NSF Sustainability Assessment for – Water Contact Products

1 General

In order to achieve a sustainable product rating, a product shall provide environmental, economic, and social benefits while protecting and enhancing the needs of future generations, public health and welfare, and the environment over its full commercial cycle, from raw materials extraction to final disposition. A sustainable product shall also provide performance and quality equivalent to those of similar products. A certified and non-certified product shall not have the same trade name or trademarked designation.

A sustainable product shall demonstrate multiple attributes that protect public health and environment and foster healthy and prosperous conditions for human and ecological systems throughout its supply chain.

1.1 Purpose

The purpose of this document is to provide a consistent framework for collecting data and communicating information on the sustainable attributes of water contact products. Such information is expected to encourage the demand for and supply of water contact products that have a reduced impact on the environment and society, thereby stimulating the potential for market-driven continuous improvement.

This Standard is intended to be science based, provide transparency, and offer credibility for manufacturers in making claims of environmental preferability and sustainability, and to harmonize the principles and procedures used to support such claims.

These criteria promote a practice for assessing the sustainability of water contact products. Sustainability-related information can inform a manufacturer's decisions about supply chain modifications, product(s) content changes, manufacturing adjustments, performance improvements, end-of-life options, and corporate governance, with the goal of producing more sustainable products.

This Standard provides a means to track incremental changes in the products' sustainability profile.

1.2 Scope

This Standard covers products that contact drinking water, wastewater, and recreational water and their packaging. The document includes relevant criteria across the product(s) life cycle from raw material extraction through manufacturing, use, and end-of-life management.

The Standard may be primarily used by water contact product(s) manufacturers interested in understanding the sustainability performance of their product(s). Independent auditors, certification bodies and environmental labeling organizations are also potential users in support of market-based environmental and sustainability claims. The output from the Standard may be referenced by purchasers and consumers who wish to ensure that manufacturers are accurately declaring the sustainable nature of their products.

1.3 Principles

This Standard was developed based on the following important principles.

1.3.1 Life cycle consideration

The life cycle of a product(s) ranges from activities associated with the generation of natural resources for production and delivery of raw materials to the final disposal of the product at the end of its useful life. This document was developed to consider the impacts of the product at the different life cycle stages of the products to identify the appropriate and relevant characteristics and criteria to be used in evaluating a product's sustainability.

1.3.2 Relationship with legislation

A precondition for claiming conformance with this Standard shall be compliance with applicable local, state, and federal (or provincial) regulations.

1.3.3 International trade aspects

The procedures and requirements included within this Standard have been prepared, adopted, or applied with a view to avoiding unnecessary obstacles to international trade.

1.3.4 Scientific basis

The criteria contained in this Standard were developed and selected based on scientific and engineering principles intended to produce accurate, reproducible results.

2 Normative references [TBD]

{add in that these can be references from other countries equivalent to those in this standard} {add in normative ref intro paragraph}

2.1 Corporate Governance

Age Discrimination in Employment Act of 1967[1]

Civil Rights Act of 1991[1]

Equal Pay Act of 1963[1]

Rehabilitation Act of 1973[1]

Titles I and V of the Americans with Disabilities Act of 1990 (ADA)[1]

Title VII of the Civil Rights Act of 1964[1]

ILO C29 Forced Labour Convention, 1930[2]

[1] EEOC Headquarters, U.S. Equal Employment Opportunity Commission, 131 M Street, NE, Washington, DC 20507 <www.eeoc.gov>

ILO C105 *Abolition of Forced Labour Convention,* 1957[2]

ILO C182 *Worst Forms of Child Labour Convention*, 1999[2]

2.2 Product Manufacturing

Green-e Renewable Electricity Certification Program[3]

International Organization for Standardization (ISO) 9001: 2000, Quality management systems – Requirements[4]

International Organization for Standardization (ISO) 14025: 2006, Environmental labels and declarations – type III environmental declarations – principles and procedures[11]

International Organization for Standardization (ISO) 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines[11]

ISO 14001, 2004, *Environmental management systems – Requirements with guidance for use*[5]

ISO 14021, 1999, *Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling)*[5]

ISO 14040, 2006, *Environmental management – Life cycle assessment – Principles and framework*[5]

ISO 14064:1, 2006, *Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*[5]

ISO 14064:2, 2006(E), *Greenhouse gases – Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements*[5]

ISO 14064:3, 2006, *Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions*[5]

NSF/ANSI 40 Residential wastewater treatment systems

NSF/ANSI 42 Drinking water treatment units – Aesthetic effects (section 4)

NSF/ANSI 46 Evaluation of components and devices used in wastewater treatment systems

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[2] International Labour Office, 4 route des Morillons CH-1211 Geneva 22, Switzerland <www.ilo.org>

[3] Green-e, Center for Resource Solutions, 1012 Torney Ave., Second Floor, Sanf Francisco, CA 94129 <www.green-e.org>

[4] International Organization for Standardization, ISO Central Secretariat, 1, ch. De la Voie-Cruese, CP 56, CH-1211 Geneva 20, Switzerland <www.iso.org>

[5] International Organization for Standardization (ISO), 1 ch. de la Voie-Creuse, Case postale 56, CH-1211 Geneva 20, Switzerland <www.iso.org>

NSF/ANSI 50 Equipment for swimming pools, spas, hot tubs, and other recreational water facilities

NSF/ANSI 53 Drinking Water Treatment Units – Health Effects (Section 4)

NSF/ANSI 55 Ultraviolet microbiological water treatment systems

NSF/ANSI 58 Reverse osmosis drinking water treatment systems

NSF/ANSI 61 Drinking Water System Components – Health Effects

NSF/ANSI 62 Drinking water distillation systems

NSF/ANSI 177 Shower filtration systems – Aesthetic effects

NSF/ANSI 222 Ozone generators

NSF/ANSI 245 Wastewater treatment systems - nitrogen reduction

NSF/ANSI 350 Onsite residential and commercial water reuse treatment systems

NSF/ANSI 350-1 Onsite residential and commercial graywater treatment systems for subsurface discharge

NSF/ANSI 372 Drinking water treatment system components – lead content

Occupational Health and Safety Administration (OSHA)[6]

United States Environmental Protection Agency (USEPA) *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA)[7]

United States Environmental Protection Agency (USEPA) *Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI)*[8]

United States Environmental Protection Agency (USEPA) *Toxics Release Inventory (TRI) Program*[9]

CML, Leiden University Institute of Environmental Sciences, *Chain Management by Life Cycle Assessment (CMLCA)*[10]

[6]Occupational Health and Safety Administration (OSHA), U.S. Department of Labor Occupational Safety & Health Administration, 200 Constitution Avenue, Washington, D.C. 20210 <www.osha.gov>

[7] U. S. Environmental Protection Agency, Office of Emergency Management, Ariel Rios Building (5104A), 1200 Pennsylvania Avenue, NW, Washington, D.C. 20460, <http://www.epa.gov/oem/content/hazsubs/cercsubs.htm>

[8] U. S. Environmental Protection Agency, PA Office of Research and Development National Risk Management Research Laboratory, Sustainable Technology Division – Systems Analysis Branch (MS-466), 26 West Martin Luther King Drive, Cincinnati, OH 45268 <www.epa.gov/nrmrl/std/traci/traci.html>

[9] U. S. Environmental Protection Agency, National Center for Environmental Assessment, Office of Research and Development, Washington, DC 20460 <www.epa.gov/triinter/lawsandregs/pbt/pbtrule.htm>

International Carbon Reduction and Offset Alliance ICROA Program and Policy Framework 2009

3 Definitions

3.x bio-based resource: A product(s) component (other than food or feed) that is derived in whole or significant part from biological production operations, such as agriculture, forestry, or fisheries. A bio-based resource can be exhausted if improperly managed. However, a bio-based resource can be produced indefinitely with proper stewardship.

