



January 21, 2019

RE: Health Effects Monitoring of PVC Pipe and Fittings

To whom it may concern:

NSF/ANSI Standard 61 “Drinking Water System Components – Health Effects” was developed in 1987 at the request of the U.S. EPA. The purpose was to establish health-based maximum contaminant limits for chemicals migrating from products that contact public water supplies. The standard covers all types of materials used in drinking water systems (including PVC). Most state plumbing codes and waterworks regulations require drinking water system components to be certified by an ANSI-accredited third party to NSF/ANSI Standard 61.

NSF International operates a certification program to Standard 61 for drinking water system components which includes a review of any material in contact with drinking water to determine what possible contaminants could leach into drinking water, and what type of chemical extraction testing is necessary.

Chemical-extraction testing is performed where the products are exposed to various formulated waters designed to extract specific types of contaminants. PVC products are tested for:

- volatile organic compounds (VOC’s)
- phenolics
- residual vinyl chloride monomer (RVCM)
- regulated metals including Tin
- any other potential contaminant identified during the formulation review.

Products are tested initially, and at least once annually from each production facility. Any change to the formulation must be reviewed and may require testing prior to authorization.

NSF conducts a toxicology evaluation to review any contaminants that are detected. Regulated contaminants that are detected must be below the US EPA and Health Canada acceptable levels for regulated contaminants. For non-regulated contaminants, NSF/ANSI Standard 61 sets health-based pass/fail levels.

NSF performs at least two unannounced audits of each production facility annually. During the audit, NSF:

- verifies there are no modifications to the product formulation, suppliers and processing, and
- collects product samples, if not already submitted by the client, for laboratory testing of each product family. This is also done on an annual basis after certification.



NSF frequently is asked questions about the following:

- **Lead**  
PVC pipe and fittings certified by NSF do not contain lead.
- **Vinyl Chloride Monomer**  
All PVC pipe, fittings and materials are tested at least twice per year for residual vinyl chloride. Levels of RVCM must pass the toxicology evaluation.
- **Phthalates**  
Rigid PVC pipe and fittings certified by NSF do not contain phthalates or phthalate plasticizers.
- **Organotin**  
All NSF Certified PVC pipe products are tested for metals at least once per year. Levels of the type of organic tin stabilizer from the product (e.g. mono/dibutyl tin, mono/dimethyl tin, mono/dioctyl tin, etc.) must pass the toxicology evaluation.

To verify products that have been tested and listed by NSF, products will bear the NSF-61 or NSF-pw (potable water) marks. Product Listings can be verified on NSF's website [http://www.nsf.org/business/search\\_listings/](http://www.nsf.org/business/search_listings/).

Regards,

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