GLOSSARY OF TERMS

Term	Definition
Benignly Persistent	Substances that don't break down when exposed to light (photolysis), water (hydrolysis), oxygen (oxidation), chemicals, aerobic and anaerobic bacteria, and microbes, but pose little or no inherent hazard to health or the environment. Such substances are stable or persistent, and inert.
Bioaccumulation	The gradual absorption and collection of a substance in a person, animal or organism at a faster rate than it can be eliminated.
Bioavailable	The ability of a substance to be absorbed into and used by the body.
Biocompatible	A material that is not harmful to living tissue.
Carbon-Fluorine (C-F) bond	The very strong bond between an atom of carbon and an atom of fluorine.
Complement activation	The complement system refers to a series of over 20 proteins circulating in the blood and tissue fluids. Most of the proteins are normally inactive. Complement activation is the activation of one protein enzymatically cleaving and activating the next protein in the cascade. Testing for the ability of a biomaterial to activate complement is a routine part of hemocompatibility testing of medical devices per ISO 10993.
Co-polymer	A polymer made by reaction of two different monomers.
e-PTFE	Expanded polytetrafluoroethylene.
ETFE	Ethylene-tetrafluoroethylene co-polymer.
FEP	Fluorinated ethylene-propylene; a co-polymer of tetrafluoroethylene (TFE) and hexafluoropropylene (HFP).
Flue gas	Gas exiting to the atmosphere from a pipe or a channel for conveying exhaust from a furnace or boiler.
Fluorinated Polymer	The broad generic term to encompass all polymers for which one or more of the monomer units contains the element F, in the backbone and/or in side chains. Fluorinated polymers may or may not be PFASs, depending on whether they contain perfluoroalkyl moieties.
Fluorine	Fluorine, F, is the lightest halogen gas with an atomic number of 9. It is the most electronegative element, making it highly reactive. It reacts with all elements except neon and helium.
Fluorochemical	A general, nonspecific name that describes a universe of organic and inorganic substances that contain at least 1 F atom, with vastly different physical, chemical, and biological properties. Synonyms include "fluorinated substance" and "fluorinated chemicals."
Fluoroelastomer	An elastic, rubber-like polymer to which fluorine is bound. Fluoroelastomers are highly durable and resistant to heat, oils, solvents, fuels, and ozone.
Fluoropolymer	A distinct subset of fluorinated polymers, namely, those made by (co) polymerization of olefinic monomers, at least one of which contains F bound to one or both of the olefinic C atoms, to form a carbononly polymer backbone with F atoms directly attached to it, e.g., polytetrafluoroethylene.

Fluorosurfactant	A substance used to lower aqueous surface tension in which the hydrophobic portion of the molecule contains F bound to C, often as a perfluoroalkyl moiety, often referred to as ''fluorinated surfactants'', ''fluorosurfactants,'' ''fluorinated tensides,'' or ''fluorotensides''.
FluoroTechnology	The use of fluorine chemistry to create any fluorinated product, including fluoropolymers, fluorotelomer-based chemicals, and other fluorochemicals.
Fluorotelomer-based Products	A family of raw material building blocks, surfactant and polymeric products, and degradation products that all originate from the starting fluorotelomer raw material, perfluoroalkyl iodides (PFAIs).
Food Contact Material (FCM)	Food contact materials are all materials and articles intended to come into contact with food, such as packaging and containers, kitchen equipment, cutlery and dishes. These can be made from a variety of materials including plastics, rubber, paper and metal.
Functional Group Equivalent Weight (FGEW)	The ratio of the molecular weight to the number of occurrences of that functional group in the molecule. It is the weight of substance that contains one formula- weight of the functional group.
HFP	Hexafluoropropylene: $CF_3CF=CF_2$.
Homopolymer	A polymer made with one monomer only.
Hydrofluoric acid	A solution of hydrogen fluoride in water.
Leachables	Chemical substances which migrate out of polymers under intended use conditions. Leachables are in contrast to substances which are forced out of a polymer by extraction with strong solvents, high temperatures or special analytical techniques and/or heat or extreme conditions, which are known as “extractables”.
Mobile	A characteristic of a substance describing its propensity to move in the environment from the point where it was introduced.
Modified Homopolymer	Polymers containing not more than 1% by weight of other fluoromonomers.
Monomer	A molecule that can be bonded to other identical molecules to form a polymer. Mono = one or alone; Poly = many
Oligomer	A polymer molecule consisting of only a few monomer units (dimer, trimer, tetramer).
Paired T-testing	Also called a dependent sample t-test, the paired t-test is a statistical procedure used to determine whether the mean difference between two sets of scientific observations is zero.
PAVE	Abbreviation for perfluoroalkyl vinyl ether (generic name) in which the alkyl group is methyl, ethyl or propyl.
PBT	Abbreviation for persistent, bioaccumulative and toxic.
Perfluoroalkyl acid (PFAA)	A subclass of the non-polymeric PFAS category and perfluoroalkyl substances class, including the heavily regulated “long chain” carboxylic and sulfonic acids, PFOA and PFOS, and, the “short chain” PFBA, PFBS.
PFA	Perfluoroalkoxy polymer; a generic name.
PFAI	Perfluoroalkyl iodides.

