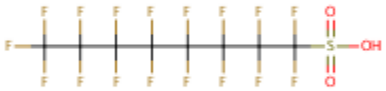
Updated EHS Summary of PFOS for the MA TURA Science Advisory Board Meeting – January 11, 2017

1763-23-1 	**Perfluorooctane sulfonic acid** Synonym[1]s: EINECS 217-179-8; 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-Heptadecafluoro-1-octanesulfonic acid; Perfluorooctane sulfonic acid; Perfluorooctylsulfonic acid; 1-Perfluorooctanesulfonic acid; EF 101; Eftop EF 101; Heptadecafluoro-1-octanesulfonic acid; HSDB 7099; PFOS; Perfluorooctane sulfonate; Heptadecafluorooctane-1-sulphonic acid; Perfluorooctanesulfonic acid; UNII-9H2MAI21CL **RTECS #[2]:** RG9701600 **EINECS #[3]:** 217-179-8 **Molecular Weight[4]**: 500.1249 **Molecular Formula[5]:** C8-H-F17-O3-S
PHYSICAL CHARACTERISTICS	
Primary Use	Surface active agents in aqueous media; Chemical intermediate; acid catalyst for photoresists; Surfactant in firefighting foam; surfactant for alkaline cleaners; emulsifier in floor polish; mist suppressant for metal plating baths; surfactant for etching acids for circuit boards; pesticide active ingredient for ant bait traps. /K, Li, DEA, NH_4 Salts/; Agricultural chemical[6]
Physical state, odor at room temperature & pressure	Liquid[7]
Melting point; Boiling point	MP = n/f; BP = 249 deg C[8]
Solubility	In water, $3.1X10^{-3}$ mg/L at 25 deg C (est)[9]
Specific Gravity	Not found
SAFETY/PHYSICAL HAZARDS	
Vapor Pressure	2.0X10-3 mm Hg at 25 deg C (est)[10]
Flammability	NFPA = 0. 0 = Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.[11]
Flashpoint	Not found
Flammability Rating	NFPA = 0. 0 = Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.[12]
Auto Ignition Point	Not found
Combustion products	Hazardous decomposition products formed under fire conditions - Carbon oxides, Sulphur oxides, Hydrogen fluoride[13]
Explosivity (UEL, LEL, shock sensitive)	Not found
Oxidizer	Not found
Corrosivity	Not found
pH	Not found
Reactivity	Materials to avoid: strong oxidizing agents[14]

Viscosity	Not found
Odor Threshold	Not found
Particle size, shape, respirable fraction	Not found
Other physical hazards associated with process: Heat, gases under pressure, noise, vibration, ergonomic hazard	Not found
HEALTH HAZARDS	
Acute Toxicity	
Oral LD_{50}	Rat = 154 mg/kg[15]
Dermal LD_{50}	Not found
Inhalation LC_{50}	Rat = 5,200 mg/m^3 [16]
Intraperitoneal LD_{50}	Not found
Chronic or Sub-chronic Toxicity	
IARC rating	Not found
Carcinogenicity	Not found on Prop 65; Carc 2. H351 = Suspected of causing cancer[17]
Neurotoxicity	Not mentioned in HAZMAP; Not on Scorecard list
Developmental/Reproductive Toxicity	Not found on Prop 65; Many repro effects studies in RTECS; Repr. 1B H360D = May damage the unborn child[18] H362 – Lact.[19] Teratogenic effects (incomplete skull closure) observed at doses below maternal NOEL in rats; Effects in a multi-generational study with rats (F1 generation) include significant reductions in litter sizes, viability and lactation indices, and slower development pups[20]
Genotoxicity/Mutagenicity	• Micronucleus (G04004) Completed ○ Rats: Harlan Sprague-Dawley ○ Male Negative ○ Female Positive • Salmonella (A33826) Completed ○ Negative[21]
Endocrine Disruption	Not found on TEDX list; Substitute it Now List (ChemHAT)
Immunotoxicity	There is **moderate confidence** that exposure to PFOS is associated with suppression of the antibody response in humans based on the available studies. The results present a consistent pattern of findings that higher prenatal, childhood, and adult serum concentrations of PFOS were associated with suppression in at least one measure of the anti-vaccine antibody response to common vaccines across multiple studies. There were no changes in the confidence rating for the human body of evidence after considering factors that may increase or decrease confidence. Heterogeneity in the findings may be explained by variation between studies in the different vaccinations tested, time

