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Fact Sheet:

Baffle Balls for Truck Stability

An important recent innovation in slush and sludge control in tanker trucks is baffle balls. These small, plastic 'balls' might not look like much, but when it comes to reducing slosh in liquid transport tanks their effectiveness cannot be overstated.

How do Baffle Balls work?

When liquid is transported within a tank on a truck, it and sloshes around unrestrained due to the motion of the vehicle. The energy of the waves generated by this motion is transferred to the wall of the tank that the liquid comes into contact with. This energy transfer can cause the vehicle to rock from side to side. Placing baffle balls inside the tank breaks up the wave formation dissipating the energy behind the waves. Baffle balls create a "honeycomb" lattice, comprised of multiple angles of contact and smooth surfaces. These work together to separate the liquid and prevent wave formation and prevent wave formation.



Benefits Include:

- reduction in the likelihood of rollover from liquid displacement
- increased safety
- increased driver control
- reduction in costs
- reduction in wear and tear on suspension
- improved driving stability through rough terrain and emergency stops
- less driver stress and fatigue
- can be created at food grade quality to be suitable for water trucks

Cautions:

- consider the risk of potential contamination if baffle balls are not cleaned after moving bulk liquid
- trial the products to ensure durability and suitability for purpose
- check warranty and lifespan of baffle balls as some have been known to degrade and breakdown



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When do I need to use baffle balls and how many do I need?

Baffle balls should be used whenever less than a full tank of liquid is required to be transported. The tank of the truck need to be completely filled with baffle balls. This will create a 'honeycomb' of barriers inside the tank which ensures that sloshing is eliminated. The driver will feel as though they have a full or solid load.

This is a very efficient system because baffle balls themselves do not have a high volume and will only displace 1% of the liquid. Baffle balls come in the two main sizes summarised in the table below.



Truck rollovers occur with all types of trucks but are more common with trucks carrying bulk liquids due to movement of the liquids.

Size	Weight	Displacement of Water	Usage
Small 195mm	120 grams	150 millilitres	1 ball per 7 litres
Large 355mm	386 grams	428 millilitres	1 ball per 40 litres



Sources: Ball Baffle surge control- stop the slosh, improve handling and braking. Save on maintenance costs- less wear & tear on brakes & suspension

For more information please visit:

- rapidspray.net
- polytanksupplies.com.au
- road-transport-technology.org
- hindawi.com