789 N. Dixboro Rd,
Ann Arbor, Michigan
48105-9753 USA

T +1 734 769 8010
E standards@nsf.org
nsf.org

Joint Committee on Drinking Water Additives – System Components

July 2, 2024

**Proposed revision to NSF/ANSI/CAN 61 – Drinking Water System Components – Health Effects (61i180r2)**

Revision 2 of NSF/ANSI/CAN 61, issue 180 is being forwarded to the Joint Committee for consideration. Please review the proposal and **submit your ballot by July 23, 2024** via the NSF Online Workspace.

Please review all ballot materials. When adding comments, please include the section number applicable to your comment and add all comments under one comment number whenever possible. If you need additional space, please use the attached blank comment template in the reference documents and upload online via the browse function.

## Purpose

The proposed revision will expand the PFAS testing requirements for fluoropolymer materials within Tables 3.1 and 3.2, and add guidance for the PFAS test method to section N-1.7.4 (Organics Analysis).

## Background

Following discussion at the December 2022 Drinking Water Additives Joint Committee Meeting, a task group was formed to monitor the current state of science and regulatory action on the PFAS class of compounds and evaluate what product classes should be evaluated for PFAS under NSF 61. This PFAS task group has been meeting regularly in 2023, and this issue paper represents the first of many issue papers anticipated as an outcome of the work of the task group.

Currently, the minimum test requirements for materials in Table 3.1 and 3.2 only require testing for a single PFAS compound, perfluorooctanoic acid (PFOA), and only for fluoropolymer materials. The task group decided as a first priority to address whether additional PFAS compounds should be added to the minimum test batteries for these fluoropolymer compounds, which are known to be manufactured using a variety of PFAS compounds as process aids.

In April of 2024, the US EPA finalized primary drinking water standards (MCLs) for six PFAS compounds: PFOA, PFOS, PFNA, PFHxS, PFBS, and GenX Chemicals (HFPO-DA). These MCLs have been balloted for direct adoption as pass/fail criteria under NSF 600, according to the requirements of that standard. Additionally, a final EPA IRIS RfD has been set for PFHxA, which has also been balloted for addition to NSF 600.

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Analytical test methods for detecting these and other PFAS compounds exist under two EPA methods, 533 and 537.1. These methods are able to detect the above nine PFAS compounds at or below the proposed criteria, most of which are in the single parts per trillion range. The certification bodies represented on the PFAS task group have all confirmed that their laboratories are able to meet reporting limits that are at or below the proposed criteria for all seven compounds (see Table 1 below). Due to the extremely low health-based criteria for these compounds, the task group recommends that the standard specify the minimum reporting limits (RL) for each compound.

The PFAS task group found evidence for use of many of these seven PFAS compounds in fluoropolymer manufacturing: e.g. as surfactants during emulsion polymerization and emulsion stabilization. Surfactants used as process aids during the polymerization reaction are not typically included in formulation disclosures for fluoropolymer materials, and thus are difficult to identify on a formulation specific basis. Further, the specific PFAS compound being used in these manufacturing processes are quickly changing as new regulations restricting the use of specific PFAS are put into place. For example, the use of GenX compounds has replaced the use of PFOA in regions where PFOA use has been phased out. Given the lack of visibility into the specific PFAS compounds being used in the manufacture of any given material and the frequently changing landscape of PFAS use in manufacturing, the task group recommends that testing of these seven PFAS compounds be included as part of the minimum test batteries for all fluoropolymer materials under Table 3.1 and 3.2.

The task group recognizes that once the criteria for these PFAS compounds are added to NSF 600 (see anticipated criteria in Table 1), there is the potential for a significant impact on fluoropolymer-containing products that may extract PFAS, especially since testing for most of these compounds has not typically been performed by certifiers in the past, thereby limiting the availability of historical test data. Therefore, the task group recommends that the joint committee consider incorporating an implementation period into the standard for the new PFAS criteria once introduced to NSF 600, giving manufacturers a reasonable time to resolve any PFAS non-compliances identified through chemical extraction testing. In the meantime, requiring testing of these seven PFAS compounds within Tables 3.1 and 3.2 will allow certifiers and manufacturers to begin the process of identifying products that may leach PFAS, so that any non-compliances can be resolved prior to full implementation of the PFAS criteria within NSF 600.

