TECH TIP

This memo was issued to introduce results of testing of the Surge Buster™ Tie-Down System by the USDA:

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The following information is about the Surge Buster[™] tie-down system that many Public Works Depts., Park Depts., Road Depts., Irrigation Districts, DOT'S, and other groups across the Country are using in their poly and steel liquid cargo tanks.

It is important that anyone using liquid cargo tanks seriously consider a tie-down system in the trucks that are used for roadside spraying, dust abatement, anti-icing, landscape watering, fuel hauling or any other type of liquid hauling.

Safety and maintenance meetings have been held with many agencies across the country. The consensus among these discussions were that any time a liquid cargo is carried in a tank that is less than full, that cargo is unstable.

There have been numerous accidents and deaths resulting from loadshift of unstable liquid cargoes on the nations highways. Of course no one wants to anticipate an accident, but because of the lack of stability of partial loads, one never knows what condition will occur to create an accident. It does not matter how frequent one of these liquid cargo tanks are used as to whether the liquid should be safely tied-down, it is whether it will be on the nations highways with less than a full tank.

There are NO Poly/Plastic roto-molded tanks marketed that are properly/safely baffled, whether they are mounted on a truck or towed behind a truck. Any prior attempt in establishing an after-market walled solid baffle system in roto-molded tanks has caused structural fatigue failures to the tank. This can result in sudden breakage and tank ruptures.

A lot of work has been conducted with many groups in many states, and they feel that after the Surge Buster[™] is installed, hauling liquids now resembles hauling a load of sand. The real danger occurs when the load is only ½ to 2/3 full and sudden stops/starts, rough terrain or cornering creates surging in the tanks. Reducing the surge and/or loadshift will also create less wear and tear on the truck frame, wheels & axles, transmission and tank mounts, aside from helping to prevent accidents. Anytime there is a way to haul liquids safer, you reduce your liability concerns and decrease operator stress. To ignore a safer way to supervise transportation safety may result is legal recourse.

The USDA Department of Technology and Development through a request of the United State Forest Service successfully tested Surge Buster™ this summer at their facility in San Dimas, Calif, and has issued a Technical Report for the Forest Service. This report is in the hands of The Office of Technical Support with the US Department of Labor and OSHA, and the Federal Highway Administration. Summary Quotes from this Technical Report were:

"If baffles are ineffective and water surge is not minimized, this will expose the vehicle operator and crew to a very serious safety hazard. Proper liquid cargo tie-down is essential for the safe operation of our liquid carrying fleet. Surge Buster™ provides a safe and cost effective alternative to expensive tank replacement and baffle repairs.

Other observations from the testing were:

- Liquid surge/loadshift reduction
- Stabilization of liquid in the entire compartment
- Stress reduction to the operator
- Physical fatigue reduction to the truck frame, tank mounts, brakes and automatic transmissions
- Beneficial in stopping/emergency or in frosty/icy conditions
- Potential to help prevent accidents.
- Stabilizing the liquid cargo is beneficial to maintenance reduction, and also increases the safety aspects of transporting liquid cargoes.



CONCLUSION

Until now, an adequate tie-down system for Poly tanks has not been available. Surge Control Systems' Surge Buster™ tie-down system may be fitted easily through the manhole for both mechanical agitation tanks and non-mechanical agitation tanks. Aside from poly tanks, there are many steel and fiberglass tanks using the Surge Buster™ system that are already compartmentally baffled to make them completely baffled. An example would be a 1000 gallon steel/fiberglass tank with a baffle in the middle, you then would have two 500 gallon unbaffled tanks or compartments. Surge Buster™ will tie-down the entire compartment front to back and side to side.

Until now, a safer way to haul unstable liquid cargos has not been available to many Liquid Cargo Tanks traveling the nations highways. Surge Buster™ can now help stabilize those loads to haul liquids in a way that will definitely help to protect the public and operators on our highways against accidents and fatalities.

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