	between vaccination and measurement of the antibody response, and analyses or ways to measure the antibody response. There is **high confidence** that exposure to PFOS is associated with suppression of the antibody response in animals based on consistent suppression of the primary antibody response from experimental studies in mice. Confidence in the body of evidence was decreased because of serious concern for risk of bias and increased for evidence of dose-response observed across multiple studies to support the final rating of high confidence.[22] Also see section 3.1.1.6 "Immunotoxicity" in the EPA Health Effects Support Document for PFOS, pages 3-36 to 3-40; Accessed online at: https://www.epa.gov/sites/production/files/2016-05/documents/pfos_hesd_final_508.pdf
Other organ toxicity	Hepatotoxin, Secondary[23] Lact. H362 = May cause harm to breast-fed children[24]
GHS	H302 – Acute Tox. 4 – Harmful if swallowed; H332 - Acute Tox. 4 – Harmful if inhaled; H372 – STOT RE 1 – May cause damage to organs through prolonged or repeated exposure [25]
Skin, Eye and Respiratory Effects	
*Irritant – **S**kin, **E**ye, or **R**espiratory*	Caused severe eye irritation in rabbits in one study, and mild to moderate irritation in several others[26] Respiratory tract irritant[27]
*Corrosive – **S**, **E**, or **R***	Corrosive to skin and eyes[28]
*Permanent Damage – **S**, **E**, or **R***	Not found
*Sensitizer– **S** & **R***	Not found in AOEC database
Asthmagen – Initiator or Exacerbator	Not found in AOEC database
Skin Absorption, Kp	Not found; Can be absorbed through skin[29]
LOAEL	Several values available in the US EPA Health Effects Document for PFOS[30] • **Sub-chronic LOAEL 0.5 mg/kg bw/day gavage in rhesus monkey; mortality at 4.5 mg/kg bw/day; repro tox mortality in pups at 1.6 mg/kg bw/day** : A 90-day study on rhesus monkeys exposed to PFOS potassium salt via gavage at the doses 0, 0.5, 1.5 and 4.5 mg/kg bw/day. At 4.5 mg/kg bw/day all monkeys (4) died or were sacrificed in moribound condition. No deaths were observed at 0.5 or 1.5 mg/kg bw/day, but there were signs of gastrointestinal toxicity. A NOAEL could not be established since the lowest dose was a LOAEL (Goldenthal et al., 1978a).[31] • **LOAEL 2 mg/kg bw/day oral rat, repeat dose**: A 90-day oral repeated dose toxicity study in rats that were fed diets containing 0, 30, 100, 300, 1000 and 3000 mg PFOS potassium salt per kg diet. All rats died when fed diets containing 300

	mg/kg PFOS and above (equivalent to 18 mg/kg bw/day and above). At 100 mg/kg (6 mg/kg bw/day), 50% (5/10) of the animals died. All rats receiving diets containing 30 mg/kg PFOS (2.0 mg/kg/day) survived until the end of the study, but small changes in body and organ weights were reported. Since the lowest dose tested was a LOAEL, a NOAEL could not be established (Goldenthal et al., 1978b).[32]
NOAEL	Several values available in the US EPA Health Effects Document for PFOS[33] • **NOAEL 0.1 mg/kg bw/day oral rat via gavage; 2 gen repro study**: A two-generation reproductive toxicity study on rats that were fed PFOS potassium salt via gavage at the doses 0.1, 0.4, 1.6, and 3.2 mg/kg bw/day. At the doses 1.6 and 3.2 mg/kg bw/day a significant reduction in the viability of the F1 generation was observed. In the 1.6 mg/kg bw/day group, 34% (86/254) of the F1 pups died within four days after birth. In the 3.2 mg/kg bw/day group, 45% (71/156), of the F1 pups died within one day after delivery. None of these pups survived beyond day 4. Maternal toxicity at 1.6 and 3.2 mg/kg bw/day was manifested reduced food consumption, body weight gain, and terminal bodyweight. Localised alopecia was also observed at 3.2 mg/kg bw/day. The LOAEL in this study was 0.4 mg/kg bw/day based on significant reductions in pup weight gain in the F1 generation animals. The NOAEL was 0.1 mg/kg bw/day (Christian et al., 1999). A new study by Luebker et al. (2005) supports these results.[34]
Benchmark Dose Response (BMD)	Several values available in the US EPA Health Effects Document for PFOS[35]
Metabolites	PFOS can also be formed as a metabolite of other perfluorinated sulfonates. It does not appear to be further metabolized. /Perfluorooctyl sulfonates/[36]
Synergistic or Antagonistic Effects	Not found
Environmental and Human Health Exposure and Risk Values	
RfC/RfD	Based on the consistency of the response and of the use of the most sensitive endpoint, developmental toxicity, as the critical effect, the RfD of 0.00002 mg/kg/day from Luebker et al. (2005a) is selected as the RfD for PFOS.[37] The only inhalation study available is an acute lethality inhalation study in rats (Rusch et al. 1979); no inhalation data are available in humans. Thus, data are insufficient for the development of an RfC for PFOS.[38]
ATSDR-MRL	Oral, Int., 0.00003 mg/kg/day[39]
Adverse Effect Levels: DNEL, PNEC,	Not found