Anticipated criteria for the seven PFAS compounds are outlined in Table 1 below; SPAC criteria are not provided but will be the TAC/10, using the default of 10 sources in drinking water. Criteria for PFBS, PFNA, GenX and PFHxS all have a basis in a published and peer-reviewed risk assessment meeting the requirements of NSF/ANSI/CAN 600 and have been balloted following JPRSC approval for addition to Table 4.1 of NSF/ANSI/CAN 600. PFBS, PFNA, PFHxS and GenX are also subject of the US EPA rule issued April of 2024 and are to be regulated using a mixtures approach (i.e. hazard index; see Table 1 for details). In addition, PFHxA would be included in the hazard index approach based on recommendations from Health Canada and US EPA. PFOA and PFOS criteria are also based on the US EPA rule, which identifies a maximum contaminant level goal (MCLG) of zero for

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these compounds due to increased risk of cancer at a very low levels of exposure. As such, the maximum contaminant levels (MCL) for these compounds are based on analytical feasibility with a common minimum detection limit of 4 ppt. These criteria are anticipated to be published in the 2024 iteration of NSF/ANSI/CAN 600.

Due to the very low criteria for these PFAS compounds and the lack of prior test data to understand the impact of such a change, the task group is recommending a three-year implementation period before enforcing the reduced criteria for PFOA and PFOS and before requiring compliance with the criteria for the other five PFAS compounds when evaluating products to the standard. Until Jan 1, 2028, PFOA and PFOS would be evaluated to the existing criteria of 70 ng/L, summed. Products would be required to be tested for PFNA, PFHxS, PFBS, GenX, and PFHxA where indicated in section 3, but detections of these compounds above their criteria would not preclude certification of products to this standard until Jan 1, 2028.

Note: when presented at the 2023 Drinking Water Additives Joint Committee meeting, nine PFAS were proposed for addition to NSF 61. However, as only seven of these compounds are being balloted for inclusion of pass/fail criteria within NSF/ANSI/CAN 600, this issue paper was updated to include only those 7 compounds in NSF 61 at this time. PFDA and PFHpA will be considered separately for both standards.

If you have any questions about the technical content of the ballot, you may contact me in care of:

France Lemieux, Chair
Joint Committee on Drinking Water Additives – System Components
c/o Amy Jump, Joint Committee Secretariat
T (313) 426-4918
E ajump@nsf.org

**[Note – the recommended changes to the standard which include the current text of the relevant section(s) indicate deletions by use of ~~strikeout~~ and additions by grey highlighting. Revision 2 changes are indicated by yellow highlighting. Rationale Statements are in *italics* and only used to add clarity; these statements will NOT be in the finished publication.]**

NSF/ANSI/CAN Standard
for Drinking Water Additives –

# Drinking Water System Components – Health Effects

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**Foreword**[1]

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It is the intent of the Joint Committee to adopt the updated testing and health effects requirements for PFAS compounds on January 1, 2028 as described in Section N-1.7.4.6. Certification bodies and other users of this standard are strongly encouraged to perform periodic assessments of the effects of this change on affected products and provide feedback to the Joint Committee.

