

# BULK TRAILER SANITARY TRANSPORT

## BEST PRACTICES MANUAL



Design Requirements  
Maintenance/Repair  
Trailer Wash Station Requirements  
Trailer Wash Process  
Prior Load/Return to Service  
Trailer Inspection and Loading  
Product Handling and Delivery  
Rail-Truck Transfers

Developed by the  
IAOM Food Protection Committee  
*April 2019*



# IAOM

# Bulk Trailer Sanitary Transport Best Practice Manual

*By the International Association of Operative Millers'  
Food Protection Committee*

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### **About this Manual**

This manual was created for the International Association of Operative Millers (IAOM) membership by the IAOM Food Protection Committee in response to the new sanitary transport regulations by FDA. Its purpose is to compile a document that would combine best practices to achieve compliance with FDA regulations and the quality expectations of milling industry customers. The manual was written by members of IAOM's Food Protection Committee who are practical experts in food safety, quality and transportation, with additional input from independent bulk transportation companies. Although this manual focuses on the transport of milled grain products, which are non-ready to eat, this manual has applicability to other dry bulk food ingredients.

Ron Galle  
Food Protection Committee Chair 2019

### **Special thanks to those companies that provided pictures for this manual:**

ADM Milling, Ardent Mills, Bay State Milling, Foodliner Inc., General Mills, Grain Craft, Miller Milling, Riviana Foods, Siemer Milling, Star of the West Milling, WW Transport.

The IAOM Committees involved in the authoring of this publication have carefully developed the content herein to be accurate at the time of publication and consistent with standards of best practices within the milling industry. And, because research and best practices evolve continually, it is vital that the reader evaluate any recommendations in determining their applicability in any particular situation.

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## Chapter 1: Introduction

The milling industry has for many years transported its products in pneumatic trailers. This is an effective and efficient way of delivering large volumes of milled grain products to the baking and food industries. In 2011, the Food Safety Modernization Act (FSMA) was signed into law. Part of this regulation was the implementation, in 2017, of the FDA's [Sanitary Transportation of Human and Animal Food regulation](https://www.federalregister.gov/documents/2016/04/06/2016-07330/sanitary-transportation-of-human-and-animal-food) (<https://www.federalregister.gov/documents/2016/04/06/2016-07330/sanitary-transportation-of-human-and-animal-food>). Other countries, including Canada, have also published regulations on food transport.

This regulation has reinforced the need to establish requirements, procedures and practices related to the transport of milled grain products. However, complying with regulations is only the bare minimum. Customer expectations for safe and quality product have increased. Most failures in transportation of milled grain products do not result in major food safety recalls. The majority of incidents are quality related, such as putting wrong product in the wrong bin or a shipment being rejected due to unsanitary conditions. These incidents are discovered well before finished food is consumed but lead to significant cost claims to the shipper/carrier or loss in supplier confidence by the customer.

The following Chapters identify specific best practices to ensure safety, quality and integrity of the food products transported. Carriers are reminded to follow local and company-specific requirements.

## Chapter 2: Vehicle and Transportation Equipment Design Requirements

Vehicle and trailer design play a crucial role in maintaining the integrity and safety of food products during transportation activities.

FDA's FSMA Sanitary Transport rule states: "Sec. 1.906 (a) Vehicles and transportation equipment used in transportation operations must be so designed and of such material and workmanship as to be suitable and adequately cleanable for their intended use to prevent the food they transport from becoming unsafe, i.e., adulterated within the meaning of section 402 (a) (1), (2), and (4) of the Federal Food, Drug, and Cosmetic Act during transportation operations."

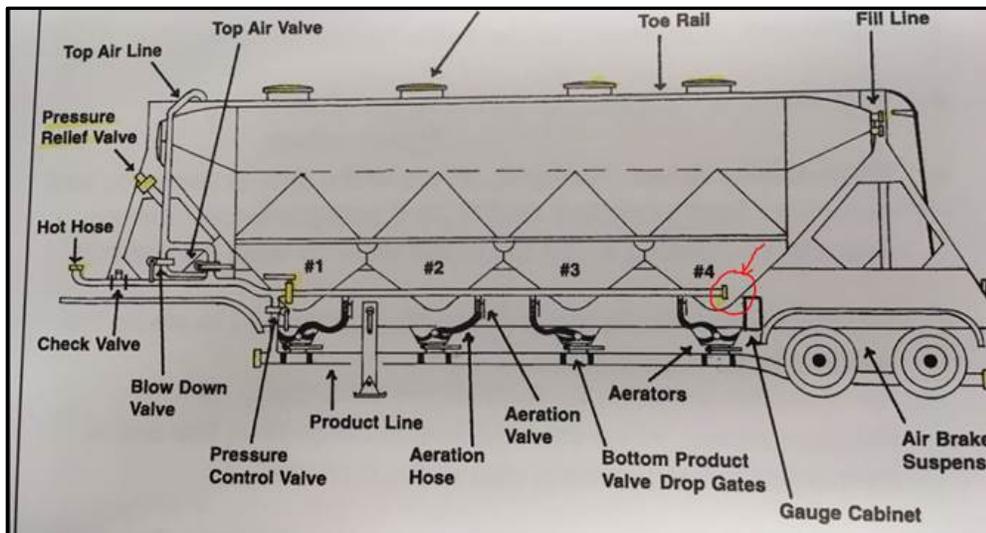
Vessel construction and materials must be considered as they pertain to sanitation, inspection, accessibility and security. Carriers must understand the requirements for bulk vessels used to transport food products and provide such equipment that meets those requirements. The shippers and loaders must understand those same requirements and inspect all vessels prior to loading to ensure compliance.