3.x boundary: Limitations that provide waste and environmental effects.

3.x consumable: any part of a water treatment product that is replaced on a regular interval. This may include filters, resin, batteries or media.

3.x policy: principles for driver for plan goals; statement of intent to set goals; implemented as a program; statement of organization commitment

3.x plan: documentation of goals for a particular program area; setting the goal

3.x program: implementation of the goals of a plan

3.x durability: ability to meet or exceed the expected lifetime of a product under a set of use conditions as defined by a specific product standard.

3.x innovation: product, processes or services that provide new, novel approaches to meeting market or societal needs in a manner that reduces material or resource content, lowers adverse human health or ecological impacts or improves durability.

3.x type III environmental declaration: providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information (ISO 14025).

3.x environmentally preferable: A product(s), material or content that has a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose.

3.x supplier: A vendor who provides a material ingredient that comprises at least 5% by weight of a particular finished product(s), or that contains one or more chemicals of concern as defined by Annex C. {Supplier TG to discuss chemicals of concern in what quantity (i.e., 1000 ppm?)}

3.x life cycle assessment (LCA): A systematic evaluation of the environmental impact of a product(s) that may include all stages of its life cycle.

[10] Leiden University Institute of Environmental Sciences (CML), P. O. Box 9518 2300 RA Leiden, The Netherlands <www.leidenuniv.nl/interfac/cml/ssp/index.html>

3.x life cycle impact assessment (LCIA): A phase of life-cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impact categories.

3.x life cycle inventory analysis: A phase of life-cycle assessment involving compilation and quantification of inputs and outputs for a given product(s) system that may include all stages of its life cycle.

3.x local employment: Employment of workers who reside within 15 mi of the primary place of employment, or can access the primary place of employment within 30 min on public transit or by car pool.

3.x manufacturer: the parent corporation, manufacturing facility(ies), and/or business unit.

3.x publicly disclosed (or public disclosure): Documentation displayed on a website, in a company report, available upon request, or other means that public access is not restricted.

3.x post-consumer recycled material: Waste material generated by households or by commercial, industrial, and institutional facilities in their role as end users of a product(s), which is no longer used for its intended purpose (see ISO 14021).

3.x pre-consumer recycled material (post-industrial): Material diverted from the waste stream during the manufacturing process. This term excludes reutilized materials such as rework, regrind, and scrap that are capable of being reclaimed within the same process that generated them.

3.x product category rule: set of specific rules, requirements and guidelines for developing Type III environmental declarations for one or more product categories (ISO 14025).

3.x registration: A procedure by which an independent third party gives written assurance that a system conforms to specified requirements, mandatory or voluntary, regulated or non-regulated.

3.x social responsibility: State of operating your company in a way that has a positive impact on the community in which you operator (workforce, environment, suppliers, health and safety).

- Corporate governance
- Providing a desirable workplace
- Be involved in the local community/have a positive impact
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3.x sustainable development: development which meets the needs of the present without compromising the ability of future generations to meet their own needs.[11]

3.x waste: material that is managed via landfilling or incineration.

3.x drinking water: Water that is intended for human consumption (i.e., ingestion, dermal, inhalation).{from NSF/ANSI 330}

3.x recreational water: Water that is intended to for human body contact such as pools, spas, hot tubs, splash zones, and other types of water facilities (NSF/ANSI 50).

[11] United Nations 1987 Brundtland Report (Our Common Future). <http://www.un.org>

3.x wastewater: Water that discharges to the drain such as backwash or reject water. {from NSF/ANSI 330}

From AWWA:
Potable Water: Water that is safe and satisfactory for drinking and cooking.
Reclaimed Water: Wastewater that becomes suitable for beneficial use as a result of treatment.
Waste Water: A combination of the liquid and water-carried waste from residences, commercial buildings, industrial plants, and institutions, together with any groundwater, surface water, and stormwater that may be present.

4 Conformance, evaluation, and assessment criteria

4.1 Elements

The sustainability assessment criteria in this Standard are divided into six basic categories consisting of elements that are potentially available to organizations seeking compliance with the Standard. The six categories are:

- Product Design;
- Product Manufacturing;
- Durability;
- End of Life Management;
- Corporate Governance; and
- Innovation.

The criteria are grouped in general alignment with a product's life cycle, from design (including raw material selection and their production) to manufacturing, use, and end of life. Additionally, criteria related to corporate governance are included to address issues of social responsibility.

4.2 Scoring methodology

For users choosing to rate the sustainability performance of products evaluated in accordance with this Standard, a point-based scoring system has been developed. Presented in Annex A, this system is based on a XX-point scale (excluding optional innovation credits), with the different points for the various assessment criteria allocated as follows:

a) Product Design –X points
b) Product Manufacturing – X points
c) Durability– X points
d) End of Life Management – X points
e) Corporate Governance – X points
f) Innovation and continuous improvement – maximum of X points

4.3 Procedures for labeling and reporting

4.3.1 Basic principle

The methodology for assessing whether a product(s) conforms to the environmental and social responsibility criteria and for verifying ongoing conformance shall be documented and be of sufficient detail to provide consumer confidence that this Standard has been correctly applied.

4.3.2 Declaration of level of conformance/labeling

4.3.2.1 Criterion methodology

- Prerequisite: required to claim any level of conformance.
- Requisite: required for points toward achievement level or conformance.
- Optional: manufacturer chooses criterion for additional points to meet achievement level.

4.3.2.2 Achievement level

Achievement of conformance with the prerequisite criteria/points shall permit users to make the following product(s) declarations:

a) Sustainable Product(s) Achievement – Conformant: Minimum X points
b) Sustainable Product(s) Achievement – Silver: Minimum X points
c) Sustainable Product(s) Achievement – Gold: Minimum X points
d) Sustainable Product(s) Achievement – Platinum: Minimum X points

4.3.3 Public reporting

Users making a declaration of conformance should report this in a publicly available document. Publicly available for purposes of this Standard includes:

– Part of the company's annual report, available to all who request a copy; or
– Online (e.g., downloadable from the company's website).

4.3.4 Monitoring and reevaluation

The manufacturer shall maintain documented procedures that demonstrate measurement of, and the regular monitoring of continued conformance to this Standard.

4.3.5 Non-conformance and corrective and preventative action

Authority shall be assigned and supported by corporate management for identifying and investigating non-conformance, and taking the appropriate action. In establishing and maintaining procedures for investigating and correcting non-conformance, the manufacturer shall include these basic elements:

a) Identify the cause of the non-conformance;
b) Identify and implement the necessary corrective action;
c) Implement or modify controls necessary to avoid repetition of the non-conformance; and
d) Record any changes in written procedures resulting from the corrective action.

4.3.6 Certification

Information on suggested parameters for third-party certification is provided in Annex B.

