

USDA Table of Nutrient Retention Factors

Release 6

Prepared by the

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Release Notes

Release 1	Based on Provisional Table on the Percent Retention of Nutrient in Food Preparation
Release 2 (1984)	Included data on 16 minerals and vitamins
Release 3 (1986)	Added factors for Vitamin A, RE (Nutr. No. 392) and carotene (Nutr. No. 393)
Release 4 (1998)	Added factors for alcohol (Nutr. No. 221)
Release 5 (2003)	Removed carotene (Nutr. No. 393) and added factors for folic acid (Nutr. No. 431), food folate (Nutr. No. 432), β -carotene (Nutr.No. 321), β -cryptoxanthin (Nutr. No. 334), Lycopene (Nutr. No.337) and Lutein+Zeaxanthin (Nutr. No. 338)
Release 6 (2007)	Added total choline (Nutr. No. 421)

Introduction

Food composition data are needed for uncooked and cooked forms of foods. The USDA Table of Nutrient Retention Factors is the major source of nutrient retention data for US and international food composition databases. The table has retention factors for 16 vitamins, 8 minerals, and alcohol for approximately 290 foods. Nutrient retention factors are given for a range of cooking and preparation methods such as, but not limited to, baked, boiled, reheated, broiled, pared, and drained. Methods applied were based on food type.

Nutrient data are frequently lacking for cooked foods. The nutrient composition of a cooked food may be calculated from the uncooked food by applying nutrient retention factors. True retention is the term USDA has defined as the measure of the proportion of the nutrient remaining in the cooked food in relation to the nutrient originally present in the raw food (Murphy *et al.* 1975). Most public and private sector databases use these retention factors to calculate nutrient values when analytical data for cooked foods are unavailable. The resulting values account for the nutrient content retained in a food after losses due to heating or other food preparation steps.

Methods

USDA's nutrient retention factors are based on data from USDA research contracts, data reported in scientific publications, and USDA publications. Most retention factors were calculated by the True Retention Method (%TR). This method, as shown below, requires data on the weights of food before and after cooking, as well as the content of the nutrient of raw and cooked food (Murphy *et al.* 1975).

$$\%TR = (N_c * G_c) / (N_r * G_r) * 100$$

If weights of food before and after cooking are unavailable, the retention factor can be calculated on a moisture-free basis, the Apparent Retention Method (%AR):

$$\%AR = [N_c \text{ (dry wt basis)}] / [N_r \text{ (dry wt basis)}] * 100$$

where:

N_c = nutrient content per g of cooked food,

G_c = g of cooked food,

N_r = nutrient content per g of raw food, and

G_r = g of food before cooking.

By applying retention factors to ingredients in a recipe, the estimated nutrient value will be more accurate. For example, assume a recipe calls for boiled spinach, but the ascorbic

acid value for boiled spinach is unknown. However, the ascorbic acid content in raw spinach is 28mg/100g. The nutrient retention factor for boiled greens is 85%. The ascorbic acid value for 100g of boiled spinach can be estimated by multiplying the ascorbic acid value of raw spinach by the nutrient retention factor:

$$\begin{aligned} & (28\text{mg ascorbic acid per } 100\text{g raw spinach}) * 0.85 \\ & = 23.8 \text{ mg of ascorbic acid per } 100\text{g cooked spinach.} \end{aligned}$$

USDA retention factors were first published in 1982 as a Provisional Table (USDA 1982). For subsequent data releases, additional factors were imputed and some new analytical studies were developed. An analytical alcohol retention study was conducted to investigate the extent of alcohol lost in food preparation. Methods tested were: no heat application, alcohol added to a boiling liquid, flaming, and baking for various lengths of time. To determine alcohol content, gas-liquid chromatography with 2-propanol as the internal standard was used. For more details on method, alcohol types, and specific foods prepared, see [Augustin *et al.* 1992](#).

Release 6 of the USDA Table of Nutrient Retention Factors replaces Release 5, issued in 2003. Nutrient retention factors for total choline have been added to Release 5 to create Release 6. This data set release contains 26 factors for retention of selected vitamins, minerals, and alcohol during food preparation. Nutrient retention factors for the 25 food components reported in Release 5 are unchanged.

The Food and Nutrition Board of the Institute of Medicine, the National Academies, has made recommendations for choline intake, estimating an Adequate Intake (AI) at 550 mg per day for men and 425 mg per day for women. A USDA Special Interest database for choline in foods was developed and released in 2004 to provide researchers and consumers with the means to estimate choline intake from common foods (Howe *et al.* 2004). Twelve selected food items were analyzed raw and cooked. Nutrient data from these products were then used to calculate nutrient retention factors for total choline. Samples were obtained nationally from 12 to 24 retail outlets in accordance with the nationwide sampling plan developed for the National Food and Nutrient Analysis Program. (Haytowitz *et al.*, Pehrsson *et al.* 2000, Pehrsson *et al.* 2003). Approximately 15% of the analyses were based on samples picked-up in the vicinity of Chapel Hill, NC. Foods were cooked according to package directions or industry-recommended procedures. Samples were analyzed using liquid chromatography electrospray ionization-isotope dilution mass spectrometry (LC-ESI-IDMS) (Koc *et al.* 2002).

Due to limited data availability, many choline nutrient retention factors were imputed. True retention factors (analytical), for choline were calculated through the USDA Nutrient Database System's retention utility for: eggs (scrambled and hard cooked); biscuit (baked); bagel (toasted); cereal (instant cooked); pasta (boiled and drained); cabbage (boiled); broccoli (boiled and steamed); potatoes (baked); carrots (boiled); tomatoes (microwaved); chicken (roasted); and veal liver (pan-fried). Other choline nutrient retention factors were imputed from these analytical values and based on similar

foods or cooking methods. Retention factors for choline ranged from 70% to 100%. If data were unavailable, imputations were based on retention factors using other B-vitamins.

For the first time, USDA is able to provide choline values for the Food and Nutrient Database for Dietary Studies (<http://www.ars.usda.gov/Services/doc.htm?docid=12089>). Analytical choline data, disseminated in the USDA's National Nutrient Database for Standard Reference, Release 20 (<http://www.ars.usda.gov/nutrientdata>) were augmented by data calculated from similar foods or by recipe. Retention factors were used, where applicable in these calculations.

The Nutrient Data Laboratory reports nutrient retention factors to the nearest 5 percent. Factors calculated above 100 percent are reported as 100 percent. Data are being released after careful internal review and will be updated in future releases as more data become available.

File Formats

The data set is available in ASCII delimited and PDF format. In ASCII delimited all fields are separated by carets (^) and text fields are surrounded by tildes (~). Each preparation and processing category has a unique retention code for computer access.