The following requirements have been identified as industry best practices for bulk trailer design. For the purposes of this document, components have been divided into primary structural components and secondary components.

### Primary Structural Components – Pneumatic Food-grade Tanker

Primary structural components include:

1. Tank
2. Hatches
3. Product and Air Lines
4. Hose Tubes and Carriers



<p>1. Tank</p> 	<p>Materials comprising the tank construction are of utmost importance for food safety and quality. The exterior of the tank should be constructed using stainless steel or aluminum and the surface should be smooth and able to be cleaned. The internal finish should be smooth to allow for ease of product flow and cleaning. All seam welds should be ground smooth and there should be no areas for product to hang up or allow for pest harborage. The use of a food-grade epoxy liner is not recommended, as liners tend to wear and chip over time creating potential risk for pieces of the liner to contaminate the food product. An external frame is desirable. Any access point should require tools to open or be sealable to ensure against tampering.</p>
<p>2. Hatches</p> 	<p>Hatch lids should be constructed of stainless steel or aluminum material. Stainless steel is best to prevent the potential for wear and aluminum shavings from regular operation of cam locks. If aluminum hatch lids are used, the lids should be fitted with a stainless-steel wear plate that can be inspected and replaced at regular intervals or if wear is identified. Hatches should be sealable to ensure no gaps exist and lids remain closed in the event cam locks are released. See Secondary components below for gasket information</p>
<p>3. Product/Air Lines</p> 	<p>Product lines and air lines should be constructed of stainless steel or aluminum. All connections should require tools to open or be sealable to ensure against tampering. Product lines should slope toward discharge to improve drainage throughout cleaning activities.</p>

#### 4. Hose Tube/Carriers



Hose tubes and carriers should be fully enclosed to protect against contamination. Tubes should be accessible from both ends to enable thorough cleaning and inspection. Tubes should be sealable. Use of cam lock caps is recommended, and if used, should be tethered.

## Secondary Components

Secondary components include:

1. Product Hoses
2. Caps and Plugs
3. Gaskets
4. Aerators and Valves
5. Vent Socks
6. Blower
7. Pressure Relief Valve
8. Blow Down Pipe
9. Inline Screens
10. Check valves

<p>1. Product Hoses</p> 	<p>All hoses should be approved for food contact with a white neoprene lining and identified as such by having the words, “Food-grade” printed on the hose unless the hose is transparent. The grounding wire should be integrated into the material to prevent wear and contamination of product. Product hoses should be kept off the ground and should be capped or plugged when stored and not in use.</p> <p>All hot air hoses should be able to withstand operating temperatures of 250°F or greater.</p>
<p>2. Caps and Plugs</p> 	<p>Caps and plugs should be constructed of stainless steel or aluminum. Cam lock ears should be constructed of aluminum. Use of brass is not recommended. Solid rings must be used for seals. Split rings should not be used or be welded and inspected on each wash, as they can allow a security seal to be removed without being broken.</p>
<p>3. Gaskets</p> 	<p>Gaskets for hoses and hatches should be FDA approved white or blue 40A durometer, which are manufactured using the FDA approved ingredients listed in <a href="#">21 CFR 177.2600</a> for use in food-grade applications.</p> <p>**The blue 40A durometer gasket is softer and compresses more which prevents cam lock binding and potential shavings.</p>
<p>4. Aerators - Valves</p> 	<p>Aerators should be translucent to see if product has penetrated the air system. The aeration cone should be constructed of FDA approved white or blue silicone material. <a href="#">21 CFR 177.2600</a></p> <p>Valve seats, check valves and other food contact plastic/rubber components should be made of FDA approved nitrile, neoprene, silicone or similar materials.</p>

<p>5. Vent Socks</p> 	<p>Vent socks, if used, should be manufactured of FDA approved materials (<a href="#">21 CFR 177</a>), and should be clean with no fraying. Vent socks should be inspected before each load and changed/cleaned as necessary during maintenance and wash cycles.</p>
<p>6. Blower</p> 	<p>Blowers should use food-grade oil as outlined in <a href="#">21 CFR 178.3570</a>. It is recommended to have an allergen statement on file from the manufacturer to ensure no allergen cross contact. An air filter is required on all blowers. A best practice is to have the filter installed after the blower. This filter should be easy to inspect and clean. It is recommended to use filter media that removes solid particles with a size of 4-10 microns. Blowers should have an approved silencer. Blowers should use food-grade oil for lubrication. Blower silencers must not be made of fiberglass.</p>
<p>7. Pressure Relief</p> 	<p>Bulk trailers are pressure vessels and pressure relief valves are necessary for their safe operation. These are often installed on the roof of the tank or on the blowdown line and are often not easily cleaned or washed. Regardless of its installation location, it should be installed with a sealable cam lock fitting to accommodate easy removal for inspection and washing.</p>
<p>8. Blow Down Line</p> 	<p>During transport, the blowdown line is left open to allow the tank to maintain ambient pressure during temperature changes. The opening of this blowdown line should have a check valve, screen or similar method to prevent entrance of small rodents, birds and insects through the blow-down exhaust pipe. Air is exhausted through a one-way valve. Construction should be of aluminum or stainless steel.</p>

