BLOOM GOOD SOIL,® BETTER EARTH.

dc water is life®

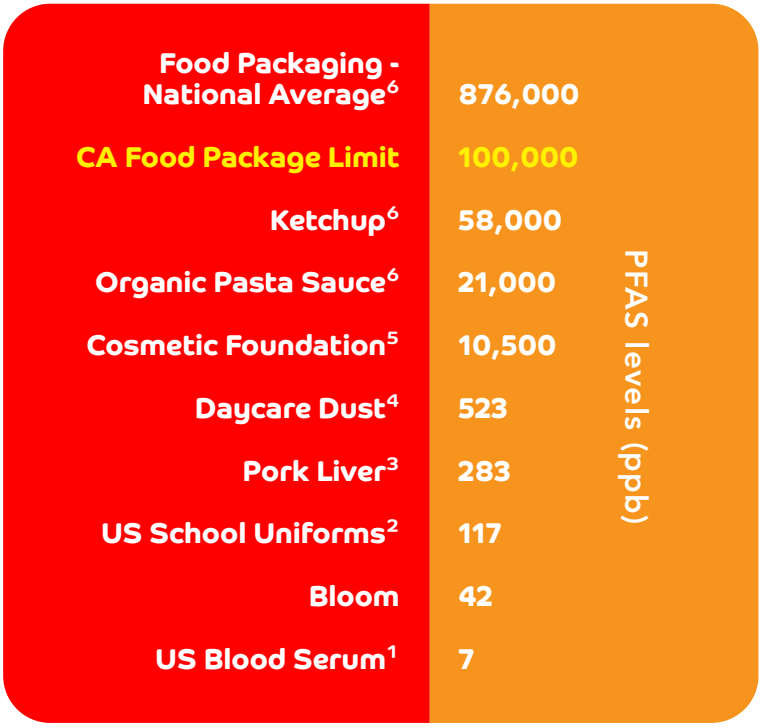
PFAS: Understanding the Relative Risks

PFAS are a group of more than 3,000 manmade chemicals that are fire, oil, grease, water and stain resistant, and are found in a wide array of consumer and industrial products, including non-stick cookware, food packaging, dental floss, cleaning products, and cosmetics. Exposure to humans can occur through a number of pathways, including ingestion and inhalation. At high concentrations, PFAS compounds have been linked to negative health consequences. DC Water shares the growing public concern over the presence of these chemicals in our society, and strongly believes that source control is the solution.

Recent measurements of Bloom have shown concentrations of PFOS and PFOA to be many thousands of times lower than in food packaging materials, hundreds of times lower than in products like ketchup, organic tomato sauce, and cosmetics, and ten times lower than the levels measured in dust.

From the family of compounds known as PFAS, PFOS and PFOA are among the most studied and have the largest data sets to support risk assessment. Measurements of Bloom, DC Water's EPA designated Exceptional Quality Class A biosolids product, have shown concentrations of PFOS and PFOA within ranges of 4.60 to 16.1 parts per billion (ppb) and 1.7 to 3.7 ppb respectively – many thousands of times lower than in food packaging materials; hundreds of times lower than in products like ketchup, organic tomato sauce, and cosmetics; and ten times lower than the levels measured in dust. Bloom's total combined PFAS levels average 42 ppb, which is more than 2,000 times lower than the food packaging limits set in California, one of the few states to restrict the compounds in packaging.

PFAS Comparisons for Different Sources



1 PFAS in the US population, ATSDR (cdc.gov)
2 Per- and Polyfluoroalkyl Substances in North American School Uniforms, Environmental Science & Technology
3 Concentrations of perfluoroalkyl substances in foods and the dietary exposure among Taiwan general population and pregnant women, ScienceDirect
4 Per- and polyfluoroalkyl substances in paired dust and carpets from childcare centers, PubMed (nih.gov)
5 Fluorinated Compounds in North American Cosmetics, Environmental Science & Technology Letters (acs.org)
6 Toxic PFAS, the "Everywhere Chemicals," Are in Organic Pasta Sauce and Ketchup, Drugs, Pesticides, and Foodware, Sierra Club

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Municipal Versus Industrially Contaminated Wastewater Solids

There are significant differences between biosolids derived from residential and industry wastewater sources. Municipal wastewater treated by DC Water (mostly from residents) has low concentrations of PFAS chemicals from the products we use in our homes, but at much lower concentrations than wastewater solids from industrial dischargers (thousands of time higher). As a result, it is important to separate PFAS risks and impacts of municipal biosolids sources, such as Bloom, from the risks presented by industrial sludges (such as from paper mills). Soils amended with municipal biosolids show PFOS and PFOA levels comparable to soils where no biosolids have been applied (Pepper, U of AZ). In contrast, farms with high PFAS concentrations in their soils were often found to be treated with industrial solids known to have highly concentrated PFAS directly attributable to industrial sources.

Consequently, the focus must be on controlling the industrial sources of PFAS. Maine recently banned biosolids use in the state after PFAS contamination was found at a farm that had received industrial paper mill sludge decades ago. Paper mills use PFAS for strength and grease/water resistance. Sites such as the one in Maine have thousands of times higher concentrations than municipal biosolids treated sites, and consequently the ban in Maine should not inform risk analysis for municipal biosolids. Research conducted by the University of Arizona concluded that PFAS compounds on land where municipal biosolids were applied with levels similar to Bloom don't move through the soil to groundwater.[7] These results caused a reversal of a temporary biosolids ban in Pima County, AZ. In addition, DC Water is participating in two EPA funded studies to look at the existence and fate and transport of these compounds in biosolids.

While the risks of PFAS in municipal biosolids are lower than in industrial sludge and other sources in our homes and the pathways to exposure undefined, the benefits are well documented. Biosolids are a precious asset that return value to our ratepayers, reduce our carbon footprint, provide long term benefits to soils, and protect the Chesapeake Bay by reducing the use of chemical fertilizers. Regulations set without a sound scientific basis would not only destroy these benefits but also impose an unnecessary burden on ratepayers and farmers.

As an EPA-certified Class A, Exceptional Quality biosolids product, Bloom meets the EPA's highest standard for biosolids. While the EPA has not yet set limits on PFAS in biosolids, Bloom consistently tests far below set limits for pathogens and heavy metals.

[7] PFAS in Biosolids: A Southern Arizona Case Study, The University of Arizona, 2020