

Plastic Pipe Chemical Compatibility Checklist

When specifying or installing plastic pipes, it's critical to verify they are chemically compatible with the products they may come in contact with during construction, operation, and maintenance. Construction and maintenance products such as fire caulk, primers, cleaners, glues, lubricants, and sealants may adversely affect plastic plumbing materials including CPVC, PVC, PEX, PE, and ABS, causing stress cracking, embrittlement, leaks, or even system failure. Here are the steps architects, engineers, and/or contractors should take to evaluate compatibility between a given type of plastic pipe and a specific set of chemicals or substances.

Chemical Compatibility Evaluation	
☐ 1.	Identify the Exact Plastic Type & Manufacturer Know whether the pipe is PVC, CPVC, PEX, PE, ABS, etc. Note the manufacturer and model number, since proprietary formulations may vary in resistance.
☐ 2.	Obtain Manufacturer Compatibility Guidelines Go to the pipe manufacturer's website and look for chemical compatibility tables, technical data sheets, installation guides or system compatibility bulletins. Many pipe makers (e.g., Lubrizol for FlowGuard Gold CPVC) explicitly list approved and prohibited products.
☐ 3.	Check Product SDS and Technical Data Obtain the Safety Data Sheet (SDS) and TDS for the fire caulk, lubricant, or cleaner in question. Look for active ingredients or solvents (e.g., petroleum distillates, chlorinated compounds); chemical base (e.g., silicone, acrylic, hydrocarbon); warnings regarding plastic compatibility.
☐ 4.	Cross-reference with Compatibility Charts Use industry-standard chemical resistance charts, such as those published by ASTM, NSF International, or plastic pipe manufacturers. Check if the chemical families used in the product are rated as compatible, conditional, or incompatible with the specific pipe material.
☐ 5.	Look for Third-party or Industry Warnings Search for lawsuits, product failures, or plumbing codes referencing the chemical; known incompatibilities (e.g., petroleum-based lubricants and CPVC); technical bulletins or case studies from the Plastic Pipe and Fittings Association (PPFA), IAPMO, NSF, or manufacturers.
☐ 6.	Contact the Pipe Manufacturer to Confirm Compatibility If a substance is not explicitly listed, get written confirmation from the pipe manufacturer. In critical applications (like firestop systems), authorities may require proof of compatibility before sign-off.
☐ 7.	Document the Compatibility Check Keep a record of manufacturer approvals, SDS/TDS files, email confirmations or guidance. This protects all parties from future liability in case of failure or inspection disputes.
☐ 8.	Prohibit Field Substitutions without Verification Never assume a visually similar caulk or cleaner is safe. Even switching from a water-based to a solvent-based formula from the same brand could compromise pipe performance.