<p>9. In-line Screen</p> 	<p>Inline screens should be constructed of machined openings in a steel plate. No mesh or wire screens should be used. Screen sizes for fine flour should be between 1/4" and 7/16", while larger sizes may be used for granular products, such as whole wheat flour or farina. There are two recommended usage points for this screen. Each has its pros/cons:</p> <ol style="list-style-type: none"> <li>1. Screen installed as a permanent part of the truck's rigid unloading line. This configuration ensures its use by the driver, but does not protect the carrier's hoses. The screen should be tethered to prevent it from being placed on the ground,</li> <li>2. Portable screen installed at the carrier hose connection to the customer. This configuration provides the best protection, but can be easily circumvented by the driver. If the screen is installed in a vertical manner, be sure to shake out the hoses as material caught on the screen may fall back into hose when air is turned off.</li> </ol> <p>If the customer has a screen in place, it is still recommended that there be a screen provided by the truck between product and customer connection.</p>
<p>10. Check valves</p> 	<p>Check valves are necessary to prevent back pressure pushing product into the clean air system. Requirements are</p> <ul style="list-style-type: none"> <li>• A silicon rubber membrane as a base, sandwich material to screw wing flaps is recommended. Silicon has a natural resistance to high temperature.</li> <li>• Never use an "EPDM" rubber membranes as they are only rated to withstand a maximum temperature of 120° F.</li> <li>• Suitable check valves are combinations of aluminum and stainless steel construction.</li> <li>• Plastic check valves may not be used.</li> <li>• Spring and other parts should be self-contained to eliminate the potential of them getting into product.</li> </ul>

## Chapter 3: Bulk Trailer Maintenance/Repair

Adequate trailer maintenance and repair management is crucial to ensure human and product safety. Improper maintenance practices have historically led to significant food safety and quality issues in the food product hauled.

FDA's Sanitary Transport rule states: "Section 1.906(b) Vehicles and transportation equipment must be maintained in such a sanitary condition for their intended use as to prevent the food they transport from becoming unsafe during transportation operations."

### Preventative Maintenance/Equipment Repair Program

The carrier should have a scheduled and preventative maintenance program for all equipment and components involved in the transport of food product. Procedures need to be established for all maintenance and lubrication tasks and training provided and documented on those procedures. Procedures need to include:

- Tool reconciliation.
- Temporary/emergency repair.
- Clean up/removal of foreign material introduced during the repair.
- Final inspection/return to service.

Records of all repairs to equipment/components and training should be kept and records retained in files for at least three (3) years or as defined by shipper.

All maintenance work and component replacement should comply with [Chapter 2: Vehicle and Transportation Equipment Design Requirements](#).

### General Sanitation Requirements

Although not considered food production areas, truck/trailer maintenance shop and work areas are exposed to the food contact surfaces of the vessel. Basic Good Manufacturing Practices (GMPs) used in food production plants apply.

Maintenance areas should be kept clean and orderly. Tools, equipment and parts should be properly stored. Loose parts and debris should be picked up. Lubricants and chemicals should be stored in original containers or in point-of-use containers labeled with contents. Only approved chemicals and lubricants are to be used on/near food contact surfaces.

Outside grounds should be maintained. Properly storing equipment, removing litter and waste, and cutting weeds or grass in the immediate vicinity is required to prevent pests. Tires (old and new) and idle equipment or parts should be stored well away from maintenance and wash areas. Immediate cleanup of product spillage, eliminating standing water and keeping trash receptacles picked up and covered, are also necessary to prevent pests.



*Organized Maintenance Shop*

## **Product Protection**

The bulk trailer/piping interior is considered a food contact surface. Often called a final product zone or high care zone by the shipper, proper precautions should be taken during and after maintenance to ensure that food is not impacted. Any repair to equipment that will come into direct contact with product should be followed by a complete wash. Any repairs that could generate metal shavings, slag or other foreign materials must be followed by a conversion wash and product flush to ensure foreign material is flushed out. Water alone will not remove fine foreign material from horizontal lines. As an alternative to flushing, the product lines may be removed prior to the work being performed and installed as normal during the conversion wash. [See Chapter 6: Prior Load/Return to Service.](#)

If any food safety risk or deficiencies are identified, a member of management should be notified immediately. Additional equipment-specific precautions are listed below.

### ***Hoses***

Hoses should be monitored on a daily basis by the drivers and thoroughly inspected after each trailer wash. They should be replaced immediately if any signs of deterioration are seen. All replacement hosing is to be checked for foreign material and any foreign or loose material found should be removed before use. Ensure no foreign material enters the final product zone when the replacement hose is installed. All hoses are to be secured with some form of clamp-type device to the end fitting. Unloading hoses should be properly washed out after installation of cam locks. Hoses should be replaced annually at minimum, or sooner as needed.



*Deteriorated Hose Interior*

### ***Hose Tubes***

If any welding on the hose tube is to be completed, the hose tube should be washed out and inspected to ensure no material can contaminate the unloading hose. Any welds should be ground smooth to match the surrounding area (see welding section).

### ***Gaskets***

All surfaces are to be clean before installing new gaskets.

### ***In-line Air Filters/Hot Air Filters***

Filters are to be serviced as indicated by the manufacturer. Exercise caution to prevent any foreign material from entering the air inlet or product line during inspection or replacement

### ***Blowers***

Exercise caution to prevent any foreign material from entering the air inlet or product line. The filter should be replaced when it becomes damaged or when cleaning no longer removes all visible dirt.

### ***Valves***

Replacement parts or valves should be food-grade quality. No oil is to be used in the final product zone. Exercise caution to prevent any contamination to the interior of the trailer when replacing or maintaining valves.

