, Styrofoam, Non-Stick Surfaces
And Oil from Flint Rock  Deuteronomy 32:13

The Mishna in Yoma (3:11) relates that the family of Kohanim known as Bais Gorno, having perfected the art of baking the Lechem HaPanim [the Show Breads that were offered on the Holy Table in the Temple], maintained a monopoly on that skill. Although the Talmud (Yoma 36a) explains that their motives were altruistic, Chazal nevertheless felt that their reticence to divulge this secret was inappropriate, and included them in the group always referred to L’Gmai – in an uncomplimentary manner. As to the nature of the “secret,” Rashi explains that the intricately-shaped Lechem Hapanim were baked in molds located on the inside walls of the oven, and it was exceedingly difficult to remove the loaves without breaking them. It was the skill of removing the bread without pieces of it sticking to the walls that Bais Gorno had mastered and refused to share.

The problem of food sticking to cooking surfaces has bedeviled cooks and bakers ever since. Food scientists have worked assiduously all this time on unraveling a “non-stick” secret ever since and, as we shall see, these products can raise some sticky kashrus concerns.

Release Agents

Edible fats have long been used as lubricants, and their historical derivation from animals has had interesting ramifications. In 1857, the British managed to foment the Sepoy Rebellion in India with the introduction of the Enfield rifle, the bullets for which were lubricated in a mixture of

Help KASHRUS & Your Community
1) Distribute FREE copies of KASHRUS.
2) Get a subscription for all members of your shul/organization @ as low as $5/year.
3) Become a regional representative. Send us regional kashrus information.
4) Recommend your community to be featured in KASHRUS.
5) Establish a local "Recommended List of Kosher Supervisors." We can help you.

KASHRUS Magazine, PO Box 204, Brooklyn, NY 11204; (718) 336-8544.
beef tallow and lard. To load the rifle, the soldier was obliged to bite off the tip of the fat-encrusted paper bullet casing, thus eating both tallow, sacred to the Hindu, and lard, considered abominable to the Muslims, a sure-fire recipe for mutiny.

In the realm of kashrus, the baker's need to prevent bread from sticking was not limited to the Bais Hamikdash, and the use of animal fats for this purpose created major problems in ensuring the kosher status of the proverbial "Staff of Life."

The Gemora (Pesachim 30b) quotes a Baraissah (a Tanaic source, akin to a Mishnah) that one should not bake bread on an oven surface that had been smeared with kosher animal fat, since the fat would render the bread fleischig, thus violating the injunction that all bread must be pareve. Non-kosher fats, of course, would certainly render the bread unacceptable, and their use has historically been one of the greatest obstacles to kosher certification.

To complicate matters, such "release agents" (as they are known industrially) are not technically "ingredients" under U.S. food law, since they are not added to the product itself. Rather, they are considered "processing aids", and as such need not be listed on the ingredient declaration. Their use, however, permeates all stages of the baking process.

After mixing, a large batch of dough is typically placed in a large trough, where it can be stored or left to rise. To prevent the dough from sticking to the trough, "trough grease" is used.

When the time comes to separate the dough into loaf-sized portions, a machine called a "divider" is used, and to prevent the dough from sticking, "divider oil" is applied directly to the dough. In many cases, the bread is baked in a loaf pan, which is first coated with a "panning oil" to prevent the
dough from sticking to it. When baking cookies, papers permeated with various types of oil are placed on the baking sheets, onto which the cookies are placed. While the industry may not consider this torrent of oil to be an ingredient, kashrus certainly does, and the source of the oil used is critical.

One solution to this problem is to use a vegetable fat, and indeed this is often the case. Vegetable oils, however, tend to oxidize quickly [i.e., become rancid] and create a film buildup on the equipment. Other types of oil, perhaps presaged in the verse “And oil from a flint”, have come to the rescue. Petroleum [literally, oil from rocks – from the Latin/Greek petros (rock) and oleum (oil)] is an inherently kosher product, and one of the highly refined petroleum derivatives is known as mineral oil. Mineral oil is tasteless and very stable, and is often used as a divider and pan oil.

Interestingly, although pure mineral oil is inherently kosher and contains no chometz, its use on Pesach may be compromised by antioxidants routinely added to maintain its freshness. Often, Vitamin E (tocopherol) derived from soybeans is added for this purpose, raising the issue of kitniyos.

Through grease, however, poses a thicker problem. Historically, the word grease implied animal fat (from the Latin crassus – fat; in Danish, gris means pig), as opposed to oil...
that implied a vegetable product (from the Greek elaios – olive), and some petroleum-based greases indeed derive their solid consistency from the lard added to them. Fortunately, kosher blends of petroleum and vegetable fats have been developed and can be used as trough grease.

**Machine Lubricants**

The use of grease in food preparation is not limited to release agents, however. Machinery used in food production requires lubrication, and such grease often comes in contact with food. Government regulations recognize that such grease – even if not declared as an ingredient – mixes with the food and, thus, requires that “food grade lubricants” be used in such cases. Kosher concerns are certainly no less cogent, and it is therefore incumbent for kosher productions to require the use of kosher grease for these purposes.