4.4 Boundaries

For the product under assessment, a boundary diagram shall be submitted showing all aspects that are included in this assessment. The boundary shall be applicable throughout the criteria in the Standard.

5 Product design

5.1 Purpose

The criteria in this section are intended to encourage the understanding of environmental impacts of products by the product designers and developers. To drive industry improvements and reduce negative environmental impacts, the following criteria are available.

5.2 Prerequisite: Design policy - environmental assessment

The manufacturer shall develop an environmental assessment plan within the product design and development system. The plan shall consider the environmental attributes and life cycle impacts of its products and packaging, including issues such as designing for longevity, designing for reusability, and designing for recyclability and/or compostability. The environmental assessment plan shall consider environmental attributes and life cycle impacts of products and packaging across the entire product life cycle (e.g., raw material extraction, manufacturing, use, and end of life).

5.3 Requisite: Design program – environmental assessment

The manufacturer shall receive X point for developing and implementing a program for the Design policy in 5.2. The environmental assessment program shall implement steps toward life cycle thinking considering environmental attributes and life cycle impacts of products and packaging across the entire product life cycle (e.g., raw material extraction, manufacturing, use, and end of life).

5.4 Optional: Design program – maintenance and repair

The manufacturer shall receive X point for demonstrating a plan addressing minimization of maintenance and repair for the water contact product during its intended use. This shall include cost, materials, replacement components and consumables.

5.5 Life Cycle

5.5.1 Optional: Life cycle inventory

The manufacturer shall receive X point if it completes a life cycle inventory for the product undergoing assessment using the boundary defined in 4.4 or cradle to gate or cradle to grave.

5.5.2 Optional: Life cycle assessment

The manufacturer shall receive X if it completes a Life Cycle Assessment conforming to ISO 14040 / ISO 14044 standards using the boundary as defined in 4.4. The LCA may be product specific or industry based. Life cycle impact assessment factors shall be taken from publicly available sources such as

TRACI (USEPA Tools for the Reduction and Assessment of Chemical) and other Environmental Impacts or CMLCA (Institute of Environmental Sciences, Leiden University).

5.5.3 Optional: Impact improvements

The manufacturer shall receive X point for demonstrating an impact reduction program addressing at least 10% reduction from a manufacturer set baseline in a minimum of two impact categories contained in the USEPA TRACI model. The baseline established by each manufacturer shall be no more than five years prior to the current product certification year.

For the purposes of this section, a baseline shall be chosen using one of the following:

- same product construction (improvements within the same product construction's design, processing, materials, etc.);
- same product family (improvements in design and development within the same family of products as a trend towards sustainability);
- the product that was/is being replaced (improvements in new products meant to replace older, less sustainable versions);
- most popular product from sales perspective within the same product category (new product developments compared to the product with the most market share); or
- average construction of all products sold (as a general trend, new products being developed are intended to improve and drive down the overall impacts).

Within each option, the sales weighted average of product constructions that comprise the baseline should be chosen as representing the baseline. If no baseline is available for a specific company and specific product, then no points shall be claimed in this section until such a baseline is established.

5.4.4 Optional: Contribution to US Life Cycle Inventory

The manufacturer shall receive X point for contributing the relevant life cycle data on the product to the life cycle databases such as USLCI, ecoinvent, ELCD, etc.

5.4.5 Optional: Type III Environmental Declaration (EPD)

The manufacturer shall receive X point for an Environmental Product Declaration (EPD) conducted in accordance with ISO 14025 following the requirements of an open consultation-based Product Category Rule (PCR) and verification conducted by an independent third party.

OR

The manufacturer shall receive X point for an independent third party review of their Life Cycle Assessment as in 5.4.2 Optional: Life cycle assessment.

5.5 Environmentally sustainable material inputs

The criteria in this section are intended to ensure that the manufacturer is fully informed as to the material composition and human and ecological hazards associated with the chemical composition of its products, including packaging and all applicable components. The criteria are meant to encourage the selection and use of component materials manufactured wholly or in part from environmentally sustainable inputs such as recycled materials (post-consumer and pre-consumer) and bio-based resources. These criteria are also meant to encourage the use of environmentally compatible chemicals while minimizing and eliminating the use of chemicals of concern (Annex C).

5.5.1 Prerequisite: Inventory of chemical and material inputs

The manufacturer shall have and maintain an inventory of all chemical and material inputs for the product undergoing assessment (including packaging and other applicable components). Such an inventory shall at a minimum include the following, if applicable:

1) Material Safety Data Sheet (MSDS)/safety data sheet (SDS) reportable product ingredients as defined by OSHA 29 CFR 1910.1200) listed with chemical name and Chemical Abstract Service Registry Number (CASRN);

2) Trade name of the chemical or material;

3) MSDS reportable chemicals and materials shall be reviewed and all chemicals of concern shall be identified (see Annex C, chemicals of concern);

4) Supplier of the chemical or material including the manufacturer and distributor;

5) Use and storage onsite of the chemical or material;

6) Annual quantity purchased of the chemical or material;

7) Maximum quantity stored (unit of measure) of the chemical or material; and

8) Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) reportable health and physical hazards associated with the chemical or material shall be identified.

5.5.2 Requisite: Chemical management plan

The manufacturer shall earn X points for having and maintaining a chemical management plan based on the chemical inventory identified in 5.5.1 that shall include the following elements:

a) Document and demonstrate how materials identified as health and physical hazards and those containing chemicals of concern are stored, handled, and disposed in a manner consistent with national and international guidelines and regulations.

b) Safety training for workers responsible for handling materials identified as physical hazards and those containing chemicals of concern or for those working in the immediate area that may be reasonably and potentially exposed. Training shall include the information on the use of personal protective equipment.

5.5.3 Optional: Chemical management program

The manufacturer shall earn X points for having and implementing a safer chemical and materials management program that establishes priorities for replacing or reducing the use or generation of chemicals and materials of concern (Annex C) from applicants operations. The program shall include at a minimum the following elements:

a) Assigned priorities to chemicals of concern (Annex C) based on their overall human health and environmental health concerns and their potential for ingestion, inhalation, or dermal exposure to workers (see MSDS/SDS for exposure potential);

b) Measureable goals and timelines for replacement or reduction;

c) Established baselines for chemical or material use against which progress shall can be quantified and reported;

d) Defined roles and responsibilities for personnel and staff responsible for executing the plan;

e) Assigned priorities to products with health and physical hazard concerns;

f) Defined process for identifying and evaluating potential environmentally preferable alternatives; and

g) Schedule for reporting progress.

5.5.4 Optional: Environmentally sustainable inputs – product

For the product undergoing assessment, the manufacturer shall declare the total quantity of environmentally sustainable inputs (e.g., recycled [pre- or post-consumer], or bio-based), specified on a percentage weight basis. The manufacturer shall receive X point per 5.0% environmentally sustainable content of the following:

- Bio-based resource content; and
- Recycled content quantity, which shall be calculated as follows:
  - Post-consumer recycled content shall be valued at 100% weight basis; and
  - Pre-consumer recycled content shall be valued at 50% weight basis.

A maximum of Y points shall be awarded.