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## 1.3 Normative references

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U.S. EPA-600/R-18/352. *Method 537.1: Determination Of Selected Per- And Polyfluorinated Alkyl Substances In Drinking Water By Solid Phase Extraction And Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), November 2018*[9]

U.S. EPA 815-B-19-020, *Method 533: Determination Of Per- And Polyfluoroalkyl Substances In Drinking Water By Isotope Dilution Anion Exchange Solid Phase Extraction And Liquid Chromatography/Tandem Mass Spectrometry, November 2019*[9]

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**Table 3.1**
**Material-specific analyses**

| Material type | Required analyses |
|---|---|
| . | |

**Table 3.1**
**Material-specific analyses**

| Material type | Required analyses |
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| . | |
| . | |
| **Joining and sealing materials** | |
| chloroprene | GC/MS, [b] VOCs, and 2-chloro-1,3-butadiene, phthalates, [j] PNAs, [b] nitrosoamines [l] |
| ethylene-propylene-diene monomer (EPDM) | GC/MS, [b] VOCs, phthalates, [j] PNAs, [b] nitrosoamines [l] |
| ethylene tetrafluoroethylene (ETFE) | GC/MS, [b] VOCs, ~~perfluorooctanoic acid~~ PFAS[q] |
| flux | GC/MS, [b,c] VOCs, regulated metals, [a,c] PNAs [b,c] |
| fluoroelastomer | GC/MS, [b] VOCs, ~~perfluorooctanoic acid~~ PFAS[q] |
| isoprene | GC/MS, [b] VOCs, phthalates, [j] PNAs, [b] isoprene monomer, nitrosoamines [l] |
| nitrile-butadiene rubber (NBR, BUNA-N, HNBR) | GC/MS, [b] VOCs, phthalates, [j] PNAs, [b] 1,3-butadiene, acrylonitrile, nitrosoamines [l] |
| PTFE (polytetrafluoroethylene) | GC/MS, [b] VOCs, ~~perfluorooctanoic acid~~ PFAS[q] |
| PVDF (polyvinylidene fluoride) | GC/MS, [b] VOCs, vinylidene fluoride, hexafluoropropene, PFAS[q] |
| silicone | GC/MS, [b] VOCs, 2,4-dichlorobenzoic acid |
| solder | regulated metals, [a] aluminum, bismuth, nickel, silver, strontium, zinc |
| solvent cements | GC/MS, [b] VOCs, [c] acetone, tetrahydrofuran, cyclohexanone, methyl ethyl ketone, dimethylformamide, methyl isobutyl ketone |
| styrene-butadiene rubber (SBR) | GC/MS, [b] VOCs, phthalates, [j] PNAs, [b] 1,3-butadiene, styrene, nitrosoamines [l] |
| **Barrier materials** | |
| . | |
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| . | |

[a] Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, selenium, thallium. Chromium shall be evaluated against the pass/fail criteria of chromium VI as a screening level. If the normalized result exceeds this criteria, the sample shall be tested according to the method described in Section N-1.7.3 and shall be evaluated against the pass/fail criteria listed in Table 4.1 of NSF/ANSI/CAN 600 for the tested product. Regardless of chromium species, the total chromium pass/fail criteria shall not be exceeded.

[b] See Section N-1.7.

[c] The testing may be waived for a this specific analyte where formulation information indicates that it is not present. In instances where the complete formulation has not been obtained for the material as allowed through Note 1 of Section 3.2, testing shall include this analyte.

[d] Concrete aggregate sampling is required only if the method for testing for individual concrete components is used. Aggregate sampling is not required if concrete cylinders are tested for the constituents in portland and hydraulic cements.

[e] Aluminum, antimony, arsenic, barium, beryllium, bismuth, cadmium, cerium, cobalt, chromium, cesium, copper,

