

Best Practices for Sanitary Transport of Dry Bulk Materials

IAOM District Meeting

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Brainerd, MN

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ADM Milling



Objective

Open discussion on best practices for transporting dry bulk products in pneumatic trailers

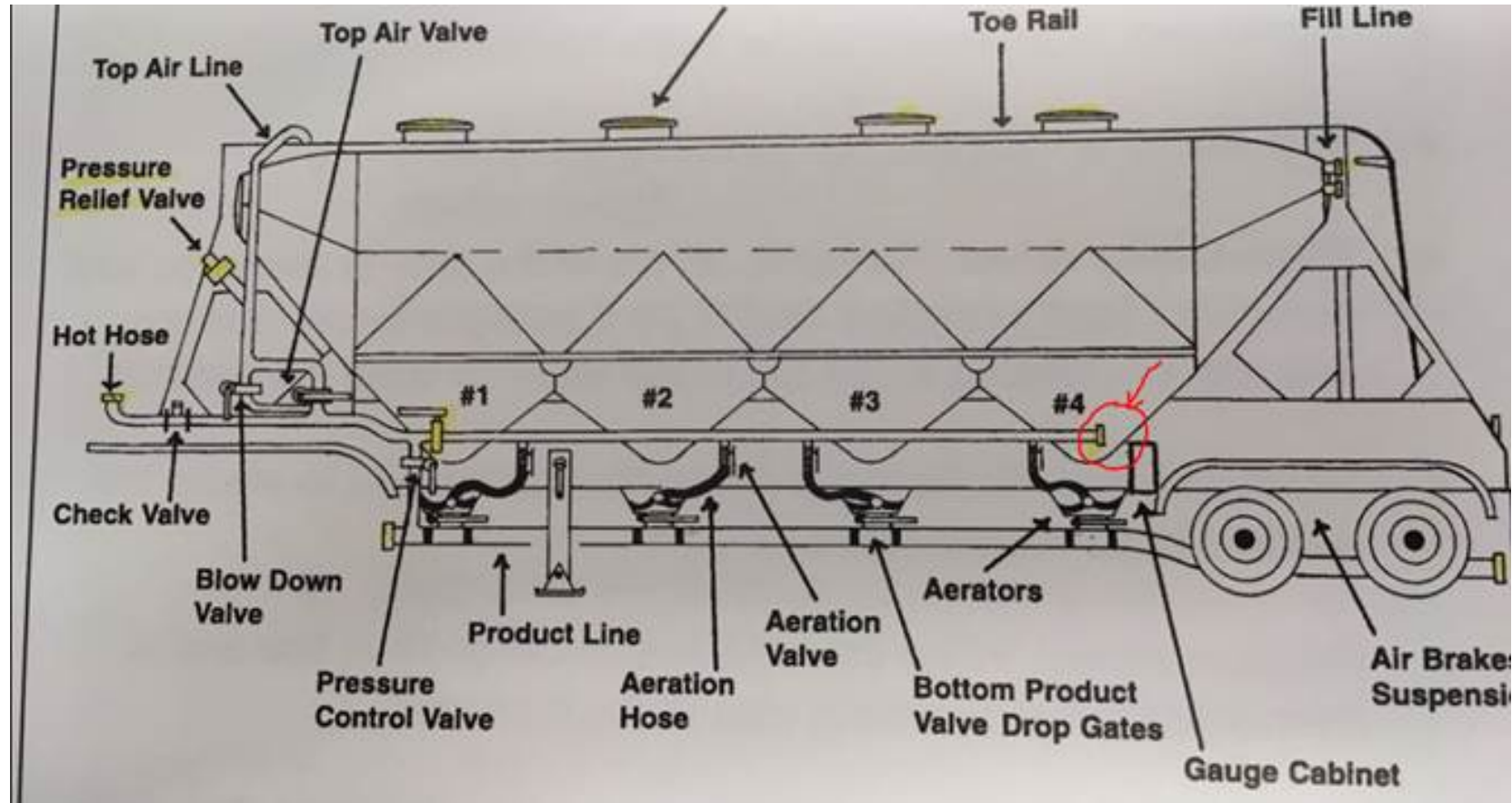
- Compliance with FDA's FSMA Sanitary Transport regulations
- Key areas highlighted include:
 - Areas of contamination for bulk truck flour
 - Key sanitary design/delivery requirements
 - Situations resulting in high dollar claims for mill and carrier
- NOTE: Best practices are based on the opinions of the IAOM Food Protection Committee. Each location must comply with their local procedures.