**Silicon**

Another approach to creating kosher release agents and lubricants takes the concept of “rock oil” one step further. Animal fats, vegetable oil, and petroleum are members of a group of carbon-based compounds called organic chemicals. Silicon, the second most common element in the earth’s crust, is found in sand and rocks, and occupies a space directly below carbon in the Periodic Table. As such, many of the characteristics of silicon are very similar to those of carbon, and scientists have succeeded in creating a series of silicon-based synthetic compounds that have properties similar to organic compounds based upon carbon. These polysiloxane (or silicone) compounds have lubricating properties similar to organic fats yet are much more stable, and serve as the base for many kosher synthetic release agents as well as for food machinery grease. Although silicone oil may be inherently kosher, finished products that contain them may nevertheless contain other non-kosher fats and thus require a reliable kosher certification.
The use of "rocks" in food is not limited to release agents, however. Silica gel, a highly refined form of glass, is used as a desiccant, a substance that absorbs moisture. This "gel" is actually very porous sand, and when added to food powders such as spices, prevents those powders from caking. It poses no kashrus concerns.

**Parchment Paper**

Another means of addressing the stickiness issue is to bake products on a special non-stick paper or pan liner, such as "vegetable parchment paper" or "Quilon® Paper". Parchment paper is produced by treating conventional papers with a strong acid, which causes the paper fibers to swell and partially dissolve into a gel. The acid is then removed and the gel is pressed back into a solid paper form, creating a material that resists oil and water. Its appellation of "parchment" stems from its similarity to true parchment in strength and durability, but is not animal based. Quilon® is a registered trademark of the Dupont Company, and refers to paper that is treated with a mixture of chromium and various fatty acids. Many of the original Quilon® papers contained non-kosher stearic acid, and for that reason it is important to ensure that only baking papers with reliable kosher certification are used.

Fortunately, a number of kosher versions of non-stick papers are available on the market, although they are often referred to as "quilon" for convenience, even though they are not manufactured by Dupont. The most durable – and expensive – non-stick paper is coated with silicone. While
silicone may pose no kashrus concerns, such papers may contain vegetable oils that do require a kosher certification and raise concerns of kitniyos for Pesach.

**Wax Paper**

The oldest non-stick film—the venerable wax paper invented by Thomas Edison—originally contained a mixture of paraffin and animal fats. Today, most wax papers use only paraffin (a petroleum derivative), but some versions may still contain objectionable ingredients or be made on equipment used for a non-kosher product. It is therefore important to ensure that wax paper bear a reliable kosher certification.

**Aluminum**

Kashrus concerns are not limited to cooking and baking, however. The third most common element in the earth’s crust—aluminum—has become a staple in the kitchen. Drawing upon its ductile qualities, this metal is formed into disposable baking pans and rolled into thin sheets to create aluminum foil. During the extrusion of aluminum foil, oils are used to lubricate the metal. These oils are generally mineral based, and in most cases the oil is annealed, burnt off the metal during processing. For this reason, regular aluminum foil does not feel “greasy”. Although most major brands of aluminum foil bear a kosher certification, the heat of the annealing process should be sufficient to kosher the foil from any suspect oils.

In the case of disposable aluminum pans, however, the issue is a bit more significant. More copious amounts of oil are used as the metal is pressed, and the pans are not subject to an annealing process. While animal fats are generally not used for such productions, both mineral and vegetable oils may be used. For this reason, some authorities recommend washing disposable aluminum pans before Pesach to remove any possible kitniyos oil residue.

The issue of lubricants and non-stick surfaces do come together, however, in the new Reynold’s Release® brand of “non-stick” aluminum foil. This product is coated with a proprietary blend of chemicals that prevents food from sticking to it, and the argument for kosher certification for this product is much more cogent. Fortunately, the product does indeed bear a kosher certification, although its approval for Pesach is pending.

Please note the criteria used by many kashrus organizations to determine the kosher status of
"non-food" lubricants, such as those used in the production of aluminum foil and plastic food. Because of several halachic considerations, they may not be subject to the most rigorous review of their source or minute amounts of questionable ingredients may be allowed. As in all aspects of kashrut, any questions should be directed to the kashrut authority behind the certification.

**Styrofoam**

The need to maintain a non-stick surface even extends to the ubiquitous Styrofoam cup. These indispensable disposables are produced by "puffing" small plastic beads in a form, causing them to expand into that shape.

In order to prevent the cup from sticking to the sides of the form, a small amount of a very slippery stearic acid compound (usually zinc stearate) is added to the plastic before processing. As its name implies, stearic acid was originally derived from tallow (steer fat), which continues to be one of its major sources.

