



Daf HaKashrus

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WHAT IN THE WORLD IS WHEY?

Rabbi Avrohom Gordimer, RC, Dairy

Whey and Its Kashrus Explained



Most people aren't quite sure what whey is. We know that whey is used in some baked products, that it is a principal ingredient in many nutritional products, and that it has something to do with curds (whatever that means!).

L'maaseh, what is whey, and are there any kashrus concerns?

The short answer is that whey is the protein-rich component of milk that remains behind when milk is made into cheese. There are plenty of kashrus concerns, and much hashgacha work is needed to obtain kosher whey.

And here is the long answer:

When milk is made into cheese, the "bulkiest" components of the milk (its *casein* protein and dairy fat) form into *cheese curds*, which are gelatinous protein matrices with fat entrapped therein. The cheese curd is dried somewhat, molded into blocks and made to look "nice"; the finished product is what we call cheese.

The remaining liquid component of the milk that did not form into cheese curd is called *whey*.

Whey, which is an opaque yellowish fluid (the natural color of milk once it is stripped of its casein protein and dairy fat), contains miniscule proteins called *whey protein*, some residual dairy fat, as well as lactose (dairy sugar) and minerals. Many companies remove the whey protein component and concentrate it, producing a protein-charged material called – you guessed it – *whey protein concentrate*, or WPC. WPC that is concentrated an extra 10% is called *whey protein isolate*, or WPI.

In theory, there should be absolutely no kashrus issues with whey, as it is, after all, mere milk components that never succeeded in becoming cheese.

Furthermore, Chazal only decreed the issur of *gevinas akum* (cheese which is not supervised by a Yisroel and is hence non-kosher - v. *Yoreh Deah* 115:2) on actual cheese and not on whey; whey from *gevinas akum* production can therefore be kosher. Based on this halacha, nearly all kosher whey is derived from *gevinas akum* production; there is simply not enough *gevinas yisroel* (kosher-supervised cheese) production to provide the amounts of kosher whey that are needed, and it is not halachically necessary.

It would thus appear that whey should always be kosher. But, not so fast – it's far from *pashut*, and here's why:

1. Some cheese contains non-kosher rennet enzymes (derived from *neveilah* [non-kosher] calf tissue). Should

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IS YOUR OVEN KOSHER? - PART II

What Every Kosher Cook Must Know

Rabbi Yaakov Luban,
Executive Rabbinic Coordinator, OU Kosher

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Modifications have been made in the present version to clarify some issues.

From the ancient kirah to our modern microwave, oven cooking requires specific kashrus knowledge. Rabbi Luban explains the halachos involved and provides a practical guideline.

In the first installment of the article "Is Your Oven Kosher?", we establish the following two points. First, *zeiah* (steam) has the same status as the liquid from which it emanated and second, Rav Moshe Feinstein zt'l maintains that *zeiah* will circulate in an oven unless the food is dry or covered.

Although dry foods contain some moisture, it can be assumed that an insignificant amount is converted to vapor during the cooking process (unless we observe otherwise). This provides a practical means of preparing dairy and meat foods in a single oven. The oven is designated as either dairy or meat. Foods of the designated sort can be cooked in any manner. Food items of the non-designated group can then be baked in the oven provided they are dry or placed in a covered pan. (Preferably, the oven rack should be changed or the surface under the pot should be covered with aluminum foil. Furthermore, when baking a non-designated open dry item, the oven must be free of edible residue of the designated category. These issues are discussed further in this article.)



The \$64,000 question is, what constitutes a dry food? How do we treat pizza, blintzes, and cheesecake? All of these foods have some moisture which evaporates into the air during the cooking process. Nonetheless, the level of *zeiah* is certainly less than that of liquids. How much *zeiah* is halachically significant? It may be argued that these foods do not produce a visible stream of vapor and therefore they should be considered dry foods. However, visibility may not necessarily be a criteria for halachic *zeiah*. Indeed, even the *zeiah* of a liquid is not necessarily visible in an oven. When water evaporates it becomes an invisible gas, and it only condenses when the air is oversaturated. Hot air can contain very high levels of moisture before becoming oversaturated. Rabbi Levi Yitzchok Halpern, *shlita*, of the Institute of Science and Halacha in Jerusalem, devotes an entire chapter (Section I, Chapter 4) of his work *Kashrus and Shabbos in the Modern Kitchen* to exploring the status of "dry" steam. (He concludes that "dry" steam does have a status of *zeiah*.)

The author has discussed this issue of the definition of dry foods with various halachic authorities who have expressed divergent views. Some poskim with whom I spoke felt that pizza, blintzes, cheesecake and the like should be treated as liquids, while others took a more lenient position. The reader should discuss this matter with his *rav* or *posek*.