PFAS	Perfluoroalkyl and Polyfluoroalkyl substances are a very diverse group of per- and poly-fluoroalkyl substances including the categories of polymers and non-polymers. There are three classes within the polymer category: fluoropolymers, perfluoropolyethers, and side chain fluorinated polymers. The non-polymer category has two classes: perfluoroalkyl substances for which all hydrogens on all carbon not associated with functional groups have been replaced by fluorines, and, polyfluoroalkyl substances for which all hydrogens on at least one, but not all, carbon have been replaced by fluorines.
PFBA	Perfluorobutanoic acid.
PFBS	Perfluorobutane sulfonic acid.
PFC	Perfluorocarbon: A broad class of carbon compounds in which F atoms have replaced H atoms so that they contain only the elements C and F, and functional groups are absent (Buck et al., 2011). Not all per- and polyfluoroalkyl substances (PFASs) and perfluoroalkyl acids (PFAAs, such as PFOA and PFOS) are PFCs.
PFCA	Perfluorocarboxylic acid. $F(CF_2)_nCOOH$
PFDA	Perfluorodecanoic acid.
PFECA	Per- and poly-fluoroether carboxylate.
PFHpA	Perfluoroheptanoic acid.
PFHxA	Perfluorohexanoic acid.
PFHxS	Perfluorohexane sulfonic acid.
PFNA	Perfluorononanoic acid.
PFOA	Perfluorooctanoic acid ($C_7F_{15}COOH$). This was historically used as a polymerization processing aid in the manufacture of certain fluoropolymers. Alternatives are in widespread commercial use. It is a potential degradation product and impurity related to long-chain fluorotelomer-based products and other precursor substances.
PFOS	Perfluorooctane sulfonic acid ($C_8F_{17}SO_3H$) or perfluorooctane sulfonate ($C_8F_{17}SO_3$). It was a fluorosurfactant historically used in etching solutions in the semiconductor industry, as a mist suppressant in metal plating industry and as a surfactant in firefighting foams. PFOS-related polymeric substances were used to provide soil/stain resistance in textiles, carpets and paper. PFOS-related surfactants were widely used in a wide array of consumer and industrial applications.
PFPE	A perfluoropolyether has oxygen atoms incorporated into the carbon backbone of the fluorinated polymer (e.g., -CF2-, -CF2CF2-, and possibly -CF(CF3)CF2- units are separated by O atoms).
PFPeA	Perfluoropentanoic acid.
PFSA	Perfluoroalkyl sulfonic acid. $F(CF_2)_nSO_3H$
Polymer of Low Concern (PLC)	A polymer deemed to have insignificant environmental and human health impacts.
Polymerization aid (PA)	This is a substance (e.g., catalyst, stabilizer, surfactant) added to the reactor vessel from 0.01% to 0.5% of the weight of water, depending on the rate and degree of reaction to facilitate the reaction to form a polymer.
POP	Persistent organic pollutants
PPVE	Perfluoropropyl vinyl ether. $CF_3CF_2CF_2$-O-$CF=CF_2$
PTFE	Polytetrafluoroethylene. $-(CF_2CF_2)_n-$
PVDF	Polyvinylidene fluoride. $-(CF_2CH_2)_n-$
PVF	Polyvinyl fluoride. $-(CFH\text{-}CH_2)_n-$
Pyrolysis	Decomposition caused by high temperature.

Reactive Functional Group (RFG)	A reactive functional group (RFG) is an atom or associated group of atoms in a chemical substance that is intended, or can be reasonably anticipated, to undergo a simple chemical reaction.
Specific Migration Limit (SML) Migration Limits	The maximum permitted amount of substance (e.g., monomer) in food that has been determined to not pose a risk to human health.
Stoichiometry	Stoichiometry is the measure of reactants and elements in a chemical reaction.
Subchronic systemic toxicity	A repeated dose toxicity study examining local effects, relative to site of dose administration, as well as effects on organs and systems (e.g., nervous, endocrine, reproductive, respiratory, gastrointestinal systems, etc.) for effects apparent by unaided inspection (“gross observation”), by histopathology, clinical chemistry, hematology, body weight, food consumption, mortality and clinical observations of general health. The duration of the study can vary from weeks up to 10% of the laboratory animal’s lifetime, after which it is known as a “chronic study”.
TFE	Tetrafluoroethylene. $CF_2=CF_2$
Thrombogenicity	Type of study of the ability to form a blood clot (aka, a thrombus) is a routine test of compatibility with blood most often encountered in medical device biocompatibility testing, such as ISO 10993.
vPvB	very Persistent and very Bioaccumulative.

W. L. Gore & Associates
555 Paper Mill Road
Newark, Delaware 19711
gore.com