Some kashrut authorities have argued that it is important to use Styrofoam products made with kosher (vegetable-based) stearates. The consensus of most authorities, however, is that incorporation of the stearate into plastic, especially in such small amounts, renders it halachically insignificant.
Non-Stick Coatings

Attempts to create a non-stick coating are not limited to the factory and food plant. The classic non-stick solution, of course, was a luxuriant pat of butter or shortening melting in the skillet. However, in an effort to reduce the calories attendant to such a liberal use of fat, food scientists have developed a product that allows one to enjoy the non-stick properties of oil but without adding a significant number of calories. PAM® (International Home Products), as well as its competing versions, is a blend of oil, alcohol, and lecithin that is sprayed on the cooking surface, and as the alcohol evaporates it allows a very thin layer of lubricating oil to remain.

The success of these products has bred flavored versions, some of which contain dairy ingredients. Clearly, all such products require a reliable kosher certification due to the oils and flavors they contain. Incidentally, the advent of PAM® may have inadvertently led to a different halachic concern.

There are two basic methods of kashering equipment, hagola (boiling) and libun (burning). Hagola operates under the theory that when boiling a pot in water, all of the flavor that had been
absorbed into the pot will travel into the water, thereby purging the pot of any non-kosher flavor and rendering it kosher.

**Libun**, on the other hand, renders the pot kosher by incinerating the absorbed flavor. As a general rule, a pot used to cook food in liquids may be **kasher**ed with **hagola**, while those in which the food is cooked directly on its surface (such as a spit on which meat is broiled) must be subjected to **libun**. The method required to **kasher** a frying pan is the subject of much discussion. The **Shulchan Aruch** (O.C. 451:12) rules that **hagola** is sufficient, and the **poskim** (see **Mishna Berura** s.k. 63, 65) explain this ruling based upon the fact that oil (or fat) normally used in frying is considered a liquid for this purpose and food thus cooked is considered “cooked in liquid”. The **Mishna**

---

**Kosher.com**

Wherever you are
Log on to us
& We’ll deliver

✓ Bakery
✓ Butcher
✓ Deli
✓ Grocery
✓ Pizza
✓ Travel Meals
✓ Chocolates
✓ Wines
✓ Gift Baskets
✓ Israeli Products
✓ and more

Wholesale and Retail

---

These words are being read by over 40,000 people.
To place your ad in **KASHRUS**
call (718) 336-8544.

Berura does note (s.k. 65), however, that where the oil or fat is but a mere coating on the pan surface, one cannot consider such cooking to be “with liquid”, and the pan would require **libun**.

It would seem, therefore, that the introduction of PAM® into the marketplace may change the way we need to **kasher** a frying pan and require **libun**. [Please note that many other factors come into play when determining the method by which a frying pan should be **kasher**ed, and a **sheila** should be asked in each case – and be sure to indicate to the **Rav** if a release agent was used.]

The oldest “non-stick” coating, however, is as old as cast iron cooking implements themselves. Iron is notorious for oxidizing (rusting) in the presence of water, and it was long known that coating iron with a layer of grease would inhibit such rust. It was also noted that by heating an iron utensil after it had been coated with fat, some of the fat would be absorbed into and react with
the metal to give it its classic black patina. A pan so treated would continue to repel water even after being washed and, by the same token, resist food’s sticking to it.

This process, known as “seasoning”, is still being used today to treat cast iron pots and skillets, and is a practical example of bilios, the halachic concept of the absorption of food into metal. While the seasoning of a new cast iron pot has been de rigeuer since time immemorial, one modern producer of such kitchenware sells a “pre-seasoned” product. The company uses a proprietary blend of oils to treat its product, and while it claims that this blend is vegetable based, its exact composition has not been divulged. The kosher user may well be advised to avoid such a product.

Teflon

The quintessential modern non-stick surface, of course, is Teflon®, the trademark for polytetrafluoroethylene (PTFE) developed about sixty years ago. It is one of the most slippery substances known to man, and through interesting scientific legerdemain it has been successfully bonded to cooking surfaces.

Teflon® poses no inherent kashrus concerns, but it does raise the question of the appropriate method by which Teflon-coated pots can be kashered. While many authorities consider plastic to be subject to kashering just as any other material (other than ceramics and, according to many opinions, glass), this is not universally accepted. It is interesting to note that while Rav Moshe Feinstein, zt”l, was reticent about kashering plastics in general, he does specifically allow for the kashering of Teflon® (see Igros Moshe, Even HaEzer IV:7).

In addition to solving a number of sticky issues, rocks have played an important part in our history. The Medrash (Yalkut Shimoni Chukas 763) notes that a rock was the source of great miracles, having wondrously exuding fire (Shoftim 6:21), honey (Devarim 32:13), oil (Ibid.), and water (Ibid., 8:15), even implying that the very same rock appeared in all four cases (see Zays Raanan, ibid.).

As we have seen, modern science has allowed us to glimpse further into the miracles of rocks, to recognize their kashrus implications, and to incorporate these benefits into our daily life.

KM