A related issue is the status of pareve food baked in a meat or dairy oven. Essentially, if the pareve food item has liquid content which produces *zeiah*, then it is as if the food was cooked in a meat or dairy pot. (Pareve food that was cooked in a pot used for meat within the past 24 hours may be eaten before or after dairy, but it is preferable not to eat the pareve and dairy items together. The reverse is true for a pareve

MARTIN NACHIMSON
President

HARVEY BLITZ
Chairman, Joint Kashrut Commission

RABBI MENACHEM GENACK
Rabbinic Administrator/CEO

RABBI MOSHE ELEFANT
Executive Rabbinic Coordinator/COO

RABBI YOSEF GROSSMAN
Senior Educational Rabbinic Coordinator/
Editor, *The Daf HaKashrus*

RENÉE ROSENFELD
Art Director

food prepared in a dairy vessel.) However, pareve food is unaffected by the cooking process if any of the following conditions prevail:

- a) the pareve food is dry and there is no edible meat or dairy residue in the oven, (the requirement that the oven be clean is because of *reicha* which is discussed shortly), or
- b) the food is covered, or
- c) the oven is clean of meat and dairy residue and has not been used for meat or dairy products containing liquid for at least 24 hours.

(Although I indicated above that cheesecake is treated as a liquid by many poskim and may not be baked in a meat oven, there is more reason to be lenient with respect to a pareve cake batter. According to this view, one may drink a glass of milk while eating a slice of chocolate cake baked in a meat oven, provided there was no edible meat residue on the oven wall. The reason for this leniency is that we are not dealing with the potential of milk and meat being cooked together simultaneously.¹⁾

If an oven was designated for dairy or meat use, many authorities permit kashering the oven to change the status. The manner in which an oven may be kashered is also a matter of dispute. Many poskim recommend adjusting the oven to its highest setting for an hour to effect the kashering. The dissenting view has raised three primary objections:

- a) The oven surface is generally coated with enamel, which some consider similar to earthenware substances that cannot be kashered without intense heat.
- b) The heat source used for kashering must be in the oven and not under the oven floor, as is the case in a conventional oven.
- c) The *Magen Avrohom* (*Orach Chaim* 509:11) writes that one should not *kasher* in order to change the dairy status.

These objections notwithstanding, the lenient opinion has found wide acceptance for a variety of reasons beyond the scope of this article. Nonetheless, many contemporary halachic works recommend waiting 24 hours after cooking meat or dairy before kashering as an added safeguard. Before kashering commences, the oven surface and racks must be thoroughly cleaned (preferably with a caustic oven cleaner) to remove all residual matter. After a 24-hour down time, the oven is set at its highest temperature for one hour and it is

then considered kashered.

Many poskim accept this same procedure to kasher a non-kosher oven as well, while other rabbinic authorities require a more intense heat source². Most poskim consider the cleaning cycle of a self-cleaning oven to be the equivalent of *libun chomur*. The OU follows this view.



What would happen if you are staying in a motel and wish to use the oven to prepare your meals? The oven is dirty and you are not inclined to spend your vacation cleaning the oven. Based on our previous discussion, it follows that one may use a non-kosher oven simply by covering the food. The cover eliminates the circulating *zeiah*, and therefore the non-kosher oven has no impact on the food. However, because the oven is *treif*, it is best to use a double wrap to insure against any *zeiah* leakage. It is precisely this logic that is utilized with kosher airline meals. The meals are double-wrapped and may therefore be heated in non-kosher ovens without compromising the kosher integrity of the product.

REICHA

There is a second concern regarding using an oven for dairy and meat. The Talmud (*Avodah Zorah* 66b) raises the following question: Let us suppose that a rib steak and pork chop are roasted in the same oven. Even if the two pieces rest on separate pans and there is no gravy in the pans which will be transformed into *zeiah*, the rib steak will absorb some of the aroma of the pork chop. What halachic status does the aroma have? The Talmud formulates this question: "*Reicha milsa*" (is aroma significant?) or, "*reicha lav milsa*" (is aroma insignificant?). The halachah, as recorded in *Shulchan Oruch* (*Yorah Dayah* 108:1) is that *lichatchilah* (before the fact) we are concerned that perhaps *reicha milsa* - aroma is significant (unless the food is covered), but *bidieved* (after the fact) we generally³ assume *reicha lav milsa* - aroma is insignificant. What this means is that one should not bake dairy and meat foods simultaneously in the same oven, but if one did so the food may be consumed, provided they are both dry and there is no *zeiah* factor. Furthermore, a pareve product baked in an oven simultane-

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WHEY

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such enzymes be used in cheese-making, the resultant whey is deemed non-kosher. (*ShuT Chasam Sofer Yoreh*

Deah 79) A kashrus agency that certifies whey must therefore assure that all enzymes (and other ingredients) used in the cheese-making process are kosher.