**Table 3.1**
**Material-specific analyses**

| Material type | Required analyses |
|---|---|
| dysprosium, erbium, europium, gallium, gadolinium, germanium, hafnium, indium, lanthanum, lead, lithium, lutetium, manganese, mercury, molybdenum, niobium, neodymium, nickel, palladium, praseodymium, platinum, rubidium, rhenium, rhodium, ruthenium, samarium, selenium, silver, strontium, tantalum, tellurium, thallium, tin, titanium, tungsten, uranium, vanadium, tungsten, ytterbium, zinc, zirconium. Chromium shall be evaluated against the pass/fail criteria of chromium VI as a screening level. If the normalized result exceeds this criteria, the sample shall be tested according to the method described in Section N-1.7.3 and shall be evaluated against the pass/fail criteria listed in Table 4.1 of NSF/ANSI/CAN 600 for the tested product. Regardless of chromium species, the total chromium pass/fail criteria shall not be exceeded.<br><br>[f] *Tert*-Butyl alcohol analysis is required for PEX materials except those crosslinked via e-beam methodology.<br><br>[g] The analysis for tin is required when tin-based stabilizers are used.<br><br>[h] The analysis for antimony is required when antimony-based stabilizers are used.<br><br>[i] The level of RVCM within the walls of PVC or CPVC products and materials shall be directly determined (Section N-1.7).<br><br>[j] The analysis for phthalates is required when phthalate ester plasticizers are used. Analysis shall be for the specific phthalate ester(s) used in the formulation.<br><br>[k] The analysis for zinc is required when zinc-based stablilizers are used.<br><br>[l] Analysis for n-nitrosodimethylamine, n-nitrosomethylethylamine, n-nitrosodiethylamine, n-nitrosodi-n-propylamine, n-nitrosopyrrolidine, n-nitrosomorpholine, n-nitrosopiperidine, n-nitrosodi-n-butylamine and n-nitrosodiphenylamine are required when material is sulfur cured.<br><br>[m] Analysis shall be performed using liquid chromatography with ultraviolet detection (LC/UV).<br><br>[n] Analysis shall be performed for the specific solvent and reactive diluent additives used in the individual product formulation, such as benzyl alcohol.<br><br>[o] Analysis shall be performed for residual concentrations of the specific ester monomers used in the individual product formulation.<br><br>[p] Glycol and ethanolamine analyses shall be performed on cements containing these compounds as grinding aids.<br>[q] Perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), perfluorobutanesulfonic acid (PFBS), hexafluoropropylene oxide dimer acid and its ammonium salt (GenX), perfluorohexanoic (PFHxA). Refer to N-1.7.4.6 for compliance timelines for PFAS criteria. |

**Table 3.2**
**Material specific analyses not listed in Table 3.1 or materials without formulation information (excluding coatings and process media)**

| Material type | Material specific analyses [a] | Suggested Method [b] |
|---|---|---|
| metallic materials not listed in Table 3.1 | aluminum, antimony, arsenic, barium, beryllium, bismuth, cadmium, cerium, cobalt, chromium, hexavalent chromium, cesium, copper, dysprosium, erbium, europium, gallium, gadolinium, germanium, hafnium, indium, lanthanum, lead, lithium, lutetium, manganese, mercury, molybdenum, niobium, neodymium, nickel, palladium, praseodymium, platinum, rubidium, rhenium, rhodium, ruthenium, samarium, selenium, silicon, silver, strontium, tantalum, tellurium, thallium, tin, titanium, tungsten, uranium, vanadium, tungsten, ytterbium, zinc, zirconium<br><br>Chromium shall be evaluated against the pass/fail criteria of chromium VI as a screening level. If the normalized result exceeds this criteria, the sample shall be tested according to the method described in Section N-1.7.3 and shall be evaluated against the pass/fail criteria listed in NSF/ANSI/CAN 600, Table 4.1: *Drinking water criteria* for the tested product. Regardless of chromium species, the total chromium pass/fail criteria shall not be exceeded. | EPA 200.8 |
| plastic materials not listed in Table 3.1 | bisphenol A, caprolactam, dimethyl phenol, terephthalic acid, isophthalic acid, hexamethylene diamine, acrylic acid, methacrylic acid, bisphenol A-propylene oxide adducts, hydroquinone, phthalic acid, 1,4-butanediol, p-phenylenediamine, o-phenylenediamine, 1,6-hexanediol, m-phenylenediamine, melamine, triethylene diamine, trimethylolpropane | LC/UV |
| | nylon monomers = 11-aminoundecanoic acid, 1,10-diaminodecane, laurolactam, adipic acid, 2-methyl-1,5-pentanediamine | LC/UV |
| | sulphone monomer, 4,4'-dichlorodiphenyl sulfone, and diphenyl sulfone | LC/UV |
| | formaldehyde | EPA 8315A |
| | RVCM, 1,2-dichloro-3-propanol, 1,3-dichloro-2-propanol, methyl butenol isomers, methylene bis-cyclohexylamine 4,4'-, cyclohexanamine methylenebis methyl propyl, methylenedianiline, methanol | GC/FID |
| | dimethylphthalate, diethylphthalate, bis(2-ethylhexyl)phthalate (DEHP), di-n-butylphthalate | EPA525.2 |
| | 1,3-butadiene, styrene, *tert*-butyl alcohol, VOCs, epichlorohydrin, methyl-*tert*-butyl ether (MTBE), vinylidene fluoride, hexafluoropropylene, acrylonitrile | EPA 524.2 |
| | antimony, arsenic, barium, beryllium, cadmium, chromium, hexavalent chromium, copper, lead, mercury, selenium, thallium, tin<br><br>Chromium shall be evaluated against the pass/fail criteria of chromium VI as a screening level. If the normalized result exceeds this criteria, the sample shall be tested according to the method described in Section N-1.7.3 and shall be evaluated against the pass/fail criteria listed in NSF/ANSI/CAN 600, Table 4.1 for the tested product. Regardless of chromium species, the total chromium pass/fail criteria shall not be exceeded. | EPA 200.8 |