### ***Cam Lock Fittings***

Cam lock fittings and caps should be inspected prior to each use. Cam locks that do not tighten should have the gasket replaced. Broken dog-ears or seal rings should be replaced. New cam lock fittings should meet the design requirements in Chapter 2.

### ***Product Line Check-Valves***

Check valves should be inspected regularly and maintained. Replacement should be made with check valves that have self-contained parts. If the valve spring breaks; the new check valves will prevent the valve spring from being blown into the product line and subsequently into a customer's silo.



*Broken Cam Lock*

### ***Welding-Interior***

Interior of trailer should be washed prior to welding. Any welds should be ground smooth to match the surrounding area. If any holes were drilled during the welding process, the exterior holes area should be filled in and then ground smooth to match the surrounding area. All welding slag and grindings should be removed from the interior of the trailer. The Product Protection section above should be followed to prevent welding slag and filings from contaminating the product. If the weld was near an aeration cone, the cone is to be removed and checked for any foreign material and/or heat damage. Notify the loading location of any repairs to the trailer at the time it is returned to the location.

### ***Welding - Exterior***

Exterior of trailer should be washed prior to welding. As is the case with interior welding, any welds should be ground smooth to match the surrounding area. If the weld affects the interior of the trailer, the interior welding procedures should be followed as well, including the product protection and wash requirements. Notify the loading location of any repairs to the trailer at the time it is returned to the location. Documentation of any welds and repairs should be kept on file.

## Chapter 4: Trailer Wash Station Requirements

Trailer washing is a critical component for sanitary transport. Wash station requirements are important to ensure that vessels can be adequately washed while preventing contamination of the vessel during and after the wash.

Wash stations may be located at the flour mill, at a carrier's terminal or at a public truck wash. They may be owned and/or operated by the milling company, carrier or third party. Regardless of the situation, the following apply.

### General Wash Station Requirements

Although not considered food production areas, truck/trailer washing exposes the food contact surfaces of the vessel to contaminants. Basic Good Manufacturing Practices (GMPs) used in food production plants for all personnel and processes apply.

Wash areas should be paved and kept clean and orderly. Tools, equipment and parts should be properly stored. Loose parts and debris should be picked up. Chemicals should be stored in original containers or in point-of-use containers labeled with contents. Only approved chemicals and lubricants are to be used on/near food contact surfaces.



*Well-maintained wash bay*

All wash water should drain completely away from the work area. Drains should to be kept clean and free of litter.

Outside grounds should be maintained. Properly storing equipment, removing litter and waste and cutting weeds or grass in the immediate vicinity is needed to prevent pests. Immediate cleanup of product spillage, eliminating standing water and keeping trash receptacles picked up and covered are also necessary to prevent pests.

Unused seals should be secured in a manner that prevents theft or unauthorized use. Used/cut seals should be cleaned up daily, at a minimum.

### Water Requirements

Water used in the wash must be from potable source that meets 40 CFR drinking water standards.

- A 5 micron filter is needed on the water line.
- Back flow valves must be installed and tested.
- If chemicals are used in water treatment (including boiler or softener) they must be approved for food use.
- Water should be tested annually to confirm continued quality.

### Wash System

The wash station should be designated as food-grade. Unless requested by shipper, Kosher certification is not required for dry bulk products. Contact your Kosher authority for details.

No recycled water may be used in the wash process unless approved by the shipper and only if wash station is dedicated to a specific flour mill and there is no potential for cross contact of allergens. [See Chapter 5: Trailer Wash Process](#)

The wash system equipment should be of sanitary design (food-grade material) to prevent corrosion and facilitate cleaning/sanitary maintenance. All piping after the 5 micron filter should be non-corrosive. Wash spinners should be stainless steel and properly maintained and stored to prevent damage or contamination.

All air (blower or fan) used for drying should be filtered. Best practice is 4-10 microns. Blowers or other equipment used for drying should use food-grade oil.

Wash and drying equipment should be cleaned and maintained.

## Chapter 5: Trailer Wash Process

The washing process of a dry bulk product trailer is a critical step to maintaining the integrity of the material handled. The goal of the wash is to prepare and ensure the vessel is clean to maintain the condition of the product while in transit from origin to destination.

If not properly maintained and cleaned on a regular frequency, the bulk container can become a harborage for material build up, insects, microbiological contamination and product residue. The following best practices should be considered when preparing programs and executing washes for bulk transportation containers to minimize these concerns.

### Frequency

As part of the wash program requirements, it is important to establish appropriate wash frequencies. The maximum length of time between washes should be determined by each location based on inspections and history. It should be adjusted as needed to ensure product integrity. Local climate and loading conditions will influence this frequency. Wash frequencies of 10 to 14 days after the first post wash load are typical for the milling industry with some locations achieving a 21-day frequency. Regardless of the established frequency, a trailer may be rejected to wash if the pre-load inspection in [Chapter 7](#) deems it necessary.

### Pre-Wash Inspection

Transportation vessel washes and inspections require a knowledge of the vessels and wash process to be effective and, therefore, should be conducted by a trained individual. Before the vessel is washed, a prewash inspection of the vessel is required. The prewash inspection should include visual inspection of interior of vehicle and any product contact equipment. The purpose is to determine if there are any unusual circumstances that need to be handled by means other than a standard wash, (conversion wash or maintenance issues). The prewash inspection is a good time to identify any vessel structural issues, which will require maintenance. Such repairs may require subsequent washes and or conversion washes before the vessel can be returned to food contact service. The prewash inspection should also be used to identify “watch-outs” or hygienic design problems and food safety/sanitation concerns that may be specific to the vessel and require detailed cleaning before use.