The format of the file is as follows:

Field Name	Type	Blank	Description
Retn_Code	A 4	N	4-digit code uniquely identifying the retention Factors
FdGrp_CD	A 4	N	4-digit code uniquely identifying the food group to which the retention factors belong. Can be linked to the Food Group Description file in the USDA National Nutrient Database for Standard Reference.
RetnDesc	A 35	N	Description of the food category and preparation
Nutr_No	A 3	N	3-digit unique identifier code for a nutrient
NutrDesc	A 60	N	Name of the food component
Retn_Factor	N 3.0	N	The specific factor representing the amount of the food component retained during the specified treatment

References

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Koc H, Mar MH, Ranasinghe A, Swenberg JA, and Zeisel SH. 2002. Quantitation of choline and its Metabolites in Tissues and Foods by Liquid Chromatography/Electrospray Ionization-Isotope Dilution Mass Spectrometry. Analytical Chemistry. 74:4734-4740.

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USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description																										
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
0001	01	CHEESE,BAKED	100	100	100	100	100	100	100	100	65	75	100	100	75	80	80	80	75	55	100	100	100	100	100	100	100	100
0003	01	CHEESE,BROILED	100	100	100	100	100	100	100	100	65	75	100	100	75	80	80	80	75	55	100	100	100	100	100	100	100	100
0005	01	CHEESE,COOKED W/LIQUID	100	100	100	100	100	100	100	100	65	75	100	100	75	80	80	80	75	55	100	100	100	100	100	100	100	100
0007	01	CHEESE,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	95	95	100	100	100	100	100	100	100	100
0101	01	EGGS,BAKED	100	100	100	100	100	100	100	100	80	80	95	90	95	75	75	75	80	80	100	100	100	100	100	100	100	100
0103	01	EGGS,FRIED,SCRAMBLED	100	100	100	100	100	100	100	100	80	85	95	95	95	75	75	75	85	85	100	100	100	100	100	100	100	100
0105	01	EGGS,HARD COOKED	100	100	100	100	100	100	100	100	80	85	95	95	95	75	75	75	80	85	100	100	100	100	100	100	100	100
0107	01	EGGS,POACHED	100	100	100	100	100	100	100	100	80	80	85	85	85	75	75	75	80	80	100	100	100	100	100	100	100	100
0109	01	EGGS,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	85	95	100	100	100	100	100	100	100	100
2151	01	MILK,HEATED APPROX 10MIN	100	100	100	100	100	100	100	100	85	90	100	100	90	85	85	85	90	80	100	100	100	100	100	100	100	100
2152	01	MILK,HEATED APPROX 30MIN	100	100	100	100	100	100	100	100	65	75	100	100	75	80	80	80	75	55	100	100	100	100	100	100	100	100
2153	01	MILK,HEATED APPROX 1 HOUR	100	100	100	100	100	100	100	100	45	60	100	100	55	70	70	70	60	30	100	100	100	100	100	100	100	100
2154	01	MILK,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	95	95	100	100	100	100	100	100	100	100
0801	05	CHICKEN,BROILED	95	90	75	80	80	80	100	95	80	70	90	80	80	60	60	60	70	65	75	75	100	75	75	75	75	75
0803	05	CHICKEN,FRIED,WO/COATING	95	90	75	80	80	80	100	95	80	70	90	80	80	60	60	60	70	65	75	75	100	75	75	75	75	75
0804	05	CHICKEN,FRIED,W/COATING	95	90	75	80	80	80	100	95	80	70	90	80	80	60	60	60	70	65	75	75	100	75	75	75	75	75
0805	05	CHICKEN,ROASTED	95	90	75	80	80	80	100	95	80	70	90	80	80	60	60	60	70	65	75	75	100	75	75	75	75	75
0851	05	CHICKEN,BROWN,SIMMER,WO/DRIPPINGS	80	90	65	70	60	70	100	90	80	55	95	60	50	60	60	60	70	50	75	75	100	75	75	75	75	75
0852	05	CHICKEN,BROWN,SIMMER,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	75	100	95	65	70	70	70	70	65	80	80	100	80	80	80	80	80
0855	05	CHICKEN,SIMMERED,WO/DRIPPINGS	80	90	65	70	60	70	100	90	80	55	95	60	50	60	60	60	70	50	75	75	100	75	75	75	75	75
0856	05	CHICKEN,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	75	100	95	65	70	70	70	70	65	80	80	100	80	80	80	80	80
0864	05	CHICKEN,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	70	95	100	100	100	100	100	100	100	100
1805	05	TURKEY,ROASTED	100	95	80	80	75	75	100	70	80	65	85	90	70	60	60	60	70	65	75	75	100	75	75	75	75	75

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			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
1851	05	TURKEY,SIMMERED,WO/DRIPPINGS	85	95	65	70	55	70	100	95	80	55	95	60	50	60	60	60	70	50	75	75	100	75	75	75	75	75
1852	05	TURKEY,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	75	100	95	70	70	70	70	70	70	80	80	100	80	80	80	80	80
1860	05	TURKEY,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	70	95	100	100	100	100	100	100	100	100
0351	08	OATMEAL,INST,COOKED	100	100	100	100	100	100	100	100	90	90	95	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0352	08	OATMEAL,REG/QUICK,COOKED	100	95	100	95	95	100	100	95	80	80	90	90	90	70	70	70	100	100	90	90	100	90	90	90	90	90
0357	08	CEREAL,INST,COOKED	100	100	100	100	100	100	100	100	90	90	95	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0358	08	CEREAL,REG/QUICK,COOKED	100	95	100	95	95	100	100	95	80	80	90	90	90	70	70	70	100	100	90	90	100	90	90	90	90	90
0151	09	FRUITS,FRESH(NOT CITRUS),BAKED	95	100	100	100	90	100	100	90	80	80	95	90	95	60	60	60	100	100	85	85	100	85	85	85	85	85
0152	09	FRUITS,FRESH(NOT CITRUS),BROILED	95	100	100	100	90	100	100	90	80	80	95	90	95	60	60	60	100	100	85	85	100	85	85	85	85	85
0153	09	FRUITS,FRESH(NOT CITRUS),SAUTEED	95	100	100	100	90	100	100	90	70	80	90	90	90	50	50	50	100	100	75	75	100	75	75	75	75	75
0154	09	FRUITS,CANNED	95	100	100	100	90	100	100	90	50	80	90	90	90	50	50	50	100	100	75	75	100	75	75	75	75	75
0155	09	FRUITS,FRESH(NOT CITRUS),STEWED	95	100	100	100	90	100	100	90	70	80	90	90	90	50	50	50	100	100	75	75	100	75	75	75	75	75
0156	09	FRUITS,FROZEN	95	100	100	100	90	100	100	90	70	95	100	100	100	95	95	95	100	100	95	95	100	95	95	95	95	95
0157	09	FRUITS,FRESH(NOT CITRUS),REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	95	95	95	100	100	95	95	100	95	95	95	95	95
0158	09	FRUITS,DRIED	100	100	100	100	100	100	100	100	20	70	90	90	90	50	50	50	100	100	50	50	100	50	50	50	50	50
0251	09	FRUITS(DRIED),BAKED	95	100	100	100	90	100	100	90	80	80	95	90	95	60	60	60	100	100	85	85	100	85	85	85	85	85
0253	09	FRUITS(DRIED),SAUTEED	95	100	100	100	90	100	100	90	70	80	90	90	90	50	50	50	100	100	75	75	100	75	75	75	75	75
0255	09	FRUITS(DRIED),STEWED	95	100	100	100	90	100	100	90	70	80	90	90	90	50	50	50	100	100	75	75	100	75	75	75	75	75
0257	09	FRUITS(DRIED),REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	95	95	95	100	100	95	95	100	95	95	95	95	95
0270	09	FRUITS,CITRUS,CKD	100	100	100	100	100	100	100	100	95	95	95	95	95	70	70	70	100	100	95	95	100	95	95	95	95	95
1251	10	PORK,FRESH,BROILED	75	80	95	90	85	90	100	95	80	70	100	80	65	85	85	85	100	90	75	75	100	75	75	75	75	75
1252	10	PORK,FRESH,FRIED,WO/COATING	75	80	95	90	85	90	100	95	80	70	100	80	65	85	85	85	100	90	75	75	100	75	75	75	75	75
1253	10	PORK,FRESH,FRIED,W/COATING	75	80	95	90	85	90	100	95	80	70	100	80	65	85	85	85	100	90	75	75	100	75	75	75	75	75