5.6 Prerequisite: Material Safety for drinking water contact products

The manufacturer shall meet as applicable, the requirements of:

- NSF/ANSI 5 {get exact name}
- {Look up food stds that have potable water contact}
- NSF/ANSI 53 Drinking Water Treatment Units – Health Effects (Section 4),
- NSF/ANSI 42 Drinking water treatment units – Aesthetic effects (section 4),
- NSF/ANSI 55 Ultraviolet microbiological water treatment systems,
- NSF/ANSI 58 Reverse osmosis drinking water treatment systems,
- NSF/ANSI 62 Drinking water distillation systems,
- NSF/ANSI 177 Shower filtration systems – Aesthetic effects,

- NSF/ANSI 222 Ozone generators,
- NSF/ANSI 61 Drinking Water System Components – Health Effects,

5.7 Informed selection of suppliers

The intent of the criteria within this section is to ensure that manufacturers are aware of the environmental performance of their supply chains.

5.7.1 Requisite: Supplier environmental disclosure

The manufacturer shall receive X point for documenting the implementation of a supplier disclosure plan requiring environmental performance information including, at a minimum:

- Compliance (or lack thereof) with local, regional, and national environmental requirements and report of any outstanding violations or issues of non-compliance;

- Presence (or absence) of a documented environmental management system prepared and operated in general accordance with ISO 14001;

- Release of reportable quantities of TRI PBTs;

- Use (or lack thereof) of renewable energy supplies; and

- Provide evidence of greenhouse gas emissions tracking.

5.7.2 Requisite: Supplier environmental performance disclosure

The manufacturer shall document the percent of its suppliers that have satisfactorily conformed to the company's environmental assessment plan as described in 5.2.1. The manufacturer shall receive X point if 50% to 74% of its suppliers have conformed, or receive X points if 75% or more of its suppliers have conformed.

5.7.3 Optional: Supplier audits

The manufacturer may receive up to X points for third party or manufacturer supplier audits. It shall receive X point if 10% or more of its suppliers were audited in the past five years to verify conformance with all prerequisites in this Sustainability Standard. It shall receive a X point if it has conducted annual reviews of 10% or more of its suppliers.

5.8 Optional: Consumer education

The manufacturer shall earn X point for development and implementation program for education on sustainability as defined herein through these criteria for ~~consumer~~ users of the product. This program shall focus on optional criteria as well as required. The program shall be reviewed annually by the manufacturer.

6 Product manufacturing

The criteria in this section are intended to encourage manufacturers to quantify the environmental impacts from their product manufacturing, and then act to reduce or remove those impacts.

6.1 Environmental policy and management

The intent of these criteria is to ensure that manufacturers have a basis from which to actualize strategic environmental management within the organization.

6.1.1 Prerequisite: Environmental policy

The manufacturer shall document an environmental management policy. The environmental management policy should include a commitment to continual improvement and pollution prevention. The policy should also include pollution prevention such as carbon reduction or waste minimization. This policy shall be communicated to all persons working for or on behalf of the organization, and shall be made publicly available.

6.1.x Prerequisite: Environmental plan

The manufacturer shall implement an environmental management plan. The environmental management plan should include steps toward meeting the policy with a commitment to continual improvement and pollution prevention. The plan should outline strategic plans toward pollution prevention such as carbon reduction or waste minimization.

6.1.2 Prerequisite: Environmental management system (EMS) program

A manufacturer shall document and implement an EMS program as generally conforming to the requirements of ISO 14001 or the environmental plan in 6.1.x.

6.1.3 Optional: Registered environmental management system (EMS)

A manufacturer shall receive X additional point for providing documentation that verifies current external, third-party certification of its EMS as meeting the requirements of ISO 14001. The manufacturer's ISO 14001 certificate shall be provided as evidence of a third-party certification of its EMS.

6.2 Conservation of energy resources

A manufacturer can improve its environmental impact by means of its energy initiatives: both reduction of consumption (i.e., conservation) and selection of source (i.e., renewability). The intent of the criteria in this section is to encourage both approaches in order to reduce the environmental impacts from energy production and consumption, including resource depletion, greenhouse gas emissions, and hazardous air pollutants.

6.2.1 Prerequisite: Energy inventory

The manufacturer shall complete an inventory of energy use that encompasses production by quantity and source of energy, including the type and distance of transportation of raw materials from suppliers. The inventory of energy shall be 12 months of energy data over the past 36 months.

{Add inventory for distribution and supply chain for optional category}
{Define Operational control as used in other stds to help with facility/decentralized boundary}

6.2.2 Requisite: Energy management plan and program

The manufacturer shall receive X point document a plan for energy management as well as have a program that implements the plan. The plan shall utilize the information from the inventory to develop goals for reduction and elimination of energy use wherever possible. The plan shall also address alternative sources of energy whenever possible. The strategic steps in the program shall be part of regular training for employees to assist with implementation of the plan. The plan and program shall be updated annually. Additional points may be earned for publicly disclosing the energy management plan.

6.3 Management of water resources

The intent of the criteria within this section is to encourage the conservation of water resources and protection of water quality.

6.3.1 Prerequisite: Water use inventory

The manufacturer shall complete an inventory of water use including identification of quantity of water used, quantity consumed (e.g., loss through evaporation), and sources (e.g., municipal potable, direct capture, on-site wells, reclaimed wastewater). The inventory of water shall be 12 months of data over the past 36 months.

6.3.2 Requisite: Water management plan and program

The manufacturer shall earn X point for documenting a plan and demonstrating a program for water consumption management. The program shall be based on the inventory of water use and updated on an annual basis. The plan shall utilize the information from the inventory to develop goals for reduction and elimination of water use wherever possible. The plan shall address water reuse onsite. The strategic steps in the program shall be part of regular training for employees to assist with implementation of the plan. The plan and program shall be updated annually. Additional points may be earned for publicly disclosing the water management plan.

6.4 Optimization of material resources

Inefficient materials selection, supplier delivery, production processes, and warehousing operations can lead to high levels of waste generation and corresponding losses in production yields. The criteria in this section are intended to encourage the maximization of yield from product(s) raw materials and to minimize the generation of waste materials during production.

6.4.1 Requisite: Waste minimization program

The manufacturer shall receive X point for having a documented and operational waste minimization program that includes quantification of waste generation rate.

6.4.2 Optional: Manufacturing waste minimization

The manufacturer shall receive either:

– X point for demonstrating a waste generation reduction rate of at least 10% over the previous ten years using the boundary as in 6.4.1; or

– X points for demonstrating an annual average total waste generation rate over the previous ten years of less than 2% on a weight basis using the boundary as in 6.4.1.

A maximum of X points shall be awarded for 6.4.2.

6.x Optional: Packaging minimization policy

The manufacturer shall earn X points for documenting and maintaining a policy for minimizing the amount of packaging and delivery options designed leading to less waste generation during transport and installation of product(s). The integrity and intent (e.g., theft deterrent, product protection) of the packaging shall not be compromised through minimization. The manufacturer shall also address minimizing the use of tools to open packaging.

{consider points for returned of packaging for reuse} or commonly recyclable materials?

6.5 Protection of air resources

The criteria in this section are intended to minimize or eliminate the production and release of greenhouse gases and of known PBT air contaminants.