FDA Sanitary Transport Regulations



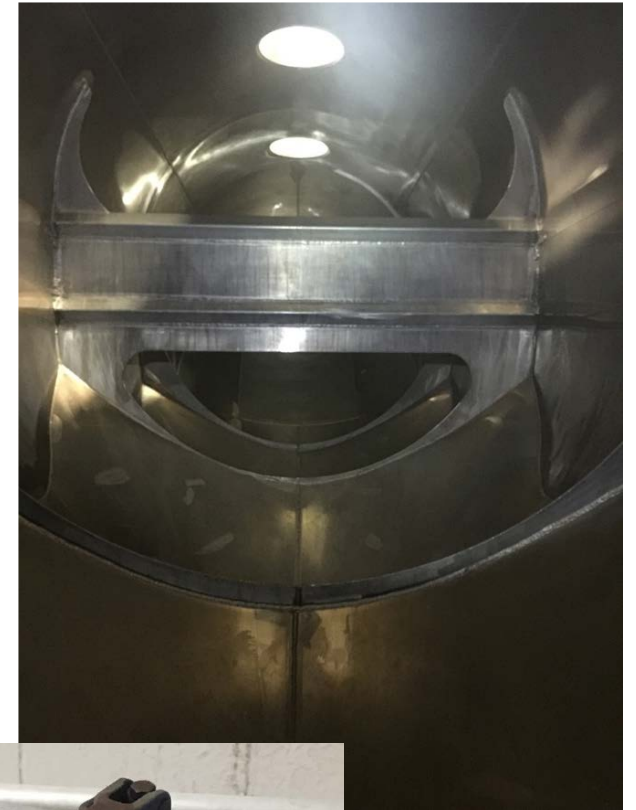
- Very Basic Requirements – Not specific for dry bulk
 - Supplier Approval
 - Carrier, Wash Station, Maintenance
 - Defined Roles
 - Shipper – primary responsibility unless assigned in writing to other roles.
 - Loader
 - Carrier
 - Receiver
 - Vehicles and transport equipment design and maintenance
 - Operations
 - Training
 - Records
- Miller needs to provide requirements to carrier - Contract

Truck/Trailer/Component Design



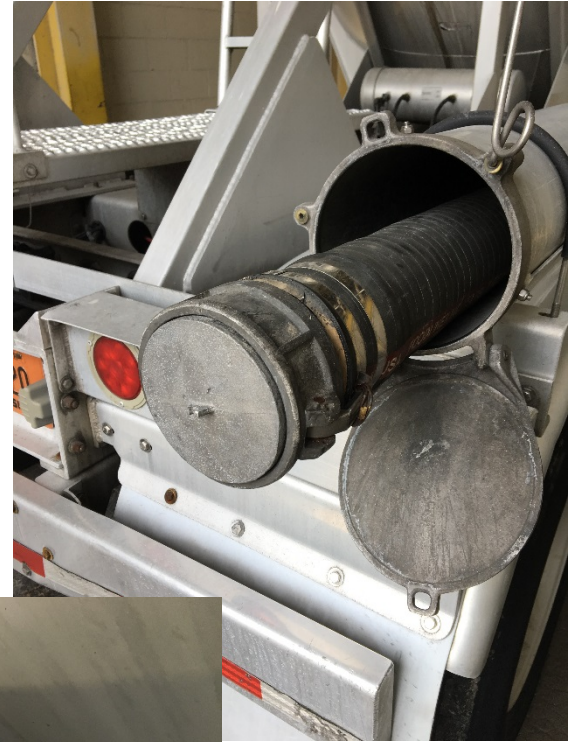
Truck/Trailer/Component Design

- Tanks SS or Aluminum
 - Internal Finish Smooth (welds ground) no harborages
 - External Frame preferred
- Hatch- SS or Aluminum
 - Sealable
 - Risk of shavings on the lock downs.
 - SS preferred or fitted with wear plate



