

HAZARDOUS MATERIALS PROGRAM ENVIRONMENTAL FACT SHEET

Protection from Corrosion and Physical Damage for Aboveground Storage Tank (AST) Piping and Fuel Lines

Heating oil supply lines are composed of metallic materials which are susceptible to corrosion from moisture in soil and concrete. Fuel lines are also susceptible to physical damage due to crushing from foot traffic or heavy items being placed or dropped on unprotected fuel lines. The 2017 AST Rules required all below-grade (buried underground) piping and fuel lines to be coated or sleeved to prevent corrosion; however, the 2017 Rules did not address corrosion that could occur if unprotected piping and fuel lines were in direct contact with concrete floor surfaces or walls. The 2017 rules also did not address protection of piping and fuel lines from physical damage which could cause the lines to break and release product. Since the 2017 AST Rules came into effect, multiple heating oil spills have been reported due to corrosion of above-grade fuel lines being in contact with concrete and due to physical damage of above-grade fuel lines. Effective August 1, 2024, the State of Vermont revised the AST Rules; the [2024 AST Rules](#) include new requirements for piping and fuel lines. Specifically, the rules require all piping and fuel lines in direct contact with either concrete or earthen materials (i.e., naturally occurring materials such as soil, rocks, gravel, sand, clay, minerals) to be protected from both corrosion and physical damage. This new requirement states that piping and fuel lines must be installed with a plastic coating *and* sleeved in a crush-resistant conduit.

Which ASTs are subject to the new requirement?

New AST systems (those installed after August 1, 2024) must be installed so the system is protected from corrosion and physical damage; this requirement applies to all new systems where the piping and fuel lines are either buried underground or are installed aboveground but are in direct contact with concrete or earthen materials (i.e., placed directly on flooring or installed through a concrete wall).

Existing AST systems (installed before August 1, 2024) are only subject to the requirement that buried fuel lines are protected from corrosion by being installed with a plastic coating or sleeved in non-corrodible material; above-grade piping and fuel lines in contact with flooring or concrete walls are not currently required to be protected from corrosion or physical damage. However, by August 1, 2030, all existing AST systems will be required to comply with the same piping and fuel line requirements as new AST systems; therefore, all aboveground piping and fuel lines which are in direct contact with concrete or earthen materials will be required to be coated *and* sleeved to protect against both corrosion and physical damage.

What should I do to comply with the new requirement?

For corrosion protection, piping and fuel lines that are installed below grade must have a polyethylene coating and be installed in a continuous sleeve made of non-corrodible material that starts and

terminates aboveground. No fittings may be installed below grade (within the coating or sleeve). For below-grade installations into concrete flooring, or above-grade installations through concrete walls, piping and fuel line sleeves are not required to be crush resistant, as the surrounding concrete will provide protection from physical damage. Flexible sleeves are acceptable.

For piping and fuel lines which are installed above grade and are in contact with concrete or earthen materials (such as a dirt basement floor), the lines must be installed with a polyethylene coating to prevent corrosion. The lines must also be sleeved with a crush resistant conduit to protect the lines from potential physical damage. The AST rules do not prescribe the specific material that must be used to meet this sleeving requirement and instead rely on professional judgement of the fuel tank system installer. In determining what materials to use, the installer should consider the risk of physical damage to the fuel lines. For example, in areas of low to moderate foot traffic and low risk of heavy objects being inadvertently placed/dropped on the fuel lines, non-corrodible materials such as flexible electric conduit or water pump PVC piping is appropriate to use. Piping and fuel lines that are installed in areas of heavy foot traffic or moderate to high risk of physical damage due to impact (e.g., could be rolled over with a dolly carrying a heavy load), the AST installer should consider a non-metallic material that has a higher degree of crush resistance, or consider installing the fuel lines below grade (encasement in flooring).

All new AST systems must be installed with the requirements described above; new AST systems which are installed in partial compliance with these requirements shall be immediately red tagged. By August 1, 2024, all existing AST systems must also comply with these requirements; until August 1, 2030, existing AST systems must only comply with the corrosion protection requirements for buried piping and fuel lines.

Note (for *existing* tanks only): Any AST system that was installed before August 1, 2024, with piping and fuel lines installed underground and with piping and fuel lines coated *or* sleeved to protect against corrosion (in compliance with requirements of 2017 AST Rules) will continue to be considered compliant with the AST Rules beyond August 1, 2024.

For more information regarding AST piping and fuel lines, or if you have other questions about ASTs, please contact:

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<https://dec.vermont.gov/waste-management/storage-tanks/aboveground-storage-tanks-asts>