PNEL	
Health Based Exposure Limits	
NIOSH-REL/IDLH/Ceiling Limits	Not found
OSHA-PEL	Not found
ACGIH TLV-TWA	Not found
TLV-STEL	Not found
Biomonitoring Action Limits	Biomonitoring as part of US EPA Perfluorochemicals (PFCs)[40].
Drinking Water Standards	Perfluorooctane Sulfonate (PFOS) US EPA Drinking Water Health Advisory: **70 ppt.**[41]
Other	Minnesota Department of Health existing Health Risk Limit (HRL) of 300 ppt for PFOA in drinking water (currently under review)[42].
ENVIRONMENTAL & ECO-SYSTEM HAZARDS	
PBT	See information in box on Lib Guide, e.g. EC 2006. PFOS is extremely persistent.[43]
BAF	PFOS bioaccumulates by binding preferentially to proteins in blood plasma (UNEP 2006 refs: Kerstner-Wood et al., 2003) and the liver (UNEP 2006 refs: Luebker et al., 2002).[44]
BMF	A biomagnification factor (BMF), which is the ratio of the concentration in the predator and the concentration in the prey: Hence, a BMF > 1 represents magnification up the food chain. • Polar bear, Canadian Arctic - Concentrations of PFOS in liver (1700->4000 ng/g) exceeding all other individual organohalogens – BMF > 160 based on concentrations in Arctic seals (Martin et al., 2004a) • Mink, US – Very high concentrations of PFOS in liver (40-4870 ng/g) – BMF ~ 145 to ~4000 based on data from their prey such as crayfish (whole body), carp (muscle) and turtles (liver) (Kannan et al 2005) BMF = 22 based on data from fish in the same area (Giesy and Kannan 2001) • Bald Eagle, US – Very high concentrations of PFOS in plasma (1-2570 ng/g) – BMF = 4-5 based on 400 ng/g liver ww, compared with fish (Giesy and Kannan 2001) • Seal in the Bothnian Sea, Finland – Very high concentrations of PFOS in liver (130 – 1100 ng/g) – BMF > 60 based on data from salmon in the same area (Kannan et al., 2002)[45]
Ecological/Aquatic Toxicity: LC_{50}, EC_{50}, ErC_{50}, NOAEC/NOEC	17 studies available in HSDB; Includes Honeybee data; 1,120 ug/L for 96 hr; *Danio rerio*, freshwater, static, 28 deg C; Effect: development, increased deformation[46] Chronic NOEC 0.3 mg/l fathead minnow (42d), based on mortality (OECD 2002)[47] NOEC 0.049 mg/L (10 day) aquatic midge, based on growth and

	survival; The authors concluded that PFOS is 2-3 orders of magnitude more toxic to chironomids than to other aquatic organisms (Macdonald et al 2004)[48]
Breakdown/degradation /combustion products	• Hydrolysis in water USEPA OPPTS protocol 835.2210; no degradation of PFOS at 50C and pH of 1.5-11.0; half life >41 yrs. (UNEP 2006, p14) • Photolysis in water USEPA OPPTS protocol 835.5270; no evidence of direct or indirect photolysis under any conditions tested. Indirect photolytic half-life at 25C calculated >3.7 yrs (UNEP 2006 p. 14) • No aerobic biodegradation in any media tested (activated sewage sludge, sediment cultures and soil cultures); no anaerobic biodegradation in sewage sludge.[49] Additional information in HSDB
Other observable ecological effects (e.g. BOD)	Not found
Fate and Transport considerations	Additional data available in HSDB
Factors affecting bioavailability	Not found
GHS	H411 – Aquatic Chronic 2 – Toxic to aquatic life with long lasting effects[50]
Global Environmental Impacts	
Ozone Depletion Potential (ODP)	Not on EPA Ozone Depleting Substances List
Global Climate Change	Not found
Acid rain formation	Not found
Greenhouse Gas Production	Not found
Special Reports	
OECD	Environment Directorate – Joint Meeting of the Chemicals Committee and The Working Party on Chemicals, Pesticides and Biotechnology – Co-operation on Existing Chemicals: **Hazard Assessment of Perfluorooctane Sulfonate (PFOS) and Its Salts**, 11/21/02; Accessed online: http://www.oecd.org/env/ehs/risk-assessment/2382880.pdf Also see this page from OECD: http://www.oecd.org/chemicalsafety/risk-management/perfluorooctanesulfonatepfosandrelatedchemicalproducts.htm
EHP	Epidemiology study re: associations between exposures to four PFCs and parental report of diagnosis of attention deficit hyperactivity disorder (ADHD) were evaluated. Hoffman, et al. Exposure to Polyfluoroalkyl Chemicals and Attention Deficit/Hyperactivity Disorder