2. Some varieties of cheese have hot contact with the *gevinas akum* curd while in the production vat. What this means is that the non-kosher *ta'am* (taste) of the *gevinas akum* curd is passed via heat transfer to the otherwise-kosher whey, rendering this whey non-kosher as well. Typical examples of this are some types of parmesan and Swiss cheese production, in which the vats and their contents are heated to well above 120° F degrees, causing a *ta'am* transfer from the cheese curd, that is being formed in the vats, into the whey that is also there and in direct contact with the cheese curds at the time. So too, the manufacture of some cheeses includes the spraying of very hot water onto the curds while they are still in the vat with the whey, toward the end of the production process. This causes non-kosher *ta'am* of *gevinas akum* to pass into the whey. The kashrus agency must therefore continuously monitor the vat

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ously with meat cannot be eaten with dairy, since we are dealing on the level of *lichatchilah* (unless no other substitute to the pareve item is available).

There is a practical application of *reicha* which is often overlooked. If an oven is not clean, it may produce *reicha* even if there is no liquid in the oven. (If the residue is not charred, it maintains its halachic status.) Therefore, before using a meat oven for dry dairy food or vice versa, and before baking bread and cakes (or other pareve foods) which may be eaten with milk and meat, the oven should be inspected and found free of residual material which is in an edible state. Alternatively, if the food is covered, the concerns of *reicha* are obviated. (*Yorah Dayah* 108:1).

OVEN RACKS

The final issue that must be addressed is the use of one oven rack for both meat and dairy use. It was previously explained that the oven surface absorbs the *ta'am* (taste) of whatever liquids are cooked in the oven. Can one place a dairy pot

temperatures to prevent such scenarios, in order to verify that the whey is kosher.

3. The most common factor which renders whey non-kosher is the *pasta filata* technique, which entails the cooking of some types of Italian cheese curds (most often mozzarella and provolone) in a very hot bath of water, as the cheese curd is mixed and kneaded, thereby endowing it with an elastic texture, ideal for melting (think of pizza or lasagna). The water from this process (called *cooker water*), which has *ta'am* and even fat from the *gevinas akum* cheese curd that is cooked, mixed and kneaded in it, is wholly non-kosher – yet many cheese plants pipe back their cooker water to the whey system, as cooker water is basically compatible with whey, and it easily merges into whey. The kashrus agency needs to assure that cooker water is hard-piped to drain or is otherwise removed from the production plant in a manner that prevents it from being incorporated back into the whey.

Whey is a complex material, and whey *kashrus* is likewise quite complex and challenging. The OU is proud to certify numerous brands of whey and whey-fortified products, all possible due to the very tight *kashrus* systems and extremely careful monitoring of our professional *hashgacha* team.

which produces no *zeiah* (i.e. the pot is covered or contains a dry food) on a clean rack which has previously absorbed the *ta'am* of meat through *zeiah*? Some rabbinic authorities allow this because it is axiomatic in halachah that *ta'am* does not pass between vessels without liquid. Nonetheless, Rabbi Yitzchok Yaakov Weiss (*Minchas Yitzchok* V: 20-14) maintains that it is preferable to use a separate rack for dairy and meat, or to cover the surface under the pan with aluminum foil for the non-designated use. (*Note: Covering the entire rack may cause a fire.*)

to be continued

1 A pareve cake baked in a meat oven is a *nat bar nat dihetaira* through *aphia*. The Rama (*Yoreh Dayah* 95:2) rules that *lichatchila*, such foods should not be eaten with dairy, but *bidieved*, if the foods were mixed, they may be consumed (although the Maharshal is in disagreement, see *Shach* 95:4). Since it is unclear whether baking a cake produces *zeiah*, one can be more lenient when dealing with a situation that is permissible *bedieved*.

2 The issue is as follows: When non-kosher food is cooked in a pot with liquid, *hagolah* or *libun kal* is sufficient for kashering, while *libun chomur* is necessary for a dry cooking situation. Many poskim maintain that a non-kosher oven can be kashered with *libun kal* because the *ta'am* of *issur* was absorbed through *zeiah*, which has the status of a liquid. Accordingly, operating the oven at the maximum setting for an hour constitutes *libun kal* and would affect kashering. Even this view acknowledges that this procedure is not sufficient to kasher a non-kosher broiling pan which is used in direct contact with food. There is another view which requires the use of a blowtorch to kasher a non-kosher oven because dry residue on the oven wall is baked into the oven. Therefore, *libun chomur* is necessary. These considerations do not relate to kashering an oven after meat or dairy use since *hagola* or *libun kal* is adequate to kasher *hetaira* even after a dry cooking situation. (*Shach* 121:8 and gloss of Rabbi Akiva Eger.)

3 There are two main exceptions to the rule that *reicha* is permitted *bedieved*: If the baked item has a sharp taste or the oven is completely sealed, *reicha* is significant even *bedieved*. In the latter instance, one can be lenient in cases of significant financial loss.