Truck/Trailer/Component Design

- Hose Tube/Carrier
 - Fully enclosed accessible from both ends
 - Sealable
- Vent Sock (if used)
 - Clean/No Fray



Truck/Trailer/Component Design

- Blower
 - Food Grade Oil
 - Best practice is filter installed after blower
- Stingers banned on dedicated drop load trailers
 - If needed, focus point on wash and inspection



Truck/Trailer/Component Design

- Tank Pressure Relief
 - Installed with sealable Cam-lock fitting for easier removal for washing
- Blowdown pipe
 - Screened or with flapper to prevent pest entry



Truck/Trailer Design

- Inline unloading screen
 - Drilled SS plate for durability– no mesh or screens
 - 1/4" – 7/16" holes for white flour.
 - Larger for granular products
- Permanently attached to Truck
 - Ensures driver use
 - Will not protect carriers hoseOR
- Installed at customer connection
 - Portable
 - Full protection of carrier's components
 - Concerns if mounted in vertical manner



Truck/Trailer/Component Design

- Hoses – Food grade – labeled
 - Grounding wire integrated into material
- Cam-lock Fittings
 - Historically a source of metal filings
 - Best Practice is blue gasket (40 durometer – measure of hardness)
 - Compresses more – less bind on cams
 - Easy to find in product
 - Rings on Cams must be soldered so seal can't be removed



Trailer Maintenance Practices



Trailer Maintenance Practices

- Carriers should have maintenance procedures
 - Acceptable tool lists
 - Tool reconciliation
 - Post maintenance procedures
 - Inspection and sign off by carrier
 - Post Maintenance conversion wash
 - Post maintenance product flush to remove shavings in horizontal lines that water may not flush out.
 - Wear part replacement
 - Hoses
 - Aerators
 - Other

Trailer Wash



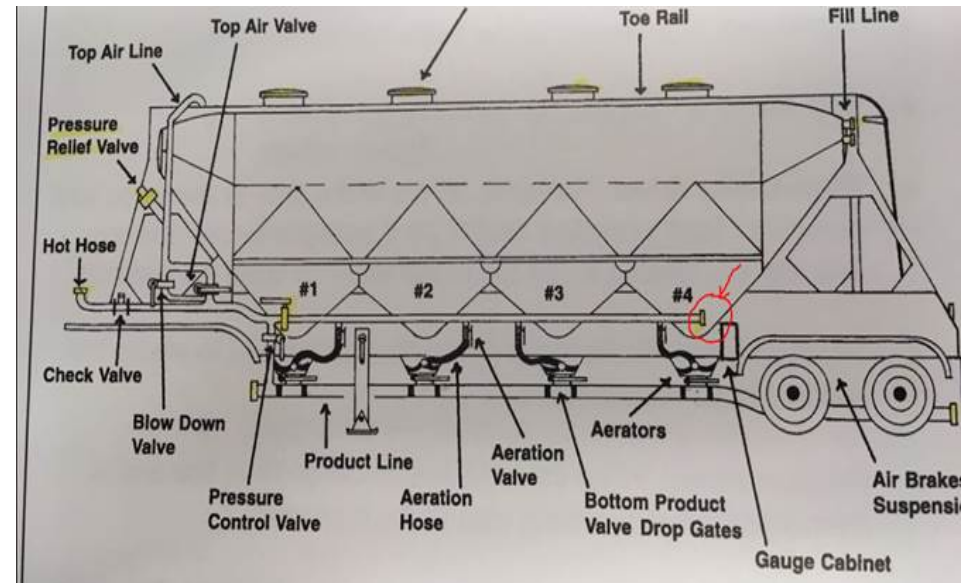
Wash Design

- Potable water source – 40 CFR drinking water standards
 - Recycle water limitations.
- 5 micron filter on water line
- Back flow valves installed and tested
- Piping after 5 micron filter must be non-corrosive (no galvanized)
- Chemicals used in water heating (boiler) must be approved for food use.
- Wash spinner nozzle maintenance and inspection