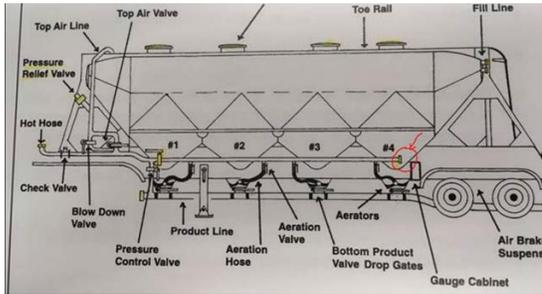
Examples of such concerns could be:

- On-board dust collection systems that are connected to the vessel, but not conducive to conventional cleaning.

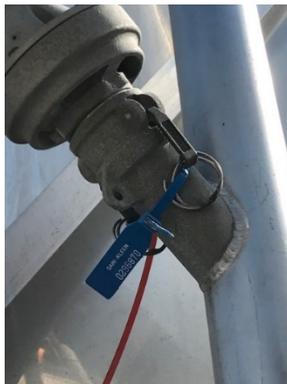


Onboard dust collection and outlet

- Idle or “dead end” piping, blow down piping, internal stingers, aeration piping, hose “holders” that are attached to the vessel exterior, but not securely sealed from the elements.



Aeration piping



External dead-end



Blow down piping



Internal stinger

## Disassembly

Following the prewash inspection, the vessel should be disassembled and prepped for washing. All parts removed should be placed on racks or holders and are not permitted to come in contact with the floor, ground or over spray from these surfaces.

Disassemble trailer and remove parts as needed to ensure cleaning access to all food contact and transport air surfaces, especially those that may be “hidden” from view as these areas can accumulate product debris and quickly become unacceptable for food contact. Hoses will need to be removed from storage tubes and end caps removed to provide cleaning access. Remove and inspect all hose fittings and gaskets. Remove all previously applied security seals, open all valves and inspection ports. Verify dead-end pipes, dust filters, etc., are exposed for washing. All parts removed should be hand washed with the same process as used for the main vessel tank.

## **Wash Process**

For standard, (non-conversion) vessel washes for dry grain products, detergents or chemicals may not be required (verify with company requirements). Spinners and similar types of automated wash equipment may be used. Use of such equipment should be approved and acceptable results validated. Use specialized equipment as necessary to ensure difficult-to-access hoses, piping, etc., are thoroughly cleaned. The wash process should comply with the requirements listed in [Chapter 4: Trailer Wash Station Requirements](#). The process is generally a four-step process (not a one and done).

***Cold Water Rinse:*** The first step is a cold water rinse to remove all of the solids. The rinse should include all internal surfaces, piping and associated equipment, and is intended to remove loose product from these surfaces. The initial rinse water should not be reused for any other wash process step. If the vessel to be washed has hauled the same commodity as the previously washed vessel, the final rinse water from the previous vessel may be used for the initial rinse. See [Chapter 6 Prior Load-Return to Service](#).

***Primary Wash:*** For the second step, wash all piping (air and product pipes), tank and all associated equipment. It is preferable to wash with hot water. If hot water is available, wash as long as necessary to ensure complete removal of all visible residue in all areas – including piping and hard to access and hidden areas. A 15-minute wash with 135 degree F. water may be adequate, but should be verified effective for each vessel and comply with company requirements. If cold water is permitted, a longer wash time may be required – the process and results should be visibly clean and acceptable by the company.

\*Above times are based on use of a controlled system (chart, recorder). If it is a manual wash process, an inspection after the wash is necessary to ensure adequacy. If cleaning chemicals are used, chemicals should be approved for food surface use, labels documented and followed to ensure proper concentration and use. Site verification procedures should be conducted and records of chemical concentration testing, retesting and corrective actions documented.



Automated wash system and chart recorder



Trailer with wash spinner in hatch for wash.

**Final Rinse:** Following the wash cycle, the third step, a final rinse, should be completed. Using fresh, uncontaminated potable water, all washed surfaces, including all piping (air/product), tank and associated equipment, should be thoroughly rinsed to ensure no product residue remains. If soap/cleaning chemicals were used, the rinse step should thoroughly remove cleaning chemical residue as well. Chemical labels should be followed and may require post-rinse testing before the vessel is used for food transport. Although not common, a shipper may require the use of an approved sanitizer. This may be used after final rinse and according to label instructions.

**Drying:** The fourth step is drying. After completion of the rinse and/or sanitizing step, the vessel interior surfaces should be dried and trailer reassembled. Blowers are generally the preferred drying method and should be filtered (per [Chapter 4](#)) to ensure the vessel is not contaminated during the drying process. The use of hot air (following a hot water wash) is preferred and will generally reduce the drying time.

Following the drying cycle, the vessel should be thoroughly inspected to verify all surfaces are completely dry and free from residue. Ensure product and air pipes and hoses are clean and dry. Verify gaskets and seals were not damaged or lost during the cleaning process, and replace as necessary. Ensure all parts, fittings, gaskets, caps, hatches, covers, etc., have been re-attached as designed to ensure a closed vessel and associated equipment. Washed hoses should be dried by forced air, capped, replaced in hose tubes, and sealed.

Vessels placed in storage, following washing during seasons of varying temperatures, may need to be re-dried and re-inspected before use if condensation has formed. In such conditions where condensation is present, if mold or mildew has formed, the vessel should be re-washed.