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1254	10	PORK,FRESH,ROASTED	95	100	75	85	80	80	100	100	80	60	95	85	85	95	95	95	100	80	75	75	100	75	75	75	75	75
1301	10	PORK,FRESH,ROAST,SIMMERED WO/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	100	60	75	75	100	75	75	75	75	75
1302	10	PORK,FRESH,ROAST,SIMMERED W/DRIPPNG	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	100	75	80	80	100	80	80	80	80	80
1351	10	PORK,FRSH,CHOPS,BRWN,SIMMRD,W/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	100	60	75	75	100	75	75	75	75	75
1352	10	PORK,FRSH,CHOPS,BRWN,SIMMRD,W/DRIP	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	100	75	80	80	100	80	80	80	80	80
1353	10	PORK,FRSH,CHOPS,SIMMERED,W/DRIPPNG	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	100	60	75	75	100	75	75	75	75	75
1354	10	PORK,FRSH,CHOPS,SIMMERED,W/DRIPPNGS	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	100	75	80	80	100	80	80	80	80	80
1401	10	PORK,FRSH,GROUND,BRWN,SIMMR,W/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	90	60	75	75	100	75	75	75	75	75
1402	10	PORK,FRSH,GROUND,BRWN,SIMMRD,W/DRIP	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	100	75	80	80	100	80	80	80	80	80
1405	10	PORK,FRSH,GROUND,SIMMERED,W/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	90	60	75	75	100	75	75	75	75	75
1406	10	PORK,FRSH,GROUND,SIMMERED,W/DRIPPNG	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	90	75	80	80	100	80	80	80	80	80
1407	10	PORK,FRESH,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	100	95	100	100	100	100	100	100	100	100
1451	10	PORK,CURED,BROILED	75	80	95	90	85	90	100	95	80	70	100	80	65	85	85	85	100	90	75	75	100	75	75	75	75	75
1456	10	BACON,BROILED/FRIED	75	80	95	90	85	90	100	95	80	45	95	90	80	80	80	80	80	90	65	65	100	65	65	65	65	65
1459	10	PORK,CURED,ROASTED	95	100	75	85	80	80	100	100	80	60	95	85	85	95	95	95	100	80	75	75	100	75	75	75	75	75
1521	10	HAM/PICNIC,CURED,SIMMERED,W/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	100	60	75	75	100	75	75	75	75	75
1522	10	HAM/PICNIC,CURED,SIMMERED,W/DRIP	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	100	75	80	80	100	80	80	80	80	80
1551	10	PORK,CURED,SLICE,BRWN,SIMMR,W/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	100	60	75	75	100	75	75	75	75	75
1552	10	PORK,CURED,SLICE,BRWN,SIMMRD,W/DRIP	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	100	75	80	80	100	80	80	80	80	80
1555	10	PORK,CURED,SLICES,SIMMERED,W/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	100	60	75	75	100	75	75	75	75	75
1556	10	PORK,CURED,SLICES,SIMMERED,W/DRIP	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	100	75	80	80	100	80	80	80	80	80
1602	10	PORK,CURED,GROUND,BRWN,SIMR,W/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	90	60	75	75	100	75	75	75	75	75
1603	10	PORK,CURED,GROUND,BRWN,SIMR,W/DRIP	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	90	75	80	80	100	80	80	80	80	80

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description																										
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
1604	10	PORK,CURED,GROUND,SIMMERED,WO/DRIP	80	100	65	65	75	70	100	100	75	40	75	80	50	65	65	65	90	60	75	75	100	75	75	75	75	75
1605	10	PORK,CURED,GROUND,SIMMERED,W/DRIP	100	100	100	100	100	100	100	100	80	55	90	95	65	70	70	70	90	75	80	80	100	80	80	80	80	80
1606	10	PORK,CURED,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	100	95	100	100	100	100	100	100	100	100
1654	10	SAUSAGE,RTE,FRANKS,ETC,CKD,WO/DRIP	100	100	95	95	95	95	100	100	80	85	95	90	80	85	85	85	100	85	85	85	100	85	85	85	85	85
1655	10	SAUSAGE,RTE,FRANKS,ETC,CKD,W/DRIP	100	100	100	100	100	100	100	100	90	95	100	100	90	95	95	95	100	95	95	95	100	95	95	95	95	95
1657	10	SAUSAGE,RTE,FRANKS,ETC,BROILED	100	100	95	95	95	95	100	100	90	95	100	90	90	90	90	90	100	95	85	85	100	85	85	85	85	85
1659	10	SAUSAGE,RTE,FRANKS,ETC,SAUTEED	100	100	95	95	95	95	100	100	90	95	100	90	90	90	90	100	95	85	85	100	85	85	85	85	85	85
1705	10	SAUSAGE,RAW,PORK,OTHER,CKD,WO/DRIP	85	65	75	75	85	75	75	95	50	65	75	75	60	30	30	30	95	70	75	75	100	75	75	75	75	75
1706	10	SAUSAGE,RAW,PORK,OTHER,CKD,W/DRIP	100	100	100	100	100	100	100	100	70	80	90	90	85	50	50	50	95	85	80	85	100	80	80	80	80	80
1707	10	SAUSAGE,RAW,PORK,OTHER,BROILED	85	65	75	75	85	75	75	95	50	65	75	75	60	30	30	30	95	70	75	75	100	75	75	75	75	75
1709	10	SAUSAGE,RAW,PORK,OTHER,SAUTEED	85	65	75	75	85	75	75	95	50	65	75	75	60	30	30	30	95	70	75	75	100	75	75	75	75	75
1712	10	SAUSAGE,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	95	95	100	100	100	100	100	100	100	100
3001	11	VEG,GREENS,BAKED	100	100	100	100	100	100	100	100	70	90	95	95	95	75	75	75	100	100	95	95	100	95	95	95	95	95
3004	11	VEG,GREENS,BOILD,LITTLE WATER DRAIN	95	95	95	90	90	95	95	95	60	85	95	90	90	65	65	65	100	100	95	95	100	95	95	95	95	95
3005	11	VEG,GREENS,BOILED,WATER COVER DRAIN	95	95	95	85	85	95	95	95	55	80	90	85	85	60	60	60	100	100	95	95	100	95	95	95	95	95
3006	11	VEG,GREENS,BOILED,WATER USED	100	100	100	100	100	100	100	100	70	90	95	95	95	75	75	75	100	100	95	95	100	95	95	95	95	95
3015	11	VEG,GREENS,STIR FRY	100	100	100	100	100	100	100	100	85	90	95	95	95	85	85	85	100	100	90	90	100	90	90	90	90	90
3018	11	VEG,GREENS,REHEATED	100	100	100	100	100	100	100	100	95	100	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	100
3019	11	VEG,GREENS,COOKED FROM FROZEN,DRAIN	100	100	100	100	100	100	100	100	60	90	95	90	90	55	55	55	100	100	95	95	100	95	95	95	95	95
3301	11	POTATOES,BAKED IN SKIN	100	100	100	100	100	100	100	100	80	85	95	95	95	90	90	90	100	100	100	100	100	100	100	100	100	100
3302	11	POTATOES,BAKED IN CASSEROLE	100	100	100	100	100	100	100	100	80	80	95	95	95	75	75	75	100	100	100	100	100	100	100	100	100	100
3307	11	POTATOES,BOILED IN SKIN	95	95	95	95	90	95	95	95	75	80	95	95	95	90	90	90	100	100	100	100	100	100	100	100	100	100
3308	11	POTATOES,BOILED(PARED)DRAIN	95	95	95	95	90	95	95	95	75	80	95	95	95	75	75	75	100	100	100	100	100	100	100	100	100	100