Wash Procedures

- Frequency – as needed - 14 days typical (21 day)
 - Cycle starts on date of first load after wash, not date of wash
- Disassemble trailer
 - Hoses removed from tube, caps removed
 - Wash on racks – do not rest or wash hoses on floor or ground.
 - Inspect all gaskets. Hose fitting gaskets removed for washing
 - Hand wash all associated equipment with same process as tank.
 - Wash must include all air lines and other hidden areas (stingers, pressure relief, etc.)



Best Practice Wash Process

Sequence	Water Used	Water Disposition
Initial Rinse to Remove Solids	Recycled final Rinse water from approved prior wash	Drain – Not recycled
Wash (15 minutes)	Fresh Water (use hot if available)	Drain – Not recycled
Final Rinse	Fresh Water (use hot if available)	May be recycled for next load's initial rinse (if compatible)



Wash Procedures

- Drying
 - Blower preferred or fan air used for drying must be filtered to 150 micron.
 - Best Practice - 10 micron on blower filters
 - If blower used, food grade oil required.
- Post wash Sealing
 - Tamper evident seals applied to all product access points on trailer prior to leaving wash station. Recorded on wash ticket.
 - Different color than return empty seals so loader knows it was freshly washed

Wash Procedures

- Conversion wash:
 - Required after internal maintenance, and certain prior loads
 - Prior to Initial Cold Rinse – Additional Steps
 - Disassemble Aerators, Bottom product lines, valves, tees, couplers
 - Remove all gaskets
 - Hand rinse and wash all parts.
 - Before reassembly perform wash cycle
 - Inspect interior of tank and all components for residue
 - Reassemble all components
 - Perform 2nd wash and final rinse.

Acceptable Previous Commodities and Pre Load Minimum Requirements

	When Loading Truck with			
When Previous Commodity is:	Patent/1Clr Flour	2Clr Flour	WW Flour	Farina
Patent/1Clr Flour (Dusting)	Inspect	Inspect	Inspect	Inspect
Patent/1Clr Flour (More than dusting)	Inspect	Inspect	Inspect	Inspect
2Clr Flour (Dusting only)	Inspect	Inspect	Inspect	Inspect
2Clr Flour (More than dusting)	Wash	Inspect	Inspect	Wash
WW Flour (Dusting)	Wash	Inspect	Inspect	Wash
WW Flour (More than Dusting)	Wash	Inspect	Inspect	Wash
Farina	Wash	Wash	Wash	Inspect
Any Competitor Wheat Product	Wash	Wash	Wash	Wash
Durum Wheat Products	Wash	Wash	Wash	Wash
Malted Barley Flour	Wash	Wash	Wash	Wash

When Previous Commodity is:	Prior to Loading any Wheat Product
Corn products	Conversion Wash Required
Sorghum Products	
Rice Products	
Sugar Products	
Salt	
Prior load had Foreign Material or other food safety issue	Follow Return to service requirements including conversion wash and product flush.
New Trailer	Follow Return to service requirements including conversion wash and product flush.
All Other Previous commodities/materials	May not load regardless of wash without Div. QA Approval

Product Handling and Delivery



Product Handling and Delivery

- Drivers

- Drivers must wear clean, appropriate clothing. Uniform preferred.
- Carrier must have personal hygiene program for drivers that address GMP's
 - Hand washing
 - Tobacco use
 - Eating
 - Hair restraints
 - Restroom use
 - Conduct
 - Prevention of Foreign Materials and Allergens