When the vessel has been acceptably washed, dried and passed inspection, it should be sealed with security seals to ensure tamper resistant and tamper evident. Seals will need to be applied to all product access points and points where air and transfer hoses will be connected. Many vessels also use quick-release clamps and other means to connect pipes and fittings. These should also be sealed by tamper evident means.

Some access points may not be accessed until the next wash and can be sealed with cable seals. If allowed by a shipper or customer, potential cable seal points may include: a hot air hose trailer connection, cam lock pressure relief valve, and quick connect clamps, if utilized, on the bottom product line, and any dust collection, system openings.

Other access points can be sealed with plastic seals. A good practice is to use visually different seals, which are unique to the wash station for a freshly washed vessel. These seals should be different than a return empty vessel, so the loader knows the vessel has been freshly washed and all key components were opened, cleaned, inspected and resealed.

Seal numbers will need to be recorded on the wash ticket so they can be confirmed at the time of loading preparation. A missing seal, or seal with a different number, is an indication of possible tampering.

## **Conversion Wash**

Following internal maintenance and certain prior loads, (see [Chapter 6: Prior Load/Return to Service](#)), a more in-depth disassembly and detailed cleaning is required. This is called a “conversion wash”. Prior to beginning the wet cycle (initial cold rinse), a conversion wash requires, a more detailed disassembly of the vessel to ensure total removal of foreign material generated from maintenance/repair or prior commodity from the previous load. The bottom aerators should be fully disassembled, and bottom product line, valves, tees, couplers caps, gaskets, hatch gaskets, pressure relief, and other small parts that could harbor residue or debris, removed from the vessel. Removed parts should be hand washed and inspected to ensure they are clean and free from residue and debris.

Once the vessel has been adequately disassembled, the initial rinse and wash as outlined in the wash section above should be performed on the vessel and the parts. If detergents are used, a post-wash rinse should also be performed. A detailed inspection of the vessel and all parts is then completed and the vessel/parts reassembled. Following the reassembly, a second wash, final rinse, dry and inspection should be completed as outlined above.

## **Wash Records**

The final step of the wash process is to ensure the wash has been properly documented. Records of vessel washes should be maintained, up-to date and available.

- Wash tickets generated for each washed vessel may include:
  - Date.
  - Time.
  - Name of wash station and location.

- Wash type.
- Trailer number.
- Prior load verification.
- Seal numbers on portholes, vents, hose storage, pump compartments, etc.
- Signature of who completed wash and final inspection prior to sealing.

The completed wash ticket should accompany the trailer and will be required prior to loading and unloading. If wash facilities are not maintained by the carrier company, the carrier should include any approved supplier documentation, including but not limited to an audit report conducted by the carrier company or a third party audit certificate acquired by wash facilities (should be available to the carrier). The primary responsibility for determining appropriate transportation operations rests with the shipper, who may rely on contractual agreements to assign some of these responsibilities to other parties.

<b>TRAILER WASH TICKET</b>		14 Church Street Quincy, MI 49082 Office: 517/639-3165 Fax: 517/639-3175
№ 16134		
DATE: _____	SEAL NUMBERS: _____	
CARRIER: _____	EXTRA CHARGES: _____	
TRAILER NUMBER: _____	WATER TEMP & TIME: _____	
LAST PRODUCT: _____		
TIME IN: _____		
TIME OUT: _____		
WASH INSIDE TRAILER	Y N	
WASH PRODUCT GATHERING LINE	Y N	
WASH PRODUCT HOSES	Y N	
INSIDE TRAILER DRY	Y N	
PRODUCT GATHERING LINE DRY	Y N	
PRODUCT HOSES DRY	Y N	
WASHED & INSPECTED BY: _____		
Print Name	Signature	
Live Washes:		

## Chapter 6: Prior Load/Return to Service

Bulk trailers are used to haul many different dry bulk products and it is not practical to wash each trailer after each completed delivery. Due to safety concerns, it is also not practical to enter trailers to dry clean them. It is common practice in the industry for the same trailer to be used for multiple deliveries of product throughout a day, week or up to next wash cycle.

Trailers undergo maintenance periodically and the proper steps need to be taken prior to returning to service to prevent any food safety issues.

This chapter will provide guidance and industry best practices on how to handle prior loads and when returning a trailer to service.

### Prior Load

Prior loads have the potential to impact the quality and food safety of the food product due to the cross contamination of residual prior load. The most serious of this prior load contamination is related to non-food products or foods containing allergens. An essential step in preventing this cross contamination is to know what the prior load was, identifying which products can be loaded subsequently and what level of residual or cleaning is allowable. The following tables are recommendations for loading wheat products based on the prior load. Each shipper may have different requirements.

When Previous Commodity is:	When Loading Truck with				Prior to Loading any Wheat Product
	Patent/1Cl Flour	2Clr Flour	WW Flour	Farina	
Patent/1Clr Flour (Dusting)	Inspect	Inspect	Inspect	Inspect	Conversion Wash Required
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	Follow Return to service requirements including conversion wash and product flush.
Farina	Wash	Wash	Wash	Inspect	
Any Competitor Wheat Product	Wash	Wash	Wash	Wash	Follow Return to service requirements including conversion wash and product flush.
Durum Wheat Products	Wash	Wash	Wash	Wash	
Malted Barley Flour	Wash	Wash	Wash	Wash	May not load regardless of wash without Div. QA Approval
All Other Previous commodities/materials					

- **Inspect** - In most cases it is acceptable to just perform a visual inspection if new product is of similar likeness from prior load. (See [Chapter 7: Trailer Inspection and Loading](#))
- **Wash** - The use of water to clean all internal components of a trailer to prevent product performance and quality issues. (See [Chapter 5: Trailer Wash Process](#))
- **Conversion Wash** - A more in-depth washing of the trailer where piping and other components are removed from the trailer and washed by hand to remove all residue. Once reassembled a second wash would be performed. A conversion wash alone is typically done when switching a trailer from another non-allergenic food prior load. It is also done in conjunction with a product flush after maintenance (See [Chapter 6: Trailer Wash Process](#))

- **Flush** - Using like-product to remove any foreign material from maintenance. This is typically performed after maintenance work is completed on a trailer. **(See Return to Service section below)**
- **May Not Load** – Due to allergens or non-food prior loads, these prior loads are not allowed.