6.5.1 Prerequisite: Greenhouse gas inventory

The manufacturer shall create and update an annual inventory of air emissions including both point (i.e. fixed place) and mobile sources. The inventory shall include a description of each source (e.g. heavy equipment) the type of expected emissions (e.g. diesel fumes), and the likely location of the source. Quantities of emissions shall be estimated or measured, but shall not be required to be tested. Inventory shall consider the presence of any ozone depleting substances, as well as other more typical emissions listed below:

- Carbon Dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur Hexafluoride (SF_6)

6.5.2 Optional: Greenhouse gas reductions

The manufacturer shall demonstrate their own reduction in greenhouse gas loadings on a per unit or facility wide production basis. Consistent scope of production shall be reflected, and the initial year of calculation shall be 2000 or later using the inventory in 6.5.1.

The manufacturer shall receive X point for each 10% reduction. A maximum of X points will be awarded for 6.5.2.

7 Durability

The criteria in this section are intended to encourage manufacturers to maximize product durability and minimize impacts during the use phase of the product. The durability of a product is dependent on its longevity and performance characteristics and can reduce the replacement cycle and the resulting impact on the environment. Reclamation at the end of a product's life also reduces the environmental impact.

7.1 Prerequisite: Durability policy

The manufacturer shall document a policy that their product shall be designed and manufactured to be durable according to applicable product standard (e.g., NSF/ANSI 50, ASME A112.18.1) under conditions of intended use. This shall exclude consumable portions of water contact product (e.g., products that meet NSF/ANSI 42, 53, 58).

7.2 Requisite: Product performance

The manufacturer shall earn X points provide documentation showing that the product(s) performs at or above the applicable performance requirements as described in appropriate industry-recognized standards that are relevant to the product type (See annex D for product standards). For those products where the applicable product standard has no performance requirements, there shall be a transparent methodology based on their policy as in 7.1 used to show the water contact product performs at or above this standard.

NOTE - Chemical composition and material requirements are not applicable to this credit.

7.3 Optional: Durability and longevity of product

The manufacturer shall earn X points for documenting their product is designed to last longer than the products functional unit as defined in the life cycle assessment (5.4.2 Life Cycle Assessment).

7.4 Optional: Minimization of impacts during use

The manufacturer shall earn X point for demonstrating product design for minimization of impacts during use (e.g., low water use, energy efficiency).

8 End of Life Management

The intent of the criteria in this section is to ensure that existing and new products can be collected, processed, recycled, and/or composted within the existing materials recycling infrastructure. For the purpose of this section similar products are defined as having X% of the same input materials when manufactured and complementary products are defined as those with X=X% having the same input materials when manufactured.

8.1 Requisite: Product(s) recyclability

The manufacturer shall affix a label to the product if materials contained within the product can be recycled into a:

- different product(s) group;
- recovery into same product type;

- similar product(s); or
- complementary product(s) group.

8.2 Optional: Post-consumer collection operations

For products that have been available for sale for ten years or more, the manufacturer shall earn X points for demonstrating that the product(s) (including installation waste) is being collected for recycling or composting through ongoing collection operations. For new products (e.g., those with a market presence of less than ten years), the manufacturer shall earn X points for demonstrating preparation and implementation of a post-consumer collection and recovery plan.

The manufacturer shall earn X additional points for having a program for reclamation and recycling of post-consumer product(s) that encourages recycling infrastructure and should include the following:

- Chain of custody;
- Tracking program; and
- Take-back process.

8.3 Prerequisite: Consumables policy

The manufacturer shall document a policy addressing the design of product to reduce the number of times a consumable is replaced during the product use/life.

8.4 Optional: Consumables minimization program

The manufacturer shall earn X point for having a program to minimize consumables (frequency or size) while not compromising the functionality of the consumable. This program shall also consider the life cycle impacts for minimization (frequency versus size), recyclability, and reuse of the consumable.

8.5 Optional: Consumables take-back program

The manufacturer shall earn X point for having a program that addresses consumables (e.g., filters, media) take-back when those materials are no longer able to perform their intended function.

9 Corporate governance

The criteria in this section are intended to encourage corporate social responsibility in the forms of providing a desirable workplace, being involved in the local community, and demonstrating financial health.

9.1 Public commitment to sustainability

The criteria in this section are intended to demonstrate corporate/organizational leadership in public disclosure and transparency of key environmental and social accountability objectives and data.

9.1.1 Requisite: Social accountability

The manufacturer shall receive X point for a maximum of 4 points for releasing one of the following publicly (see definition of public disclosure in 3):

– Annual findings under company's registered or generally conforming ISO 14001 EMS (plant level);

– Product(s) life-cycle assessment findings prepared in conformance with ISO 14040 series, and independently peer reviewed;

– Public disclosure of corporate or plant the annual sustainability report per the guidelines of the Global Reporting Initiative of the United Nations Environment Program, SA 8000 or equivalent type program/standard; or

– Public disclosure of annual environmental and social accountability targets and achievements.

9.1.2 Prerequisite: child and forced labor, foreign corruption, human right protection

The manufacturer shall have a policy for corporate governance that is publicly disclosed and shall include at a minimum:

- prohibition of using child labor[2];
- prohibition of using forced labor[2];
- foreign corruption[2]; and
- human right protection[2].

9.x Prerequisite: Health and safety program

The manufacturer shall demonstrate and implement a health and safety program to minimize employee workplace generated injury, illness, and disease at the facility where the product is manufactured. The program shall be communicated to all employees at that facility and updated annually.

9.X Optional: Reduction of Health and safety incidents

The manufacturer shall document health and safety incidents defined by the regulating body are below the industry standard. {review what the industry stds will be} VPP star program at or below national average- evaluated 3-5 years by OSHA… can expand this credit to outside auditing for additional points.

9.x Requisite: Working hours

The manufacturer shall demonstrate a work life balance program {DEFINE} that includes flexible working hours to accommodate employee needs whenever feasible and still maintain production. {relocate with employee/worker credits}

9.x Requisite: Disciplinary practices

The manufacturer shall document a policy and plan for disciplinary actions to its employees. This shall be made available to all employees and updated annually.

9.x Requisite: Employee dispute resolution

The manufacturer shall document a policy for employee dispute resolution. {To be discussed by TG}

9.2.4 Requisite: Prevention of discrimination

The manufacturer shall demonstrate prohibition of discrimination in the employment process at the corporate level. Examples include but are not limited to:

– Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits employment discrimination based on race, color, religion, sex, or national origin;

– the Equal Pay Act of 1963 (EPA), which protects men and women who perform substantially equal work in the same establishment from sex-based wage discrimination;

– the Age Discrimination in Employment Act of 1967 (ADEA), which protects individuals who are 40 years of age or older;

– Title I and Title V of the Americans with Disabilities Act of 1990 (ADA), which prohibit employment discrimination against qualified individuals with disabilities in the private sector, and in state and local governments;

– Sections 501 and 505 of the Rehabilitation Act of 1973, which prohibit discrimination against qualified individuals with disabilities who work in the federal government; and

– the Civil Rights Act of 1991, which, among other things, provides monetary damages in cases of intentional employment discrimination.

9.x Optional: Global facilities human rights

The manufacturer shall earn X point for operating manufacturing facilities for the product undergoing assessment only in countries that are signatories to the UN Declaration of human rights.[12]
{check link} {suppliers or just facilities making the product?} {OR move to supply chain with auditing credit?} look at supplier and facility separate?

9.x Prerequisite: Ethics policy

The manufacturer shall document an ethics policy (or statement of commitment to ethical behavior) that is communicated to their employees, contractors, and other business partners.