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description	Nutrient Retention Factors																									
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
3309	11	POTATOES,BOILED(PARED) WATER USED	100	100	100	100	100	100	100	100	80	80	95	95	95	90	90	90	100	100	100	100	100	100	100	100	100	
3310	11	POTATOES,BOILED,BROWNE	95	95	95	95	90	95	95	95	60	65	90	90	90	65	65	65	100	100	100	100	100	100	100	100	100	
3311	11	POTATOES,BOILED,STORED,BROWNE	95	95	95	95	90	95	95	95	25	40	85	80	90	65	65	65	100	100	100	100	100	100	100	100	100	
3315	11	POTATOES,FRIED	100	100	100	100	100	100	100	100	80	80	95	95	95	75	75	75	95	100	100	100	100	100	100	100	100	
3316	11	POTATOES,MASHED	95	95	95	95	90	95	95	95	75	80	95	95	95	75	75	75	100	100	100	100	100	100	100	100	100	
3371	11	POTATOES,CANNED,BOILED,WATER USED	100	100	100	100	100	100	100	100	85	90	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	
3373	11	POTATOES,CANNED,BROILED	100	100	100	100	100	100	100	100	85	90	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	
3375	11	POTATOES,CANNED,FRIED	100	100	100	100	100	100	100	100	85	90	100	100	100	95	95	95	95	100	100	100	100	100	100	100	100	
3379	11	POTATOES,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	
3380	11	POTATOES,CKD FROM FRZN,HASH BROWN	100	100	100	100	100	100	100	100	50	75	95	95	95	60	60	60	95	100	100	100	100	100	100	100	100	
3381	11	POTATOES,CKD FROM FRZN,FRENCH FRY	100	100	100	100	100	100	100	100	80	85	95	95	95	80	80	80	95	100	100	100	100	100	100	100	100	
3382	11	POTATOES,CKD FROM FRZN,BAKED STUFFD	100	100	100	100	100	100	100	100	80	80	95	95	95	80	80	80	95	100	100	100	100	100	100	100	100	
3451	11	VEG,ROOTS,ETC,BAKED	100	100	100	100	100	100	100	100	75	90	95	95	95	80	80	80	100	100	95	95	100	95	95	95	95	
3454	11	VEG,ROOTS,ETC,BLD,DRAIND,LITTLE WTR	95	95	95	90	90	95	95	95	70	85	95	95	95	70	70	70	100	100	90	90	100	90	90	90	90	
3455	11	VEG,ROOTS,ETC,BLD,DRAIND,WTR COVER	95	95	95	90	90	95	95	95	65	80	90	90	90	65	65	65	100	100	90	90	100	90	90	90	90	
3456	11	VEG,ROOTS,ETC,BOILED,WATER USED	100	100	100	100	100	100	100	100	75	90	95	95	95	80	80	80	100	100	90	90	100	90	90	90	90	
3460	11	VEG,ROOTS,ETC,SAUTEED	100	100	100	100	100	100	100	100	75	85	95	95	95	70	70	70	100	100	85	85	100	85	85	85	85	
3464	11	VEG,ROOTS,ETC,STEAMED	100	100	100	100	100	100	100	100	75	90	95	95	95	80	80	80	100	100	90	90	100	90	90	90	90	
3465	11	VEG,ROOTS,ETC,STIR FRY	100	100	100	100	100	100	100	100	80	90	95	95	95	80	80	80	100	100	90	90	100	90	90	90	90	
3468	11	VEG,ROOTS,ETC,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	
3469	11	VEG,ROOTS,ETC,CKD FROM FRZN,DRAINED	95	95	95	90	90	95	95	95	70	90	95	95	95	70	70	70	100	100	90	90	100	90	90	90	90	
3701	11	SWEETPOTATOES,BAKED IN SKIN	100	100	100	100	100	100	100	100	80	85	95	95	95	90	90	90	100	100	90	90	100	90	90	90	90	
3702	11	SWEETPOTATOES, BAKED IN CASSEROLE	100	100	100	100	100	100	100	100	80	80	95	95	95	75	75	75	100	100	90	90	100	90	90	90	90	

