1513.0720 CONTAINER MOUNTING.

Subpart 1. **Attachment.** The means of attachment of a container to the cradle, frame, or chassis of a vehicle must be designed on a basis of two "g" loading in either direction, using a safety factor of not less than four, based on the ultimate strength of the material used. For the purpose of this requirement, two "g" of load support is equivalent to three times the static weight of the articles supported, and two "g" of loading and bending, acceleration, and torsion is equivalent to twice the static weight support applied horizontally at the road surface.

Subp. 2. **Hold-down devices.** Hold-down devices, when used, must anchor the container to the cradle, frame, or chassis in a safe manner that will not introduce undue concentration of stresses. These devices must incorporate positive means for drawing the container down tight, and stops or anchors must be provided to prevent relative movement between container and framing due to stopping, starting, or changes in direction.

Subp. 3. **External cradles.** Vehicles designed and constructed so that the cargo tanks constitute in whole or in part the stress member used in lieu of the frame, must be supported by external cradles subtending at least 120 degrees of the shell circumference. The design calculation must include beam stress, shear stress, torsion stress, bending moment, and acceleration stress, in addition to those covered by the code under which the cargo tank was designed.

Subp. 4. **Liquid withdrawal line.** If a liquid withdrawal line is installed in the bottom of a container, the connections to it, including the hose, must not be lower than the lowest horizontal edge of the motor vehicle axle.

Subp. 5. **Hose ends.** Both ends of a hose must be secured while in transit.

Subp. 6. **Friction.** If the cradle and the container are not welded together, material must be used between them to eliminate metal-to-metal friction.

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