9.x Optional: Ethics and ethics training

The manufacturer shall demonstrate a program for ethics and ethics training. The program shall be implemented with all employees at the facility(ies) where the product is manufactured. The program shall be updated annually. The training program shall include at a minimum:

- Fair business practices;
- Fair treatment of employees;
- Equal employment opportunity;
- Protection of employee, client and other stakeholder privacy information; and
- Financial, environmental, and social performance.

[12] <http://www.un.org/en/documents/udhr/>

9.3 Community engagement

To facilitate sustainability activities and engage the community, manufacturers can develop policies and create plans that foster this process. This section covers the social aspect of sustainability relating to the community where the facility or corporate headquarters are located.

9.3.x Prerequisite: community engagement policy

The manufacturer shall have a policy that requires community engagement activities at its facilities where the product is being manufactured. This shall be communicated to employees and updated annually.

9.3.1 Optional: Community investment

The manufacturer shall receive X point for documenting investment in the community or in-kind product donations and be made publicly available. The investment shall be in the community where any of its products are manufactured or where it's corporate headquarters are located.

The manufacturer shall receive X point for quantifiable impacts from the investment as above.

The manufacturer shall receive X point if the investment is toward a sustainability initiative in their community.

9.3.2 Optional: Employee participation

The manufacturer shall receive X point for documenting company-supported employee activities within the community and be made publicly available. Company-supported employee activities consist of community service work performed during paid time off for that purpose, excluding activities deemed political in nature.

9.3.3 Optional: Stakeholder engagement

9.3.3.1 The manufacturer shall receive X point for:

- identifying community stakeholders and the process by which they were identified;
- providing a communication channel for feedback from the community stakeholders; and
- enabling communication including submittal of comments, feedback, suggestions and resolving grievances.

9.3.3.2 To earn additional points, the manufacturer shall meet 9.3.3.1. The manufacturer shall earn X point for demonstrating their policy for evaluating stakeholder feedback (as above in 9.3.3.1). ~~A corrective action plan shall be developed for each stakeholder issue.~~ This shall be tracked on an annual basis.

For those manufacturers with no feedback received annually, they shall provide additional documentation of outreach to stakeholders through media, website or mailings to promote feedback to earn this point.

9.3.3.3 The manufacturer shall earn X additional point for demonstrating response to feedback that directly relates to improvements covering credits within this Sustainability Standard. This shall be tracked on an annual basis. (maximum X points).

10 Innovation and continuous improvement

10.1 Purpose

In order to facilitate continuous improvement, this Sustainability Standard addresses innovation. Innovation covers products, processes or services that provide new, novel approaches to meeting market or societal needs in a manner that reduces material or resource content, lowers adverse human health or ecological impacts or improves durability.

10.2 Optional: Innovative approaches

The manufacturer shall earn points as described below for innovative products, processes or services going above any of the credits within this Sustainability Standard. The manufacturer may earn up to a maximum of XX points total.

- Initial year and through 3rd year of documented innovative approach – X points
- Subsequent to 3rd year of documented innovative approach– X point
- Maximum of 6 years from initial year to earn these points.

{these tables will be updated once the credits have been finalized}

Annex A
(normative)
Scorecard

5 PRODUCT DESIGN					
CHECKLIST			Criteria	Description	points (p=prerequisite)
Yes	No	Need more info			
3			5.5.5	environmental policy	5 maximum
11					

Annex B
(informative)[13]

Key elements of a certification program for Sustainability Assessment for Water Contact Products

B.1 General

Declaring conformance to this Standard identifies that a manufacturer designs, develops, and creates products in a manner that is considered to be in some measure sustainable and/or environmentally preferable. Conformance to this Standard alone does not imply certification. The manufacturer can provide additional public confidence regarding the attainment of these goals by undertaking independent conformity assessment (certification).

B.2 Product(s) certification process

B.2.1 Selection of conformity assessment body

The manufacturer identifies a certification organization to perform the conformity assessment of the product(s) assessment process for conformance with this Standard.

B.2.2 Conformity assessment to standard

The certifying organization performs the necessary functions to determine whether the manufacturer's operations and product(s) conform to the specified criteria. This may involve activities such as an audit of the manufacturing facility, review of the product(s) formulation, testing, or review of documentation for assessing conformance with the specified criteria.

B.2.3 Issuance of product(s) certification

If the product(s) has been demonstrated adequately to meet the specifications described in this Standard, and any issues of nonconformance have been addressed, the certifying organization provides a product(s) certification to the manufacturer. This may include the provision of documentation of certification of the product(s) to the manufacturer, as well as inclusion of the product(s) on any publicly available lists of certified products maintained by the certifying organization. The certifying organization instructs the manufacturer regarding appropriate use of the registered certification mark of the certifying organization.

B.2.4 Monitoring of product(s) conformance

At intervals determined by the certifying organization, the continued conformance of the certified product(s) to the specified criteria is monitored using periodic facility audits, periodic retesting, or both.

[13] The information contained in this annex is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this annex may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

B.3 Suggested requirements for certifying organizations

A certifying organization offering a certification program for water contact products sustainability should conform to the requirements of ISO/IEC DIS 17065[5], Conformity assessment – Requirements for bodies certifying products, processes and services.

B.3.1 Marking of certified product(s)

The certifying organization should specify requirements for marking of certified products. Requirements for product(s) marking should include, at a minimum:

– certified products should bear a registered certification mark of the certifying organization; and

– each product(s) should bear a statement of achievement status (e.g., silver, gold).

B.3.2 Listing certified companies

The certifying organization should maintain a published listing of all certified products. The listing format should include the following minimum information:

– company name and address;

– product(s) description;

– trademark / formulation designation; and

– each sustainable product(s) claim that has been successfully evaluated and is certified.

B.3.3 Audits

The certifying organization should conduct actual physical audits of all facilities and productions locations of the certified company.

B.3.4 Corrective action

The manufacturer should take corrective action for all items of nonconformance found during audits and re-evaluation including:

– provisions for review and authorization for modifications to formulations;
– modifications to certified product(s) formulations; and
– documentation and authorization of the modification maintained on file.

B.3.5 Enforcement

To preserve the integrity of the registered certification mark of the certification organization, enforcement action should be taken by the certifier for the following:

– use of the registered trademark of the certifying organization on a non-certified product(s);
– general nonconformance;
– unauthorized change to certified products; and
– unauthorized shipment or disposal of products placed on hold.

B.3.6 Appeals

The certifying organization should have provisions for an appeals process as requested by any party directly affected by a decision, action, or inaction of the certifying organization.

B.3.7 Complaints

The certifying organization should provide for the following:

– investigation of complaints related to certified products;

– misuse of the registered trademark of the certifying organization by a certified company;

– use/misuse of the registered trademark of the certifying organization by a non-certified company; and

– certified company retention and disclosure of complaint records and remedial actions for certified products.

B.3.8 Advertising

A certifying organization should provide guidance to certified manufacturers regarding proper use of the registered trademark of the certifying organization on sales literature, technical publications, promotional materials, packaging, catalogs, and advertising.

B.3.9 Records

A certifying organization should have provisions for verification of complete certified company records including:

– purchased materials and ingredients; and
– production, shipment, and inventory.