	in U.S. Children 12-15 Years of Age. *Environmental Health Perspectives*, 2010 Dec; **118 (12):** 1762-1767. Accessed online: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3002197/
Health Canada	State of the Science Report for a Screening Health Assessment – Perfluorooctane Sulfonate (PFOS): Its Salts and Its Precursors that Contain the $C_8F_{17}SO_2$ or $C_8F_{17}SO_3$ Moiety, Accessed online: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/contaminants/existsub/pfos-spfo/perfluorooctane_sulfonate-eng.pdf

Notes on chemical research: Not found in NIOSH-PG

[1] www.expub.com; Chemical Identity Page for Perfluorooctane sulfonic acid.
[2] www.expub.com: RTECS, record for CAS #1763-23-1, accessed 9/13/16.
[3] www.expub.com; Chemical Identity Page for Perfluorooctane sulfonic acid.
[4] U.S. National Library of Medicine, ChemIDplus, a Toxnet Database, entry for "Perfluorooctane sulfonic acid ", accessed online at: https://chem.sis.nlm.nih.gov/chemidplus/rn/startswith/1763-23-1
[5] U.S. National Library of Medicine, ChemIDplus, a Toxnet Database, entry for "Perfluorooctane sulfonic acid ", accessed online at: https://chem.sis.nlm.nih.gov/chemidplus/rn/startswith/1763-23-1
[6] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 8/22/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~CzVqYS:1
[7] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 8/22/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~CzVqYS:1
[8] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 8/22/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~CzVqYS:1
[9] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 8/22/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~CzVqYS:1
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[11] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 9/1/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~Ij2Kfu:1
[12] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 9/1/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~Ij2Kfu:1
[13] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 9/7/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~Ij2Kfu:1
[14] HSDB: Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 9/7/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~Ij2Kfu:1
[15] www.expub.com: RTECS, record for CAS #1763-23-1, accessed 9/13/16.
[16] HAZMAP, accessed online 9/7/16, https://hazmap.nlm.nih.gov/category-details?id=6595&table=copytblagents
[17] ECHA: European Chemicals Agency CLP Data base entry for CAS # 1763-23-1, Accessed online 9/13/16, https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/82756
[18] ECHA: European Chemicals Agency CLP Data base entry for CAS # 1763-23-1, Accessed online 9/13/16, https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/82756
[19] ECHA: European Chemicals Agency CLP Data base entry for CAS # 1763-23-1, Accessed online 11/22/16, https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/82756
[20] HAZMAP: Entry for 'Perfluorooctane sulfonic acid, 1763-23-1', Accessed online, 11/25/16, at: https://hazmap.nlm.nih.gov/category-details?id=6595&table=copytblagents