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description	Nutrient Retention Factors																									
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
3707	11	SWEETPOTATOES,BOILED IN SKIN	95	95	95	95	90	95	95	95	75	80	95	95	95	90	90	90	100	100	85	85	100	85	85	85	85	85
3708	11	SWEETPOTATOES,BOILED (PARED)DRAINED	95	95	95	95	90	95	95	95	75	80	95	95	95	75	75	75	100	100	85	85	100	85	85	85	85	85
3709	11	SWEETPOTATOES,BLD(PARED)WATER USED	100	100	100	100	100	100	100	100	80	85	95	95	95	90	90	90	100	100	95	95	100	95	95	95	95	95
3710	11	SWEETPOTATOES,FRIED	100	100	100	100	100	100	100	100	80	80	95	95	95	75	75	75	95	100	80	80	100	80	80	80	80	80
3711	11	SWEETPOTATOES,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	100
3712	11	SWEETPOTATOES,CKD FROM FRN,BAKED	100	100	100	100	100	100	100	100	80	80	95	95	95	80	80	80	100	100	90	90	100	90	90	90	90	90
3713	11	SWEETPOTATOES,CKD FROM FRZN,BOILED	95	95	95	95	95	95	95	95	75	80	95	95	95	80	80	80	100	100	85	85	100	85	85	85	85	85
3751	11	TOMATOES,BOILED/BAKED	100	100	100	100	100	100	100	100	95	95	95	95	95	70	70	70	90	100	95	95	100	95	95	95	95	95
3752	11	TOMATOES,FRIED/BROILED	100	100	100	100	100	100	100	100	95	95	95	95	95	70	70	70	90	100	90	90	100	90	90	90	90	90
3754	11	TOMATOES,REHEATED	100	100	100	100	100	100	100	100	100	100	100	100	95	95	95	95	100	100	100	100	100	100	100	100	100	100
3771	11	VEG,OTHER,BAKED	100	100	100	100	100	100	100	100	85	90	95	95	95	85	85	85	100	100	95	95	100	95	95	95	95	95
3774	11	VEG,OTHER,BLD,LITTLE WATER,DRAINED	95	95	95	90	90	95	95	95	80	85	95	90	90	70	70	70	100	100	90	90	100	90	90	90	90	90
3775	11	VEG,OTHER,BLD,WATER COVER,DRAINED	95	95	95	90	90	95	95	95	75	80	90	85	85	65	65	65	100	100	90	90	100	90	90	90	90	90
3776	11	VEG,OTHER,BLD,WATER USED	100	100	100	100	100	100	100	100	85	90	95	95	90	85	85	85	100	100	95	95	100	95	95	95	95	95
3780	11	VEG,OTHER,FRIED	100	100	100	100	100	100	100	100	85	85	95	90	90	70	70	70	90	100	85	85	100	85	85	85	85	85
3784	11	VEG,OTHER,STEAMED	100	100	100	100	100	100	100	100	85	90	95	95	90	85	85	85	100	100	95	95	100	95	95	95	95	95
3785	11	VEG,OTHER,STIR FRY	100	100	100	100	100	100	100	100	85	90	95	95	95	80	80	80	90	100	90	90	100	90	90	90	90	90
3788	11	VEG,OTHER,REHEATED	100	100	100	100	100	100	100	100	90	95	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	100
3789	11	VEG,OTHER,CKD FROM FRZN(BLD,DRAIND)	95	95	95	90	90	95	95	95	80	90	95	90	90	70	70	70	100	100	90	90	100	90	90	90	90	90
2201	12	NUTS,BAKED,W/DRIPPINGS	100	100	100	100	100	100	100	100	80	85	95	95	95	80	80	80	100	100	95	95	100	95	95	95	95	95
2202	12	NUTS,BROILED	100	100	100	100	100	100	100	100	80	85	95	95	95	80	80	80	100	100	95	95	100	95	95	95	95	95
2203	12	NUTS,ROASTED	100	100	100	80	100	95	100	100	80	85	95	95	95	80	80	80	100	100	80	80	100	80	80	80	80	80
2204	12	NUTS,BOILED,W/DRIPPINGS	100	100	100	100	100	100	100	100	80	85	95	95	95	80	80	80	100	100	95	95	100	95	95	95	95	95

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description	Nutrient Retention Factors																									
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
0601	13	BEEF,ROASTED	90	100	85	85	80	85	100	100	80	55	95	75	50	95	95	95	90	70	75	75	100	75	75	75	75	
0602	13	BEEF,BROILED CUT	100	95	85	90	85	85	100	100	80	70	90	80	60	85	85	85	90	80	75	75	100	75	75	75	75	
0603	13	BEEF,BROILED GROUND	100	95	85	90	85	85	100	100	80	80	95	90	60	85	85	85	90	80	75	75	100	75	75	75	75	
0604	13	BEEF,FRIED,W/O COATING	100	95	85	90	85	85	100	100	80	70	90	80	60	85	85	85	90	80	75	75	100	75	75	75	75	
0605	13	BEEF,FRIED	100	95	85	90	85	85	100	100	80	70	90	80	60	85	85	85	90	80	75	75	100	75	75	75	75	
0651	13	BEEF,ROAST,BRAISED,WO/DRIPPINGS	80	100	65	65	55	55	100	95	80	45	85	55	35	65	65	65	90	60	75	75	100	75	75	75	75	
0652	13	BEEF,ROAST,BRAISED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	100	90	50	70	70	70	90	75	80	80	100	80	80	80	80	
0653	13	BEEF,ROAST,SIMMERED,WO/DRIPPINGS	80	100	65	65	55	55	100	95	80	45	85	55	35	65	65	65	90	60	75	75	100	75	75	75	75	
0654	13	BEEF,ROAST,SIMMERED,W/DRIP	100	100	100	100	100	100	100	100	85	60	100	90	50	70	70	70	90	75	80	80	100	80	80	80	80	
0701	13	BEEF,SLICES,BRWN,SIMMER,WO/DRIPPING	80	100	65	65	55	55	100	95	80	45	85	55	35	65	65	65	90	60	75	75	100	75	75	75	75	
0702	13	BEEF,SLICES,BRWN,SIMMER,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	100	90	50	70	70	70	90	75	80	80	100	80	80	80	80	
0703	13	BEEF,SLICES,SIMMERED,WO/DRIPPINGS	80	100	65	65	55	55	100	95	80	45	85	55	35	65	65	65	90	60	75	75	100	75	75	75	75	
0704	13	BEEF,SLICES,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	100	90	50	70	70	70	90	75	80	80	100	80	80	80	80	
0749	13	BEEF,GROUND,BAKED,WO/DRIPPINGS	80	100	65	65	55	55	100	95	80	45	85	55	35	65	65	65	90	60	75	75	100	75	75	75	75	
0750	13	BEEF,GROUND,BAKED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	100	90	50	70	70	70	90	75	80	80	100	80	80	80	80	
0751	13	BEEF,GROUND,BRWN,SIMMER,WO/DRIPPING	80	100	65	65	55	55	100	95	80	45	85	55	35	65	65	65	90	60	75	75	100	75	75	75	75	
0752	13	BEEF,GROUND,BRWN,SIMMER,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	100	90	50	70	70	70	90	75	80	80	100	80	80	80	80	
0753	13	BEEF,GROUND,SIMMERED,WO/DRIPPINGS	80	100	65	65	55	55	100	95	80	45	85	55	35	65	65	65	90	60	75	75	100	75	75	75	75	
0754	13	BEEF,GROUND,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	100	90	50	70	70	70	90	75	80	80	100	80	80	80	80	
0770	13	BEEF,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	90	95	100	100	100	100	100	100	100	
1152	13	LIVER,SIMMERED,WO/DRIPPINGS	95	60	60	70	45	45	90	75	75	65	55	45	45	65	65	65	100	60	75	75	100	75	75	75	75	
1153	13	LIVER,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	80	80	100	90	55	70	70	70	100	75	80	80	100	80	80	80	80	
1181	13	ORGAN MEATS(NOTLIVER) FRIED	100	95	85	90	85	85	100	100	80	70	90	80	60	85	85	85	100	80	75	75	100	75	75	75	75	