B.3.10 Public notice

Provisions for issuing a public notice for nonconformance to any requirement of certification should be maintained by the certifying organization.

B.3.11 Confidentiality

The certifying organization should have a documented policy of non-disclosure of any confidential information supplied to the certifying organization by the company regarding the product(s), including formulations, components, processes, ingredients, and the identity of the company's suppliers and distributors.

Annex C
Chemicals of Concern
{TBD – separate document created for this review}
(normative)

a) IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, International Agency on the Research of Cancer (IARC)
   i. Group 1 – Carcinogenic to Humans
   ii. Group 2A − Probably Carcinogenic to Humans;

b) Report on Carcinogens, National Toxicology Program (NTP)
   i. Known Human Carcinogen
   ii. Reasonably Anticipated To Be A Human Carcinogen;

c) Occupational Safety and Health Administration (OSHA) – Regulated Toxic Metal or Carcinogen;

d) California Proposition 65 (Title 27, Section 27001, California Code of Regulations) – Known to cause cancer or reproductive toxicity;

e) USEPA Integrated Risk Information System (IRIS) database
   i. Carcinogenic to Humans
   ii. Likely to be Carcinogenic to Humans;

f) USEPA Toxic Release Inventory (TRI) persistent, bioaccumulative, and toxic (PBT) chemicals– Known persistent, bioaccumulative, and toxic chemicals and compounds (a subset of the EPA TRI list of chemicals and compounds);

g) USEPA TRI – Complete USEPA toxic chemical list (including known PBT chemicals and compounds), RCRA Waste Minimization list, the U.S. - Canada Binational list, the Stockholm Convention POPs list, and the EC RoHS list; or

h) Environment Canada, National Pollutant Release Inventory (NPRI) (to be used by Canadian manufacturers).

Others to consider:
California Green Chemistry initiative
RoHS
REACH http://echa.europa.eu/web/guest/candidate-list-table;jsessionid=DEA4DE94FC56D0FDD40AF56C42301942.live1?p_p_id=substancetypelist_WAR_substanceportlet&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_pos=2&p_p_col_count=4&_substancetypelist_WAR_substanceportlet_keywords=&_substancetypelist_WAR_substanceportlet_advancedSearch=false&_substancetypelist_WAR_substanceportlet_andOperator=true&_substancetypelist_WAR_substanceportlet_orderByCol=inclusiondatecl&_substancetypelist_WAR_substanceportlet_orderByType=desc&_substancetypelist_WAR_substanceportlet_delta=75
J – what chemicals of concern do they have?

NOTE – This raw material input includes only ingredients added intentionally.

NOTE – All references above are anticipated to be the most current version.

FROM UN guidelines on Conflict minerals. Due diligence guidelines for the responsible supply chain of minerals from red flag locations to mitigate the risk of providing direct or indirect support for conflict in the eastern part of the Democratic Republic of the Congo

Annex D
(normative)
Water Contact Product Standards

AWWA Product Standards

ANSI/AWWA	B100	Granular Filter Material
ANSI/AWWA	B101	Precoat Filter Media
ANSI/AWWA	B102	Manganese Greensand for Filters
ANSI/AWWA	B110	Membrane Systems
ANSI/AWWA	B130	Membrane Bioreactor Systems
ANSI/AWWA	C104	Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
ANSI/AWWA	C105	Polyethylene Encasement for Ductile-Iron Pipe Systems
ANSI/AWWA	C110	Ductile Iron & Gray-Iron Fittings
ANSI/AWWA	C111	Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
ANSI/AWWA	C115	Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges
ANSI/AWWA	C116	Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings
ANSI/AWWA	C150	Thickness Design of Ductile-Iron Pipe
ANSI/AWWA	C151	Ductile-Iron Pipe, Centrifugally Cast
ANSI/AWWA	C153	Ductile-Iron Compact Fittings for Water Service
ANSI/AWWA	C200	Steel Water Pipe--6 In. (150 mm) and Larger
ANSI/AWWA	C203	Coal-Tar Protective Coatings and Linings for Steel Water Pipelines--Enamel and Tape--Hot-Applied
ANSI/AWWA	C205	Cement-Mortar Protective Lining and Coating for Steel Water Pipe--4 In. (100 mm) and Larger--Shop Applied
ANSI/AWWA	C206	Field Welding of Steel Water Pipe
ANSI/AWWA	C207	Steel Pipe Flanges for Waterworks Service--Sizes 4 In. Through 144 In. (100 mm Through 3600 mm)
ANSI/AWWA	C208	Dimensions for Fabricated Steel Water Pipe Fittings
ANSI/AWWA	C209	Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines
ANSI/AWWA	C210	Liquid-Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines
ANSI/AWWA	C213	Fusion-Bonded Epoxy Coatings for the Interior and Exterior of Steel Water Pipelines
ANSI/AWWA	C214	Tape Coating Systems for the Exterior of Steel Water Pipelines
ANSI/AWWA	C215	Extruded Polyolefin Coatings for the Exterior of Steel Water Pipelines
ANSI/AWWA	C216	Heat-Shrinkable Cross-Linked Polyolefin Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines
ANSI/AWWA	C217	Petrolatum and Petroleum Wax Tape Coatings for the Exterior of Connections and Fittings for Steel Water Pipelines
ANSI/AWWA	C218	Liquid Coating Systems for the Exterior of Aboveground Steel Water Pipelines and Fittings

ANSI/AWWA	C219	Bolted, Sleeve-Type Couplings for Plain-End Pipe
ANSI/AWWA	C220	Stainless Steel Pipe, 1/2 In. (13 mm) and Larger
ANSI/AWWA	C221	Fabricated Steel Mechanical Slip-Type Expansion Joints
ANSI/AWWA	C222	Polyurethane Coatings for the Interior and Exterior of Steel Water Pipe and Fittings
ANSI/AWWA	C223	Fabricated Steel and Stainless Steel Tapping Sleeves
ANSI/AWWA	C224	Nylon-11-Based Polyamide Coating System for the Interior and Exterior of Steel Water Pipe, Connections, Fittings and Special Sections
ANSI/AWWA	C225	Fused Polyolefin Coating System for the Exterior of Steel Water Pipelines
ANSI/AWWA	C226	Stainless-Steel Fittings for Water Works Service, Sizes 1/2 In. Through 72 In. (13 mm-1,800 mm)
ANSI/AWWA	C227	Bolted, Split-Sleeve Restrained and Nonrestrained Couplings for Plain-End Pipe
ANSI/AWWA	C228	Stainless-Steel Pipe Flanges for Water Service - 2" - 72" (50 mm - 1800 mm)
ANSI/AWWA	C229	Fusion-Bonded Polyethylene Coating for the Exterior of Steel Water Pipelines
ANSI/AWWA	C230	Stainless-Steel Full-Encirclement Repair & Service Connection Clamps
ANSI/AWWA	C300	Reinforced Concrete Pressure Pipe, Steel-Cylinder Type
ANSI/AWWA	C301	Prestressed Concrete Pressure Pipe, Steel-Cylinder Type
ANSI/AWWA	C302	Reinforced Concrete Pressure Pipe, Noncylinder Type
ANSI/AWWA	C303	Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type
ANSI/AWWA	C304	Design of Prestressed Concrete Cylinder Pipe
ANSI/AWWA	C500	Metal-Seated Gate Valves for Water Supply Service
ANSI/AWWA	C502	Dry-Barrel Fire Hydrants
ANSI/AWWA	C503	Wet-Barrel Fire Hydrants
ANSI/AWWA	C504	Rubber-Seated Butterfly Valves 3 In. (75mm) Through 72 In. (1,800 mm)
ANSI/AWWA	C507	Ball Valves, 6 In. Through 48 In. (150 mm Through 1,500 mm)
ANSI/AWWA	C508	Swing-Check Valves for Waterworks Service, 2 In. Through 24 In. (50-mm Through 600-mm) NPS
ANSI/AWWA	C509	Resilient-Seated Gate Valves for Water Supply Service
ANSI/AWWA	C510	Double Check Valve Backflow Prevention Assembly
ANSI/AWWA	C511	Reduced-Pressure Principle Backflow Prevention Assembly
ANSI/AWWA	C512	Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service
ANSI/AWWA	C515	Reduced-Wall, Resilient-Seated Gate Valves for Water Supply Service
ANSI/AWWA	C516	Large-Diameter Rubber-Seated Butterfly Valves, Sizes 78 In. (2,000 mm) and Larger
ANSI/AWWA	C517	Resilient-Seated Cast-Iron Eccentric Plug Valves
ANSI/AWWA	C518	Dual-Disc Swing-Check Valves for Waterworks Service
ANSI/AWWA	C520	Knife Gate Valves, Sizes 2 In. (50 mm) Through 96 In. (2,400 mm)
ANSI/AWWA	C530	Pilot-Operated Control Valves
ANSI/AWWA	C541	Hydraulic and Pneumatic Cylinder and Vane-Type Actuators for Valves and Slide Gates
ANSI/AWWA	C542	Electric Motor Actuators for Valves and Slide Gates