**Table 3.2**
**Material specific analyses not listed in Table 3.1 or materials without formulation information (excluding coatings and process media)**

| Material type | Material specific analyses [a] | Suggested Method [b] |
|---|---|---|
| | phenolics, acetal oligomers, dimethyl terephthalate, diethylphthalate, diisobutylphthalate, di-n-butylphthalate, butylbenzylphthalate, di-n-octylphthalate | EPA 625 BNA |
| | ~~perfluorooctanoic acid~~ PFAS[c] | LC/MS ES |
| elastomer materials not listed in Table 3.1 | phenolics (by GC/MS base/acid scan), PNAs, semivolatile compounds, bisphenol F, bisphenol F – propylene oxide adducts, diisobutylphthalate diethylphthalate, dimethyl terephthalate, butylbenzylphthalate, di-n-butylphthalate, butylbenzylphthalate, di-n-octylphthalate | EPA 625 BNA |
| | VOCs, and 2-chloro-1,3-butadiene, isoprene monomer, chloroprene, 1,3-butadiene, acrylonitrile, vinylidene fluoride, hexafluoropropene, 2,4-dichlorobenzoic acid, alpha-methyl styrene, styrene, isobutylene | EPA 524.2 |
| | aniline | GC/ECD |
| | ~~perfluorooctanoic acid~~ PFAS[c] | LC/MS ES |
| | dimethylphthalate, diethylphthalate, di-n-butylphthalate, diphenylamine, bis(2-ethylhexyl)phthalate (DEHP), p-phenylenediamine, o-toluidine, o-phenylenediamine, m-phenylenediamine | EPA 525.2 |
| | n-nitrosodimethylamine, n-nitrosomethylethylamine, n-nitrosopiperidine, n-nitrosodiethylamine, n-nitrosodi-n-propylamine, n-nitrosopyrrolidine, n-nitrosomorpholine, n-nitrosodi-n-butylamine, n-nitrosodiphenylamine | EPA 521 |
| | metals | EPA 200.8 |
| adhesives | tetraethylene glycol, ethylene glycol, 2-ethyl-1,3-hexanediol | LC/MS |
| | m-phenylene diamine, methacrylic acid, bisphenol A, bisphenol A - propylene oxide adducts, melamine, maleic acid, hydroquinone, acrylic acid, ethyl-2-cyanoacrylate | LC/UV |
| | acetates and acrylates, 1,3-butylene glycol dimethacrylate, semivolatile compounds | EPA 625 |
| | formaldehyde | EPA 8315A |
| | epichlorohydrin, 1,3-butadiene, acrylonitrile | EPA 524.2 |
| | 1,3-dichloro-2-propanol in water, methylenedianiline micro / derivatization, 1,3-dichloro-2-propanol, micro / derivatization, 1,2-dichloro-3-propanol, aniline | GC/FID |
| | *1,4- butanediol, cyanoacetic acid, benzyl alcohol | LC/MS |
| lubricants | phenolics | EPA 625 |
| | 2,4-dichlorobenzoic acid, acrylic acid | LC/UV |
| | ~~perfluorooctanoic acid~~ PFAS[c] | LCMS/ES- |
| | propylene glycol; ethylene glycol | LC/MS |
| other materials not | chlorobenzenediamine, and dichlorobenzenediamine isomers | derivatization GC/ECD |