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Retention Code	Food Group Code	Retention Description	Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
1182	13	ORGAN MEATS(NOTLIVER)SIMMRD,WO/DRIP	95	60	60	70	45	45	90	75	75	65	55	45	65	65	65	100	60	75	75	100	75	75	75	75	75	
1183	13	ORGAN MEATS(NOTLIVER)SIMMRD,W/DRIP	100	100	100	100	100	100	100	100	80	80	100	90	55	70	70	70	100	75	80	80	100	80	80	80	80	80
1184	13	ORGAN MEATS(NOTLIVER) REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	100	95	100	100	100	100	100	100	100	100
5001	14	ALC BEV,NO HEAT,STORED OVERNIGHT	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	70	100	100	100	100	100
5002	14	ALC BEV,STIRRED INTO HOT LIQ	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	85	100	100	100	100	100
5003	14	ALC BEV,FLAMED	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	75	100	100	100	100	100
5004	14	ALC BEV,STIRRED,BKD/SIMMRD 15 MIN	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	40	100	100	100	100	100
5005	14	ALC BEV,STIRRED,BKD/SIMMRD 30 MIN	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	35	100	100	100	100	100
5006	14	ALC BEV,STIRRED,BKD/SIMMRD 1 HR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	25	100	100	100	100	100
5007	14	ALC BEV,STIRRED,BKD/SIMMRD 1.5 HR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	20	100	100	100	100	100
5008	14	ALC BEV,STIRRED,BKD/SIMMRD 2 HR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	10	100	100	100	100	100
5009	14	ALC BEV,STIRRED,BKD/SIMMRD 2.5 HR	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	5	100	100	100	100	100
5010	14	ALC BEV,NOT STIRRED IN,BKD 25 MIN	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	45	100	100	100	100	100
2301	15	FINFISH,<5%FAT,BAKED,WO/DRIPPINGS	100	100	100	100	100	100	100	100	80	90	95	95	90	90	90	90	100	90	90	90	100	90	90	90	90	90
2302	15	FINFISH,<5%FAT,BAKED W/DRIPPINGS	100	100	100	100	100	100	100	100	85	95	100	100	95	95	95	95	100	95	90	90	100	90	90	90	90	90
2305	15	FINFISH,<5%FAT,BROILED,WO/DRIPPINGS	100	100	100	100	100	100	100	100	80	90	95	95	90	90	90	90	100	90	90	90	100	90	90	90	90	90
2306	15	FINFISH,<5%FAT,BROILED,W/DRIPPINGS	100	100	100	100	100	100	100	100	80	90	95	100	90	90	90	90	100	90	90	90	100	90	90	90	90	90
2309	15	FINFISH,<5%FAT,FRIED,WO/COATING	100	100	100	100	100	100	100	100	80	85	95	100	90	90	90	90	100	90	85	85	100	85	85	85	85	85
2310	15	FINFISH,<5%FAT,FRIED,W/COATING	100	100	100	100	100	100	100	100	80	85	95	100	90	90	90	90	100	90	85	85	100	85	85	85	85	85
2401	15	FINFISH,<5%FAT,SIMMERED,WO/DRIPPING	100	100	90	90	85	90	100	100	75	80	90	85	80	80	80	80	100	85	80	80	100	80	80	80	80	80
2402	15	FINFISH,<5%FAT,SIMMERED,W/DRIPPINGS	80	80	80	80	80	80	80	80	80	90	100	95	90	90	90	90	100	95	90	90	100	90	90	90	90	90
2451	15	FINFISH,>5%FAT,BAKED,WO/DRIPPINGS	100	100	100	100	100	100	100	100	80	95	100	100	90	90	90	90	100	85	85	85	100	85	85	85	85	85
2452	15	FINFISH,>5%FAT,BAKED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	100	100	100	95	95	95	95	100	80	90	90	100	90	90	90	90	90

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description	Nutrient Retention Factors																										
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin	
2455	15	FINFISH,>5%FAT,BROILED,WO/DRIPPNG	100	100	100	100	100	100	100	100	100	80	95	100	100	90	90	90	90	100	75	85	85	100	85	85	85	85	85
2456	15	FINFISH,>5%FAT,BROILED,W/DRIPPNGS	100	100	100	100	100	100	100	100	100	80	95	100	100	90	90	90	90	100	75	90	90	100	90	90	90	90	90
2459	15	FINFISH,>5%FAT,FRIED,WO/COATING	100	100	100	100	100	100	100	100	100	80	85	100	100	90	90	90	90	100	75	85	85	100	85	85	85	85	85
2460	15	FINFISH,>5%FAT,FRIED,W/COATING	100	100	100	100	100	100	100	100	100	80	85	100	100	90	90	90	90	100	75	85	85	100	85	85	85	85	85
2551	15	FINFISH,>5%FAT,SIMMERED,WO/DRIP	100	100	90	90	85	90	100	100	75	80	90	85	80	80	80	80	100	85	85	85	100	85	85	85	85	85	
2552	15	FINFISH,>5%FAT,SIMMERED,W/DRIP	100	100	100	100	100	100	100	100	80	90	100	95	90	90	90	90	100	95	95	95	100	95	95	95	95	95	
2554	15	FINFISH,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
2601	15	FINFISH(FROZEN),FRIED	100	100	100	100	100	100	100	100	90	90	95	100	95	95	95	95	100	95	90	90	100	90	90	90	90	90	
2605	15	FINFISH(FROZEN),HEATED	100	100	100	100	100	100	100	100	90	90	100	100	95	95	95	95	100	95	90	90	100	90	90	90	90	90	
2701	15	SHELLFISH,W/SHELL,BOILED	100	90	85	70	70	85	100	90	75	90	75	75	90	75	75	75	100	60	90	90	100	90	90	90	90	90	
2702	15	SHELLFISH,W/SHELL,STEAMED	100	90	100	75	90	100	100	85	80	95	95	90	95	75	75	75	100	90	90	90	100	90	90	90	90	90	
2750	15	SHELLFISH,WO/SHELL,BAKED,W/DRIPPNGS	100	100	100	100	100	100	100	100	85	95	100	95	95	90	90	90	100	100	95	95	100	95	95	95	95	95	
2753	15	SHELLFISH,WO/SHELL,BROILED	100	100	100	100	100	100	100	100	95	90	80	95	95	95	95	95	100	95	85	85	100	85	85	85	85	85	
2755	15	SHELLFISH,WO/SHELL,FRIED,WO/COATING	100	100	100	100	100	100	100	100	80	85	95	95	90	75	75	75	100	85	95	95	100	95	95	95	95	95	
2756	15	SHELLFISH,WO/SHELL,FRIED,W/COATING	100	100	100	100	100	100	100	100	80	85	95	95	90	80	80	80	100	85	95	95	100	95	95	95	95	95	
2761	15	SHELLFISH,WO/SHELL,SIMMERED,WO/DRIP	95	90	85	70	70	85	100	80	75	90	75	75	85	75	75	75	100	60	90	90	100	90	90	90	90	90	
2762	15	SHELLFISH,WO/SHELL,SIMMERED,W/DRIP	100	100	100	90	100	100	100	95	80	95	95	95	90	75	75	75	100	90	90	90	100	90	90	90	90	90	
2770	15	SHELLFISH,WO/SHELL,STEAMED	100	90	100	75	90	100	100	85	80	95	95	90	90	75	75	75	100	90	90	90	100	90	90	90	90	90	
2771	15	SHELLFISH,WO/SHELL,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
2901	15	SEAFOOD,FROG,TURTLE,BKD,WO/DRIP	100	100	100	100	100	100	100	100	80	90	100	95	90	90	90	90	100	90	90	90	100	90	90	90	90	90	
2902	15	SEAFOOD,FROG,TURTLE,CKD,W/DRIP	100	100	100	100	100	100	100	100	85	95	100	100	95	95	95	95	100	95	90	90	100	90	90	90	90	90	
2905	15	SEAFOOD,FROG,TURTLE,SIMM,WO/DRIP	100	95	90	80	80	90	100	95	75	85	85	80	80	80	80	80	100	80	90	90	100	90	90	90	90	90	
2906	15	SEAFOOD,FROG,TURTLE,SIMRD,W/DRIP	100	100	100	95	100	100	100	100	80	90	100	95	90	85	85	85	100	95	90	90	100	90	90	90	90	90	

