

Whey and Whey Products — Human Food Definitions

Whey is the liquid product obtained by separating the coagulum from milk, cream, or skim milk in cheese making. Whey obtained from a procedure in which a significant amount of lactose is converted to lactic acid, or from the curd formation by direct acidification of milk, is known as acid whey. Whey obtained from a procedure in which there is insignificant conversion of lactose to lactic acid is known as sweet whey. Sweet whey has a maximum titratable acidity of not more than 0.16 percent, calculated as lactic acid, and an alkalinity of ash not more than 225 ml of 0.1N Hydrochloric acid per 100 grams. The acidity of whey, sweet or acid, may be adjusted by the addition of safe and suitable pH-adjusting ingredients. [21 CFR 184.1979 (a)(1) 2001]

Concentrated Whey is the liquid product obtained by the partial removal of water from whey, while leaving all other constituents in the same relative proportions as in whey. [21 CFR 184.1979 (a)(2) 2001]

Dry Whey is the product obtained by the removal of water from whey, while leaving all other constituents in the same relative proportions as in whey. [21 CFR 184.1979 (a)(3) 2001]

Sweet-type Dry Whey – dry whey not over 0.16% titratable acidity on a reconstituted basis.

Acid-type Dry Whey – dry whey with 0.35% or higher titratable acidity on a reconstituted basis.

Reduced Lactose Whey is the product obtained by the removal of lactose from whey. The lactose content of the finished dry product shall not exceed 60 percent. Removal of the lactose is accomplished by physical separation techniques such as precipitation, filtration, or dialysis. As with whey, reduced lactose whey can be used as a fluid, concentrate, or a dry product form. The acidity of reduced lactose whey may be adjusted by the addition of safe and suitable pH-adjusting ingredients. [21 CFR 184.1979 a(a) 2001]

Reduced Minerals Whey is the product obtained by the removal of a portion of the minerals from whey. The dry product shall not contain more than 7 percent ash. Reduced minerals whey is produced by physical separation techniques such as precipitation, filtration, or dialysis. As with whey, reduced minerals whey can be used as a fluid, concentrate, or dry product form. The acidity of reduced minerals whey may be adjusted by the addition of safe and suitable pH-adjusting ingredients. [21 CFR 184.1979 b(a) 2001]

Whey Protein Concentrate is the product obtained by the removal of sufficient non-protein constituents from whey so that the finished dry product contains not less than 25% protein. Whey protein concentrate is produced by physical separation techniques such as precipitation, filtration, or dialysis. As with whey, whey protein concentrate can be used as a fluid, concentrate, or dry product form. The acidity of whey protein concentrate may be adjusted by the addition of safe and suitable pH-adjusting ingredients. [21 CFR 184.1979 c(a) 2001]

Whey Protein Isolate is the product obtained by the removal of sufficient non-protein constituents from whey so that the finished dry product contains not less than 90% protein on a dry basis. Whey protein isolate is produced by separation techniques such as precipitation, membrane filtration and/or ion exchange. Whey protein isolate can be used as liquid or as a dry product. The acidity of whey protein isolate may be adjusted by the addition of safe and suitable pH-adjusting ingredients.

Dairy Product Solids are modified dairy products (permeates and products derived therefrom) obtained by the removal of protein and/or lactose, and/or minerals from milk or whey. The dry product shall contain at least 59% lactose, 10% protein maximum, and 27% ash maximum. Removal of the dairy constituents is accomplished by separation techniques such as precipitation, membrane filtration or dialysis. Dairy Product Solids can be used as liquid or as a dry product. The acidity of dairy product solids may be adjusted by the addition of safe and suitable pH-adjusting ingredients.

Dairy Permeate (Whey Permeate) is produced by the removal of protein and other solids from whey resulting in a product with a high concentration of lactose. Removal of the dairy constituents is accomplished by physical separation techniques such as filtration and diafiltration. The acidity of Dairy Permeate may be adjusted by the addition of safe and suitable pH adjusting ingredients. Dairy Permeate (Dairy Product Solids) is GRAS approved, and complies with all provisions of the U.S. Federal Food, Drug and Cosmetic Act.

Whey Protein Phospholipid Concentrate (WPPC) is a product obtained through the microfiltration of whey which concentrates whey proteins and whey phospholipids. The acidity of WPPC may be adjusted by the addition of safe and suitable pH adjusting ingredients.

Lactose (Milk Sugar) is a white to creamy white crystalline product, possessing a mildly sweet taste. It may be anhydrous, contain one molecule of water of hydration, or be a mixture of both forms. It is manufactured from whey or permeate by evaporating, crystallizing, refining and then drying the lactose crystals. Lactose for human consumption complies with all provisions of the U.S. Federal Food, Drug, and Cosmetic Act.

Milk Whey Protein is obtained from bovine milk or skim milk by the removal of casein and non-protein constituents from milk so that the finished dry product contains not less than 25% protein. It is obtained by microfiltration and/or chromatography of milk or skim milk and may be preceded or followed by ultrafiltration, nanofiltration, evaporation, dialysis, or any other safe and suitable process in which all or part of the lactose, minerals and moisture may be removed. Products cannot be produced through any process or combination of processes that include enzymatic coagulation of protein and/or acid precipitation of protein in bovine milk or skim milk.

Galacto-oligosaccharides (GOS) are non-digestible oligosaccharides consisting of 1 to 9 galactose units linked via glycosidic bonds to either terminal glucose or galactose. It is obtained by subjecting a concentrated lactose solution to the action of a β -galactosidase enzyme to produce galacto-oligosaccharides and further terminating the reaction. The galacto-oligosaccharides may be purified via ultrafiltration, chromatography, ion exchange, electrodialysis, activated carbon filtration or any other safe and suitable process in which all or part of the galacto-oligosaccharides, minerals, other sugars are concentrated into a viscous syrup or powder.