**Table 3.2**
**Material specific analyses not listed in Table 3.1 or materials without formulation information (excluding coatings and process media)**

| Material type | Material specific analyses [a] | Suggested Method [b] |
|---|---|---|
| listed in Table 3.1 without formulation information (excluding coatings and process media) | volatile organic compounds including 2-methylpropene (isobutylene), tetrahydrofuran, cyclohexanone, acetone, 1,3-butadiene, 2-chloro-1,3-butadiene (chloroprene), epichlorohydrin, methyl ethyl ketone, 2-methyl-1,3-butadiene (isoprene), divinyl benzene (vinyl styrene), 2,4-dichlorobenzoic acid, 2-methylpropene (isobutylene) methyl-tert-butyl ether (MTBE), alpha-methyl styrene, hexafluoropropylene, vinylidene fluoride, hydroquinone monomethyl ether, acrylonitrile | EPA 524.2 |
| | semivolatile compounds, PNAs, acetates and acrylates, ethyl acetate, vinyl acetate, 1,4-dioxane, ethylhexyl acrylate, dimethyl terephthalate, diethylphthalate, diisobutylphthalate, di-n-butylphthalate, di-n-octylphthalate, butylbenzylphthalate | EPA 625 BNA |
| | gross alpha and beta radioactivity in drinking water | EPA 900.0 |
| | acrylamide by derivitization, captan, methylenedianiline aniline, micro / derivatization, methylene bis-cyclohexylamine 4,4'-, microextraction | GC/ECD |
| other materials not listed in Table 3.1 without formulation information (excluding coatings and process media) | methyl-2-propanol, 2-, (t-butylalcohol), methanol, n-butanol, *sec*-butyl alcohol, methyl butenol isomers, 1,2-dichloro-3-propanol, 1,3-dichloro-2-propanol in water, 1-propanol, 2-propanol | GC/FID |
| | aluminum, antimony, arsenic, barium, beryllium, bismuth, cadmium, cerium, cobalt, chromium, hexavalent chromium, cesium, copper, dysprosium, erbium, europium, gallium, gadolinium, germanium, hafnium, indium, lanthanum, lead, lithium, lutetium, manganese, mercury, molybdenum, niobium, neodymium, nickel, palladium, praseodymium, platinum, rubidium, rhenium, rhodium, ruthenium, samarium, selenium, silicon, silver, strontium, tantalum, tellurium, thallium, tin, titanium, tungsten, uranium, vanadium, ytterbium, zinc, zirconium<br><br>Chromium shall be evaluated against the pass/fail criteria of chromium VI as a screening level. If the normalized result exceeds this criteria, the sample shall be tested according to the method described in Section N-1.7.3 and shall be evaluated against the pass/fail criteria listed in NSF/ANSI/CAN 600, Table 4.1 for the tested product. Regardless of chromium species, the total chromium pass/fail criteria shall not be exceeded. | EPA 200.8 |
| | triethylene diamine, 1,6-hexanediol, 2-ethyl-1,3-hexanediol, trimethylolpropane, propylene glycol, ~~perfluorooctanoic acid~~ PFAS[c], diethylene glycol, ethylene glycol, hexalene glycol, tetraethylene glycol, triethylene glycol, dipropylene glycol | LC/MS |