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description	Nutrient Retention Factors																									
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
2907	15	SEAFOOD,FROG,TURTLE,BRSD,WO/DRIP	100	95	90	80	80	90	100	95	70	80	80	80	75	75	75	75	100	75	85	85	100	85	85	85	85	85
2908	15	SEAFOOD,FROG,TURTLE,BRAIS,W/DRIP	100	100	100	95	100	100	100	100	75	90	95	95	85	80	80	80	100	90	90	90	100	90	90	90	90	90
2909	15	SEAFOOD,FROG,TURTLE,BRLD,WO/DRIP	100	100	100	100	100	100	100	100	80	90	100	95	90	85	85	85	100	90	90	90	100	90	90	90	90	90
2910	15	SEAFOOD,FROG,TURTLE,BRLD,W/DRIP	100	100	100	100	100	100	100	100	80	90	100	100	90	85	85	85	100	95	90	90	100	90	90	90	90	90
2911	15	SEAFOOD,FROG,TURTLE,FRYD,WO/COAT	100	100	100	100	100	100	100	100	80	85	95	100	90	85	85	85	100	85	85	85	100	85	85	85	85	85
2912	15	SEAFOOD,FROG,TURTLE,FRIED,W/COAT	100	100	100	100	100	100	100	100	80	85	95	100	90	90	90	90	100	90	90	90	100	90	90	90	90	90
2917	15	SEAFOOD,FROG,TURTLE,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
0501	16	LEGUMES,CKD 15/20MIN,BOILED,DRAINED	85	85	80	90	75	90	85	70	65	65	75	70	70	60	60	60	100	100	85	85	100	85	85	85	85	85
0502	16	LEGUMES,CKD 15/20MIN,BLD,WATER USED	90	90	85	95	80	95	90	75	70	70	80	75	75	65	65	65	100	100	90	90	100	90	90	90	90	90
0503	16	LEGUMES,CKD 15/20MIN,BLD,DRAIND,BKD	85	85	80	90	75	90	85	70	60	60	70	65	65	55	55	55	100	100	80	80	100	80	80	80	80	80
0504	16	LEGUMES,CKD 15/20MIN,BOILED+BAKED	90	90	85	95	80	95	90	95	65	65	75	70	70	60	60	60	100	100	85	85	100	85	85	85	85	85
0505	16	LEGUMES,CKD 15/20MIN,BLD,DRND,FRIED	85	85	80	90	75	90	85	70	60	60	70	65	65	55	55	55	100	100	80	80	100	80	80	80	80	80
0506	16	LEGUMES,CKD 15/20MIN,BOILED+FRIED	90	90	85	95	80	95	90	75	65	65	75	70	70	60	60	60	100	100	85	85	100	85	85	85	85	85
0521	16	LEGUMES,CKD 45/75MIN,BOILED,DRND	85	80	75	85	70	90	85	65	65	60	70	65	65	45	45	45	100	100	85	85	100	85	85	85	85	85
0522	16	LEGUMES,CKD 45/75MIN,BLD,WATER USED	90	85	80	90	75	95	90	70	70	65	75	70	70	50	50	50	100	100	90	90	100	90	90	90	90	90
0523	16	LEGUMES,CKD 45/75MIN,BLD,DRND,BKD	85	80	75	85	70	90	85	65	60	55	65	60	60	40	40	40	100	100	80	80	100	80	80	80	80	80
0524	16	LEGUMES,CKD 45/75MIN,BOILED+BAKED	90	85	80	90	75	95	90	70	65	60	70	65	65	45	45	45	100	100	85	85	100	85	85	85	85	85
0525	16	LEGUMES,CKD 45/75MIN,BLD,DRND,FRIED	85	80	75	85	70	90	85	65	60	55	65	60	60	40	40	40	100	100	80	80	100	80	80	80	80	80
0526	16	LEGUMES,CKD 45/75MIN,BOILED+FRIED	90	85	80	90	75	95	90	70	65	60	70	65	65	45	45	45	100	100	85	85	100	85	85	85	85	85
0541	16	LEGUMES,CKD 2/2.5HRS,BOILED,DRAINED	85	75	70	80	65	90	85	55	65	40	75	55	50	30	30	30	100	100	85	85	100	85	85	85	85	85
0542	16	LEGUMES,CKD 2/2.5HRS,BLD,WATER USED	90	80	75	85	70	95	90	60	70	45	80	60	55	35	35	35	100	100	90	90	100	90	90	90	90	90
0543	16	LEGUMES,CKD 2/2.5HRS,BLD,DRND,BKD	85	75	70	80	65	90	85	55	60	35	70	50	45	25	25	25	100	100	80	80	100	80	80	80	80	80
0544	16	LEGUMES,CKD 2/2.5HRS,BOILED+BAKED	90	80	75	85	70	95	90	60	65	40	75	55	50	30	30	30	100	100	85	85	100	85	85	85	85	85