ANSI/AWWA	C550	Protective Interior Coatings for Valves and Hydrants
ANSI/AWWA	C560	Cast-Iron Slide Gates
ANSI/AWWA	C561	Fabricated Stainless-Steel Slide Gates
ANSI/AWWA	C562	Fabricated Aluminum Slide Gates
ANSI/AWWA	C563	Fabricated Composite Slide Gates
ANSI/AWWA	C700	Cold-Water Meters - Displacement Type, Bronze Main Case
ANSI/AWWA	C701	Cold-Water Meters - Turbine Type, for Customer Service
ANSI/AWWA	C702	Cold-Water Meters - Compound Type
ANSI/AWWA	C703	Cold-Water Meters - Fire-Service Type
ANSI/AWWA	C704	Propeller-Type Meters for Waterworks Applications
ANSI/AWWA	C706	Direct-Reading, Remote-Registration Systems for Cold-Water Meters
ANSI/AWWA	C707	Encoder-Type Remote Registration Systems for Cold-Water Meters
ANSI/AWWA	C708	Cold-Water Meters - Multijet Type
ANSI/AWWA	C710	Cold-Water Meters - Displacement Type, Plastic Main Case
ANSI/AWWA	C712	Cold-Water Meters - Singlejet Type
ANSI/AWWA	C713	Cold-Water Meters - Fluidic-Oscillator Type
ANSI/AWWA	C750	Transit-Time Flowmeters in Full Closed Conduits
ANSI/AWWA	C800	Underground Service Line Valves and Fittings
ANSI/AWWA	C900	PVC Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution
ANSI/AWWA	C901	Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service
ANSI/AWWA	C903	Polyethylene-Aluminum-Polyethylene & Cross-linked Polyethylene-Aluminum-Cross-linked Polyethylene Composite Pressure Pipes, 1/2 In. (12 mm) Through 2 In. (50 mm), for Water Service
ANSI/AWWA	C904	Cross-Linked Polyethylene (PEX) Pressure Pipe, 1/2 In. (12 mm) Through 3 In. (76 mm), for Water Service
ANSI/AWWA	C905	Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 In. Through 48 In. (350 mm Through 1,200 mm)
ANSI/AWWA	C906	Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1600 mm), for Water Distribution and Transmission
ANSI/AWWA	C907	Injection-Molded Polyvinyl Chloride (PVC) Pressure Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water, Wastewater, & Reclaimed Water Services
ANSI/AWWA	C909	Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe, 4 In. Through 24 In. (100 mm Through 600 mm), for Water, Wastewater, and Reclaimed Water Service
ANSI/AWWA	C950	Fiberglass Pressure Pipe - New Revision
ANSI/AWWA	D100	Welded Carbon Steel Tanks for Water Storage
ANSI/AWWA	D102	Coating Steel Water-Storage Tanks
ANSI/AWWA	D103	Factory-Coated Bolted Steel Tanks for Water Storage
ANSI/AWWA	D104	Automatically Controlled, Impressed-Current Cathodic Protection for the Interior of Steel Water Storage
ANSI/AWWA	D106	Sacrificial Anode Cathodic Protection Systems for the Interior Submerged

		Surfaces of Steel Water Storage Tanks
ANSI/AWWA	D107	Composite Elevated Tanks for Water Storage
ANSI/AWWA	D108	Aluminum Dome Roofs for Water Storage Fac.
ANSI/AWWA	D110	Wire- and Strand-Wound, Circular, Prestressed Concrete Water Tanks
ANSI/AWWA	D115	Tendon-Prestressed Concrete Water Tanks
ANSI/AWWA	D120	Thermosetting Fiberglass-Reinforced Plastic Tanks
ANSI/AWWA	D121	Bolted Aboveground Thermosetting Fiberglass Reinforced Plastic Panel-Type Tanks for Water Storage
ANSI/AWWA	D130	Geomembrane Materials for Potable Water Applications
ANSI/AWWA	E102	Submersible Vertical Turbine Pumps
ANSI/AWWA	E103	Horizontal and Vertical Line-Shaft Pumps
ANSI/AWWA	F101	Contact-Molded, Fiberglass-Reinforced Plastic Wash-Water Troughs and Launders - New Revision
ANSI/AWWA	F102	Match-Die-Molded, Fiberglass-Reinforced Plastic Weir Plates, Scum Baffles, and Mounting Brackets - New Revision
ANSI/AWWA	F110	Ultraviolet Disinfection Systems for Drinking Water

Potable Water products:

- NSF/ANSI 42 Drinking water treatment units – aesthetic effects;
- NSF/ANSI 44 Residential cation exchange water softeners;
- NSF/ANSI 53 Drinking water treatment units-health effects;
- NSF/ANSI 55 UV microbiological water treatment systems;
- NSF/ANSI 58 Reverse Osmosis drinking water treatment systems;
- NSF/ANSI 62 Drinking water distillation systems; or
- NSF/ANSI 61 Drinking water Components.

Wastewater products:

- NSF/ANSI 40 {add in names of stds}
- NSF/ANSI 46
- NSF/ANSI 245
- NSF/ANSI 350 or 350-1

Recreational water products:

- NSF/ANSI 50

Plumbing products:

- NSF/ANSI 14 Plastics
- NSF/ANSI 177 Shower filtration systems – aesthetic effects

International Plumbing Code
http://www.iccsafe.org/cs/Pages/default.aspx

National Standard Plumbing Code
http://www.phccweb.org/Tools/content.cfm?ItemNumber=736&ewebToken=&Site=PHCC

Uniform Plumbing Code
https://archive.org/details/gov.law.iapmo.upc.2009