

Analytical Results for PFAS in 2018 Produce Sampling (Parts Per Trillion)

Note: In 2018, 20 samples were collected by the FDA in the Fayetteville, N.C area near a PFAS production plant and 1 sample (romaine lettuce) was purchased outside of the area as a control. The samples collected were for research purposes to test analytical methods as part of broader research to estimate exposure to PFAS from foods. This sample size is limited and cannot be used to draw definitive conclusions. Based on the best available current science, the FDA has no indication that these substances at the levels found in the limited sampling present a human health concern.

EDF Note: Highlighted numbers in this FDA's June 11, 2019 version of results were reported as below the method detection limit in FDA's October 31, 2019 version at <https://www.fda.gov/food/chemicals/and-polyfluoroalkyl-substances-pfas>.

Samples	Measured Concentrations in parts per trillion (ppt=ng/kg)															
	PFOA	PFOS	PFBA	PFHpS	PFPeA	PFHxA	PFHxS	PFHpA	PFBS	PFPeS	NaDONA	HFPO-DA	PFDA	PFNA	11CI-PF3OUdS	9CI-PF3ONS
Romaine Lettuce	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Cabbage	55.6	<LLOQ	<LLOQ	<LLOQ	<LLOQ	21.6	3.8	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	1.7	<LLOQ	<LLOQ
Cabbage	7.5	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	5.5	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Cabbage	13.4	10.7	30.7	3.8	14.2	<LLOQ	3.5	<LLOQ	3.3	7.0	1.6	<LLOQ	<LLOQ	6.7	4.3	4.6
Collard greens	115	4.9	566	<LLOQ	<LLOQ	78.1	<LLOQ	23.4	129.4	<LLOQ	<LLOQ	224	<LLOQ	7.2	<LLOQ	<LLOQ
Cabbage	67.5	11.3	42.9	8.4	<LLOQ	8.4	10.7	<LLOQ	<LLOQ	8.7	4.7	189	3.7	9.3	6.3	7.0
Collard greens	237	144	<LLOQ	<LLOQ	78.8	98.6	4.8	46.9	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	13.8	<LLOQ	<LLOQ
Kale	179	14.5	<LLOQ	9.4	<LLOQ	73.5	8.2	31.0	<LLOQ	11.6	4.0	<LLOQ	<LLOQ	10.4	4.6	5.9
Kale	33.2	2.3	<LLOQ	<LLOQ	<LLOQ	53.2	<LLOQ	10.3	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Kale	63.8	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Kale	44.0	<LLOQ	127	<LLOQ	<LLOQ	55.0	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	3.9	<LLOQ	<LLOQ
Cabbage	30.7	<LLOQ	34.4	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Mustard greens	24.1	13.8	<LLOQ	<LLOQ	<LLOQ	26.6	0.8	8.2	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	2.5	<LLOQ	<LLOQ
Swiss chard	20.3	<LLOQ	<LLOQ	<LLOQ	<LLOQ	21.7	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	3.1	4.5	<LLOQ	<LLOQ
Cabbage	<LLOQ	<LLOQ	34.9	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Lettuce mix	17.0	12.9	164	6.9	117	18.8	9.0	<LLOQ	4.1	9.4	5.7	<LLOQ	6.6	12.2	6.2	6.8
Lettuce	29.0	20.9	44.7	6.6	<LLOQ	<LLOQ	12.0	5.5	3.6	10.0	4.5	<LLOQ	16.4	11.7	4.9	5.9
Blueberries	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Tomato	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	2.2	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Tomato	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	10.3	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ
Corn	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	<LLOQ	29.0	<LLOQ	<LLOQ

Legend

Acronym	Name	CAS	Formula	Nominal Mass
PFOA	Perfluorooctanoic acid	335-67-1	C ₈ HF ₁₅ O ₂	414
PFOS	Perfluorooctanesulfonic acid	1763-23-1	C ₈ HF ₁₇ O ₃ S	500
PFBA	Perfluorobutanoate	375-22-4	C ₄ F ₇ O ₂	214
PFHpS	Perfluoroheptanesulfonic acid	375-92-8	C ₇ HF ₁₅ O ₃ S	450
PFPeA	Perfluoropentanoic acid	2706-90-3	C ₅ HF ₉ O ₂	264
PFHxA	Perfluorohexanoic acid	307-24-4	C ₆ HF ₁₁ O ₂	314
PFHxS	Perfluorohexanesulfonic acid	355-46-4	C ₆ HF ₁₃ O ₃ S	400
PFHpA	Perfluoroheptanoic acid	375-85-9	C ₇ HF ₁₃ O ₂	364
PFBS	Perfluorobutanesulfonic acid	375-73-5	C ₄ HF ₉ O ₃ S	300
PFPeS	1,1,2,2,3,3,4,4,5,5,5-Undecafluoro-1-pentanesulfonic acid	2706-91-4	C ₅ HF ₁₁ O ₃ S	350
NaDONA	Sodium dodecafluoro-3H-4, 8-dioxanonanoate	958445-44-8	C ₇ H ₅ F ₁₂ NO ₄	395
HFPO-DA	Hexafluoropropylene oxide dimer acid	13252-13-6	C ₆ HF ₁₁ O ₃	330
PFDA	Perfluorodecanoic acid	335-76-2	C ₁₀ HF ₁₉ O ₂	514
PFNA	Perfluorononanoic acid	375-95-1	C ₉ HF ₁₇ O ₂	464
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9	C ₁₀ HClF ₂₀ O ₄ S	632
9Cl-PF3ONs	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	73606-19-6	C ₈ ClF ₁₆ KO ₄ S	570

CAS = Chemical Abstract Service Number

LLOQ = Lower Limit of Quantitation