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description	Nutrient Retention Factors																									
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
0545	16	LEGUMES,CKD 2/2.5HRS,BLD,DRND,FRIED	85	75	70	80	65	90	85	55	60	35	70	50	45	25	25	25	100	100	80	80	100	80	80	80	80	80
0546	16	LEGUMES,CKD 2/2.5HRS,BOILED+FRIED	90	80	75	85	70	95	90	60	65	40	75	55	50	30	30	30	100	100	85	85	100	85	85	85	85	85
0550	16	LEGUMES,REHEATED	100	100	100	100	100	100	100	100	95	95	95	95	95	95	95	95	100	100	100	100	100	100	100	100	100	100
1001	17	LAMB, BROILED	100	95	85	85	85	85	100	90	80	60	90	80	65	70	70	70	90	80	75	75	100	75	75	75	75	75
1003	17	LAMB,GROUND,BROILED	90	95	80	85	85	80	100	75	80	70	80	85	75	70	70	70	90	75	75	75	100	75	75	75	75	75
1004	17	LAMB, ROASTED	100	100	80	85	75	75	100	80	80	60	90	80	75	85	85	85	90	75	75	75	100	75	75	75	75	75
1051	17	LAMB,BROWN,SIMMER,WO/DRIPPINGS	100	95	65	65	55	65	95	70	80	30	60	60	45	55	55	55	90	60	75	75	100	75	75	75	75	75
1052	17	LAMB,BROWN,SIMMER,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	45	85	95	70	65	65	65	90	75	80	80	100	80	80	80	80	80
1055	17	LAMB,SIMMERED,WO/DRIPPINGS	100	95	65	65	55	65	95	70	80	30	60	60	55	55	55	55	90	60	75	75	100	75	75	75	75	75
1056	17	LAMB,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	45	85	95	70	65	65	65	90	75	80	80	100	80	80	80	80	80
1074	17	LAMB,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	90	95	100	100	100	100	100	100	100	100
1151	17	LIVER,FRIED	100	95	85	90	85	85	100	100	80	70	90	80	60	85	85	85	90	80	75	75	100	75	75	75	75	75
1154	17	LIVER,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	90	95	100	100	100	100	100	100	100	100
1951	17	VEAL, BROILED	95	90	85	85	85	85	100	95	80	65	90	80	65	75	75	75	90	80	75	75	100	75	75	75	75	75
1952	17	VEAL, FRIED, WO/COATING	95	90	85	85	85	60	100	95	80	65	75	85	45	85	85	85	90	90	75	75	100	75	75	75	75	75
1953	17	VEAL, FRIED, W/COATING	95	90	85	85	85	85	100	95	80	65	90	80	65	75	75	75	90	80	75	75	100	75	75	75	75	75
1954	17	VEAL, ROASTED	95	85	80	80	80	80	100	90	80	60	90	80	50	85	85	85	90	85	75	75	100	75	75	75	75	75
2001	17	VEAL,ROAST,BRAISED,WO/DRIPPINGS	100	95	65	65	60	60	100	75	80	45	75	65	45	75	75	75	90	65	75	75	100	75	75	75	75	75
2002	17	VEAL,ROAST,BRAISED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	95	95	65	70	70	70	90	70	80	80	100	80	80	80	80	80
2003	17	VEAL,ROAST,SIMMERED,WO/DRIPPINGS	85	95	65	65	60	65	100	90	80	45	80	65	50	60	60	60	90	55	75	75	100	75	75	75	75	75
2004	17	VEAL,ROAST,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	95	95	65	70	70	70	90	70	80	80	100	80	80	80	80	80
2051	17	VEAL,SLICES,BRWN,SIMMRD,WO/DRIPPING	85	95	65	65	60	65	100	90	80	45	80	65	50	60	60	60	90	55	75	75	100	75	75	75	75	75
2052	17	VEAL,SLICES,BRWN,SIMMRD,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	95	95	65	70	70	70	90	70	80	80	100	80	80	80	80	80

USDA Table of Nutrient Retention Factors, Release 6

Retention Code	Food Group Code	Retention Description	Nutrient Retention Factors																									
			Calcium, Ca	Iron, Fe	Magnesium, Mg	Phosphorus, P	Potassium, K	Sodium, Na	Zinc, Zn	Copper, Cu	Vitamin C, total ascorbic acid	Thiamin	Riboflavin	Niacin	Vitamin B-6	Folate, food	Folic acid	Folate, total	Choline, total	Vitamin B-12	Vitamin A, IU	Vitamin A, RE	Alcohol, ethyl	Carotene, beta	Carotene, alpha	Cryptoxanthin, beta	Lycopene	Lutein + zeaxanthin
2055	17	VEAL.SLICES,SIMMERED,WO/DRIPPINGS	85	95	65	65	60	65	100	90	80	45	80	65	50	60	60	60	90	55	75	75	100	75	75	75	75	75
2056	17	VEAL,SLICES,SIMMERED,W/DRIPPINGS	100	100	100	100	100	100	100	100	85	60	95	95	65	70	70	70	90	70	80	80	100	80	80	80	80	80
2064	17	VEAL,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	95	95	95	95	90	95	100	100	100	100	100	100	100	100
0301	20	FLOUR/MEAL,BAKED	100	100	100	100	100	100	100	100	80	80	90	90	90	70	70	70	95	100	90	90	100	90	90	90	90	90
0302	20	FLOUR/MEAL,BOILED,STEAMED	100	100	100	100	100	100	100	100	80	80	90	90	90	70	70	70	95	100	90	90	100	90	90	90	90	90
0304	20	FLOUR/MEAL,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	90	90	90	100	100	100	100	100	100	100	100	100	100
0305	20	FLOUR/MEAL,SAUTEED	100	100	100	100	100	100	100	100	80	75	90	90	90	65	65	65	95	100	85	85	100	85	85	85	85	85
0306	20	FLOUR/MEAL,TOASTED	100	100	100	100	100	100	100	100	85	80	100	100	100	85	85	85	100	100	95	95	100	95	95	95	95	95
0380	20	PASTA,BAKED	100	100	100	100	100	100	100	100	80	80	90	90	90	70	70	70	95	100	95	95	100	95	95	95	95	95
0381	20	PASTA,BOILED,DRAINED	95	75	85	85	30	50	100	90	70	65	75	65	80	70	70	70	95	100	95	95	100	95	95	95	95	95
0382	20	PASTA,BOILED,DRAINED,BAKED	95	75	85	85	30	50	100	90	60	55	75	60	75	50	50	50	95	100	90	90	100	90	90	90	90	90
0384	20	PASTA,BOILED,NOT DRAINED	100	100	100	100	100	100	100	100	80	80	90	90	90	70	70	70	95	100	95	95	100	95	95	95	95	95
0385	20	PASTA,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	100
0431	20	RICE,WHITE/BROWN,COOKED,DRAINED	95	90	95	90	85	95	95	90	75	75	90	95	90	60	60	60	100	100	95	95	100	95	95	95	95	95
0432	20	RICE,WHITE/BROWN,COOKED,WATER USED	100	95	100	95	95	100	100	95	80	80	90	100	95	70	70	70	100	100	95	95	100	95	95	95	95	95
0433	20	RICE,WHITE/BROWN,SAUTEED+SIMMERED	100	95	100	95	95	100	100	95	70	75	85	100	90	60	60	60	100	100	90	90	100	90	90	90	90	90
0434	20	RICE,WHITE/BROWN,REHEATED	100	100	100	100	100	100	100	100	95	95	100	100	100	95	95	95	100	100	100	100	100	100	100	100	100	100