## Return to Service

From time to time trailers will need to have maintenance performed, whether routine or from a breakdown or damage to a component. Any internal maintenance work can often generate metal shavings, slag or other foreign material. It is critical to the integrity of the product that a full inspection and cleaning is completed post-maintenance. For further assurance of 100% foreign material removal, a trailer wash and product flush are required prior to returning to service.

A product flush should be used, as water is not sufficient to remove this foreign material from horizontal lines. It is recommended that a minimum of approximately 200 pounds of product are flushed through each hopper. A product flush would not be required if the trailer was disassembled as for a conversion wash, prior to any maintenance work. Thorough inspections are needed to ensure no shavings or foreign material are present before returning to service.



*Metal filings in product line after wash. Vessel should be rejected back to shop for cleaning, additional wash followed by a product flush.*

New trailers put into service should follow all return-to-service requirements, including a conversion wash and product flush. All product used in any flushing process should be designated as trash.

## Chapter 7: Trailer Inspection and Loading

The trailer inspection and loading process is often a producer's last line of defense from product contamination before product leaves the facility. It is vital that loaders are sufficiently trained and equipped and take their job seriously.

Loaders should follow all local procedures for inspection loading and sealing including PPE and GMP requirements.

### Preload Inspection

Prior to loading the trailer, a number of checks need to be completed to ensure the trailer is suitable for loading.

The loader should verify the trailer paperwork before starting the inspection. This is especially important for shippers that do not have an in-house carrier managing their fleet. This review should include any prior load information and the wash certificate.

Verify that the trailer has been washed within the frequency required by the shipper or customer. If the time since the last wash has been exceeded or the prior load is not compatible, the trailer will be rejected until it has been washed or converted, if possible.

All empty trailers should arrive at the loading area fully sealed to ensure that trailer's integrity. Trailers arriving freshly washed/dried should be fully sealed, and trailers returning from previous shipment should have that prior load's seals in place and return seals in place of all that were broken during the previous delivery. See other chapters for wash sealing, prior loads and product delivery sealing.

At some point during the inspection, all previous loads' seals (except seals used for duration of wash cycle) need to be removed.

Inspect the overall cleanliness of the trailer, checking for buildup, mold and/or infestation, evidence of tampering, etc., using the following procedures:

- Inspect the exterior of the trailer to ensure general cleanliness.
- Using a flashlight or other light, look into the unload/fill pipe on the trailer. Be sure it is clear of any moisture, mold, scale, infestation.
- Pay special attention to trailers with stingers, ensuring that the stinger is clean and shows no sign of infestation.
- Open each hatch and use a light to inspect the inside of the tank. If plane of hatch is broken, a confined space entry permit is needed. Utilize a camera or non-glass mirror to view areas that are difficult to see (for example the ceiling of the vessel). The interior and hatch gaskets should be clear of any sign of off odor, buildup, condensation, mold and infestation. Any of these conditions would be cause for rejection.



*Dirty Hatch*

- Remove the caps on the product hose and inspect for any moisture, mold, buildup, scale and/or infestation. Inspect the hose caps to ensure that they are intact and do not contain cracks or nicks. Product hoses should be kept off the ground.
- Check all the gaskets on all hoses and hose caps and hatches for any mold, buildup, scale and/or infestation. Ensure that gaskets are intact and not damaged. Verify that cam locks are operational and can be effectively sealed.
- Verify the loading sock (if applicable) is clean, free of infestation and in good condition before attaching it to trailer.
- Inspect any other component that can be removed or inspected for condition and proper operation (aerators, pressure relief valve, check valve, blowdown line screen/flapper, etc.)

Any bulk vessel with evidence of mold, excessive product build up, any foreign materials, and/or exceeding the plant stated wash cycle for trailers should be rejected and not acceptable for load-out. Inform the driver, and inform the designated transportation manager at your facility immediately. The carrier will be contacted and cleaning arranged.

If maintenance work is needed, inform the designated transportation manager at your facility; the trucking firm should be notified for them to schedule the work. The nature of the repair required will determine if the bulk vessel can be used for the load going to a customer or not.

## **Loading**

Once the trailer is inspected and approved, it can be loaded. There are two methods of loading a bulk pneumatic trailer.

- For gravity loading, attach loading hose to top hatch of bulk vessel, ensuring that nothing enters the hatch while lid is open and before hose is attached. After hatch loading is complete, remove loading hose from hatch and close lid immediately. Then hang/store the loading hose covering the end to protect the food contact surfaces. Repeat this process on each hatch as needed until vessel is completely loaded.
- For pneumatic loading, attach loading hose to either top rear fill line or bottom product line to fill trailer, ensuring that nothing enters the line while cap is off and before hose is attached.