[21] NTP: Genetic Toxicology tests for Perfluorooctane sulfonate; Page last updated 8/26/16, Accessed online, 9/9/16: http://ntp.niehs.nih.gov/testing/status/agents/ts-m040004.html
[22] NTP 2016: NTP Monograph, Immunotoxicity Associated with Exposure to Perfluorooctanoic Acid or Perfluorooctane Sulfonate. September 2016. Accessed online, 1/5/17, https://ntp.niehs.nih.gov/ntp/ohat/pfoa_pfos/pfoa_pfosmonograph_508.pdf
[23] HAZMAP, accessed online 9/7/16, https://hazmap.nlm.nih.gov/category-details?id=6595&table=copytblagents
[24] ECHA: European Chemicals Agency CLP Data base entry for CAS # 1763-23-1, Accessed online 9/13/16, https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/82756
[25] ECHA: European Chemicals Agency CLP Data base entry for CAS # 1763-23-1, Accessed online 11/22/16, https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/82756
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[27] HAZMAP: Entry for 'Perfluorooctane sulfonic acid, 1763-23-1', Accessed online, 11/25/16, at: https://hazmap.nlm.nih.gov/category-details?id=6595&table=copytblagents
[28] HAZMAP: Entry for 'Perfluorooctane sulfonic acid, 1763-23-1', Accessed online, 11/25/16, at: https://hazmap.nlm.nih.gov/category-details?id=6595&table=copytblagents
[29] HAZMAP: Entry for 'Perfluorooctane sulfonic acid, 1763-23-1', Accessed online, 11/25/16, at: https://hazmap.nlm.nih.gov/category-details?id=6595&table=copytblagents
[30] U.S. EPA: Health Effects Document for Perfluorooctane sulfonate (PFOS). May 2016. Accessed online, 11/25/16, at: https://www.epa.gov/sites/production/files/2016-05/documents/pfos_hesd_final_508.pdf
[31] UNEP 2006: United Nations Environment Programme. Report of the Persistent Organic Pollutants Review Committee on the work of its second meeting – Addendum: Risk profile on perfluorooctane sulfonate. November 2006. Accessed online at: http://chm.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx.
[32] UNEP 2006: United Nations Environment Programme. Report of the Persistent Organic Pollutants Review Committee on the work of its second meeting – Addendum: Risk profile on perfluorooctane sulfonate. November 2006. Accessed online at: http://chm.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx.
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[38] U.S. EPA: Health Effects Document for Perfluorooctane sulfonate (PFOS). May 2016. Accessed online, 11/25/16, at: https://www.epa.gov/sites/production/files/2016-05/documents/pfos_hesd_final_508.pdf
[39] ATSDR: Agency for Toxic Substances and Disease Registry – Minimal Risk Levels (MRLs) – March 2016; Accessed online 9/8/16 at: http://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls.pdf
[40] US EPA: Biomonitoring for Perfluorochemicals (PFCs) site. Updated 8/12/16. Accessed online, 11/25/16, at: https://www.epa.gov/ace/biomonitoring-perfluorochemicals-pfcs
[41] US EPA: Fact Sheet PFOA & PFOS Drinking Water Health Advisories. November 2016. Accessed online 11/23/16, https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf

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[43] UNEP 2006: United Nations Environment Programme. Report of the Persistent Organic Pollutants Review Committee on the work of its second meeting – Addendum: Risk profile on perfluorooctane sulfonate. November 2006. Accessed online at: http://chm.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx.
[44] UNEP 2006: United Nations Environment Programme. Report of the Persistent Organic Pollutants Review Committee on the work of its second meeting – Addendum: Risk profile on perfluorooctane sulfonate. November 2006. Accessed online at: http://chm.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx.
[45] UNEP 2006: United Nations Environment Programme. Report of the Persistent Organic Pollutants Review Committee on the work of its second meeting – Addendum: Risk profile on perfluorooctane sulfonate. November 2006. Accessed online at: http://chm.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx.
[46] HSDB: [Huang H et al; Aquat Toxicol 98 (2): 139-147 (2010) as cited in the ECOTOX database. Available from, as of February 22, 2016: http://cfpub.epa.gov/ecotox/quick_query.htm **PEER REVIEWED** Hazardous Substances Databank entry for 'Perfluorooctane sulfonic acid, CAS# 1763-23-1', Accessed online 11/23/16, https://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~DLzLOY:1
[47] UNEP 2006: United Nations Environment Programme. Report of the Persistent Organic Pollutants Review Committee on the work of its second meeting – Addendum: Risk profile on perfluorooctane sulfonate. November 2006. Accessed online at: http://chm.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx.
[48] UNEP 2006: United Nations Environment Programme. Report of the Persistent Organic Pollutants Review Committee on the work of its second meeting – Addendum: Risk profile on perfluorooctane sulfonate. November 2006. Accessed online at: http://chm.pops.int/Convention/POPsReviewCommittee/Chemicals/tabid/243/Default.aspx.
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[50] ECHA 2016: Harmonized classification – Annex VI of Regulation (EC) No 1272/2008 (CLP Regulation) CLP database entry for heptadecafluorooctane-1-sulphonic acid, CAS#: 1763-23-1. Accessed online, 11/25/16, at: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/82756.