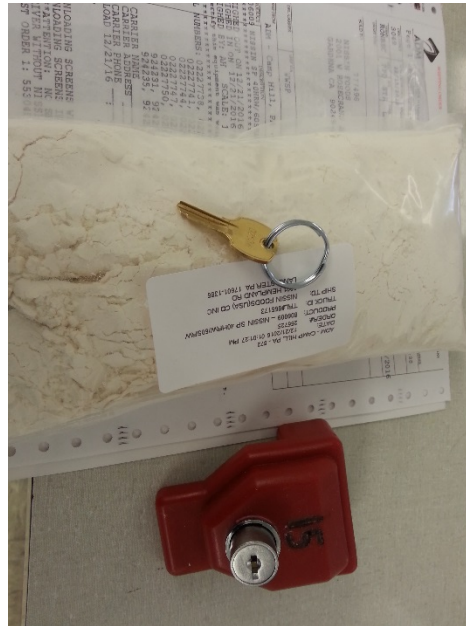


Product Handling and Delivery



- Pre-Trip
 - Confirm all required paperwork and samples are present. Read and comply with any special instructions on BOL
 - If Pre-load, hook to trailer THEN verify the following
 - Check a rear or bottom compartment seal number compare to those on BOL. Verify Trailer number. Report problems to dispatch or Milling company. DO NOT DELIVER

- Use electronic locker/vending system to lock up paperwork, sample and glad hand trailer locks.



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Asset ID	Asset Description	SKU	Asset Type	Avail Offings"	Action
240294X	151 FOODS V	814118		Y	Edit Asset Type
240294	151 FOODS V	451303		Y	Edit Asset Type
46	46	46		Y	Edit Asset Type
47	47	47		Y	Edit Asset Type
48	48	48		Y	Edit Asset Type
49	49	49		Y	Edit Asset Type
50	50	50		Y	Edit Asset Type
275134	ATV	866214		Y	Edit Asset Type
45	Asset 1	1		Y	Edit Asset Type
266489	BAKERY DE FRANCE	962066		Y	Edit Asset Type



Product Handling and Delivery

- Arrival at Customer

- Check with guard or receiving personnel for instructions.
- Prior to unloading visually note condition of unloading areas and fittings at customer. If any concerns for personnel safety, product safety, worn fittings call dispatch. Do not confront the customer
- Do not cut seals without permission from the customer

- Sampling procedure

- Drivers are not allowed to climb on top of trailers to obtain samples. Customer personnel may with proper fall protection.
- Ensure clean sample scoop is used. Hair restraints required. No glass.
- Extreme care shall be taken by customer to prevent foreign material from entering the trailer. (Insects, perspiration, dirt, loose items, dust, rain, etc.) Driver should note any concerns on delivery report.

Product Handling and Delivery



- Unloading

- Driver is not allowed to turn any valves or press any buttons without authorization each and every time from customer.
- Prior to unloading driver must get customer's signature of authorization and bin number/name on BOL or trip sheet.
- Driver must remain in attendance (awake, outside vehicle, within 25 feet in view of unloading process).

Product Handling and Delivery

- Unloading

- Inline screen used at point of hook up to customer or on truck
- Camlock shims
 - Many milling companies ban shim use.
 - If used made of non-rusted ferrous metal that is secured so it cannot enter product.
 - No shim may be used downstream of inline screen. Loose or leaking fittings must be reported ASAP so repairs can be made
- Cam lock caps and plugs that are removed from pipes shall be coupled together and placed off the ground. Uncoupled caps and plugs that come in contact with any unsanitary surface must be cleaned prior to use.
- Hose ends and connection points must not come in contact with the ground. Many companies require hoses to remain off ground.

Product Handling and Delivery

- Unload Completion

- Inspect inline screen. If installed in vertical position, the connecting hose must be checked for material that may have dropped off screen.
 - Any material found that is not flour, dough or clean scale must be bagged, recorded and immediately communicated to dispatch and Milling Company.
- Properly store inline screen, hoses and fittings.
- Place return seals on all broken access points and record seal numbers on BOL or other form.
- Inspect area for spills, debris or broken seals. Clean up area.
- Significant spill need to be reported to customer and dispatch
- Trailers returning with product must be verified as fully sealed.

THANKS AND QUESTIONS

- Special thanks to my fellow IAOM Food Protection Committee members for their input
- Committee plans to finalize these best practices in a document to share with IAOM membership
- Questions?