**Table 3.2**
**Material specific analyses not listed in Table 3.1 or materials without formulation information (excluding coatings and process media)**

| Material type | Material specific analyses [a] | Suggested Method [b] |
|---|---|---|
| other materials not listed in Table 3.1 without formulation information (excluding coatings and process media) | benzyl alcohol, bisphenol A , bisphenol A - propylene oxide adducts, bisphenol F, diphenyl sulfone, 4,4'-dichlorodiphenyl sulfone, dimethylformamide, n,n-dimethylacetamide, diphenylamine, di-t-butyl-4-alkyl phenols, ethylenethiourea (2-imidazolidinethione), hydroquinone, methyl-2-pyrrolidinone, n,n-diethyl-p-toluidene, isomers of phenylene diamine, toluenediamine, 2,4-, toluenediamine, 2,6-, tetramethyl thiuram monosulfide, diethylene triamine, ethylene diamine, 2-methyl-1,5-pentanediamine, ethyl-2-cyanoacrylate, laurolactam, 1,3-butylene glycol dimethacrylate, caprolactam, acrylic acid, adipic acid11-aminoundecanoic acid, hexamethylene diamine, maleic acid, methacrylic acid, melamine trimellitic acid, cyanoacetic acid | LC/UV |
| | n-nitrosodimethylamine, n-nitrosomethylethylamine, n-nitrosodiethylamine, n-nitrosodi-n-propylamine, n-nitrosopyrrolidine, n-nitrosomorpholine, n-nitrosopiperidine, n-nitrosodi-n-butylamine, n-nitrosodiphenylamine | EPA 521 |
| | 1,4-butanediol | LC/MS |
| | formaldehyde | EPA 8315A |
| | 4,4'-methylenebis[N-(1 -methylpropyl)- cyclohexanamine, 2-methylimidazole | LC/MS |
| | isophthalic acid, phthalic acid, terephthalic acid, o-toluidine, n,n-diethyl-p-toluidene, dimethylphthalate, diethylphthalate, di-n-butylphthalate, bis(2-ethylhexyl)phthalate (DEHP) | EPA 525.2 |

[a] The testing may be waived for a specific analyte when partial information indicates that it is not present.

[b] Refer to Section N-1.7 for analytical methods. Alternate methods that have been validated may be used.
[c] Perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), perfluorobutanesulfonic acid (PFBS), hexafluoropropylene oxide dimer acid and its ammonium salt (GenX), perfluorohexanoic (PFHxA). Refer to N-1.7.4.6 for compliance timelines for PFAS criteria.

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# Normative Annex 1

**Product / material evaluation**

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## N-1.7 Analysis methods

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**N-1.7.4.6 Per- and Polyfluoroalkyl Substances (PFAS) Analysis**

Analysis for perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), perfluorobutanesulfonic acid (PFBS), hexafluoropropylene oxide dimer acid and its ammonium salt (GenX), and perfluorohexanoic (PFHxA) shall be in accordance with U.S. EPA Method 533, U.S. EPA Method 537.1, or an alternate validated method with equivalent sensitivity.

NOTE — Testing for these compounds has been specified for the indicated materials in Tables 3.1 and 3.2 based on evidence of their potential presence in these materials.

Maximum reporting limits (RL) for these compounds shall be 4 parts per trillion for PFOA and PFOS; 5 parts per trillion for PFNA, PFHxS, GenX, and PFHxA; and 6 parts per trillion for PFBS.

The summed detections of PFOA and PFOS shall be evaluated to a TAC and SPAC of 70 and 7 ng/L, respectively, until Jan 1, 2028, after which they shall be evaluated to the criteria published in NSF/ANSI/CAN 600.

PFNA, PFHxS, PFBS, GenX, and PFHxA shall be tested in products as directed in Section 3, but detections of these compounds shall not be used to determine compliance with this standard until Jan 1, 2028. After this date, these compounds shall be evaluated to the criteria shown in NSF/ANSI/CAN 600.