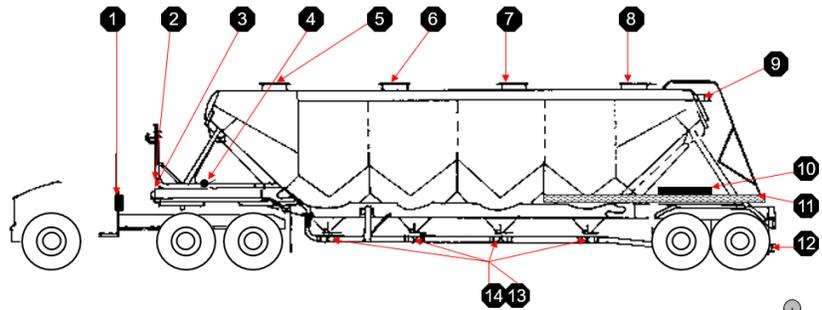
Other considerations:

- Some loaders may opt to cover the hatch opening with plastic sheet or bonnet before closing the hatch. If used, these should be colored so they show up if found in product. Please refer to local procedures.
- During the colder months of the year, condensation can accumulate in the trailer if it is left empty for extended periods of time when the warmer milled product is loaded into the cold trailer. Sometimes it is necessary to blow air into the bulk trailer for 10-15 minutes before loading to ensure that the ambient temperature inside the trailer is warmer.

## **Sealing/Post-Loading**

After the trailer is loaded and all openings closed, the trailer needs to be sealed. Seals should be placed anywhere access to the product is possible without tools. “Zip” type seals should be used versus a loop, as the zipper type can be pulled tight and eliminate open gaps to the product zone.

- Hatches: The hatches on top should be sealed at points that prevent gap access to the product zone.
- Product lines: The top rear loading line and the bottom unloading line cap should be sealed. Cam lock ears should have solid loops so seal should be broken to be removed.
- Hot air hose inlet should be sealed on the tractor and on the trailer stub pipe if a pre-load.
- Other seal points that may utilize a cable seal applied at wash and not broken until subsequent wash includes: Hot air hose trailer connection, cam lock pressure relief valve and quick connect clamps, if utilized, on the bottom product line and any dust collection system openings.
- If trailer is pre-loaded, the seal for the tractor blower connection should be with the paperwork and driver is to apply when picking up the load.



**SEAL CONFIGURATION FOR BULK FLOUR TRUCKS**

**Note:** Trailers come in several different designs. **Only** primary inlets and outlets are sealed. Nut & bolt fixtures that require a wrench to loosen are not sealed.

- |                          |                   |                                       |
|--------------------------|-------------------|---------------------------------------|
| 1 Blower on Cab.         | 6 Top Hatch.      | 11 All Transfer Hose Containers Ends. |
| 2 Air Supply Inlet Hose. | 7 Top Hatch.      | 12 Transfer Line outlet.              |
| 3 Air Supply Hose.       | 8 Top Hatch.      | 13 Drop Bottom.                       |
| 4 Blowdown Line valve.   | 9 Tank Inlet.     | 14 Quick Release Clamps.              |
| 5 Top Hatch.             | 10 Filter Outlet. |                                       |

Once sealed, any product spilled during loading should be cleaned up with vacuum or broom. All components used should be properly stored.

All paperwork needs to be filled out properly. This includes:

- Inspection form, COA, sample and other applicable shipping paperwork.
- All seal numbers should be recorded on the Bill of Lading or other document. Make sure seal numbers are legible and accurate.

Product is then released for shipment.

## Chapter 8: Product Handling and Delivery

Bulk truck delivery drivers are a representative of the supplying company to the customer. It is important that they are courteous and professional, follow established procedures, and also utilize sanitary practices around product handling and delivery of dry bulk pneumatic trailers.

### Personnel Conduct and Hygiene

Food safety, including the use of Good Manufacturing Practices (GMPs), is the law. Failure to follow these laws can deem food adulterated. Adulteration means the food consists in whole or part of any filthy, putrid or decomposed substance, or if it is otherwise unfit for food. Or, if it was *transported*, packaged, or held under circumstances where it may have been contaminated, the food becomes adulterated and may not be used for human consumption. All carriers should maintain a personal conduct/hygiene program for its drivers. Drivers should receive periodic training on food safety, conduct and hygiene that is documented and available for review. All employees must follow these personal hygiene requirements, and any requirements established by the receiving customer.

***Uniforms and Clothing:*** Drivers' clothing must be clean and in good repair. It is a best practice that clothing may not have pockets above the waist. If they do have pockets, employees must be sure pockets are empty before entering food handling areas; pocket contents can fall into the commodity when leaning over open hatches or product zones. Shirts must not contain loose buttons, snaps, etc. Long pants will help to prevent injury to exposed skin. Comfortable work shoes made of leather or similar sturdy material will help protect the feet from injury. Sandals or open toed shoes must not be worn. A well-maintained uniform is preferred. Soiled clothing needs to be changed immediately.

***Hair restraints:*** Proper hair restraints (nets) should be worn to keep hair from outside of the product stream. All hair, including facial hair (beard/mustache) should be completely covered.

***Hand washing:*** Washing of hands prevents the transference of germs and filth. Prior to touching food contact surfaces or samples, hands must be properly washed and sanitized. It's a good practice to carry sanitizing wipes in case proper cleaning facilities are not available at the loading/unloading station.

***Restrooms:*** Check with the customer to identify where the closest restroom facilities are located. Loading/unloading can take quite some time, so it's important to be prepared in case of delays. Drivers must never relieve themselves outside of a restroom facility. Proper hand washing must be completed after each trip to the restroom.

***Tobacco use:*** Smoking, chewing tobacco, and spitting are prohibited in any food processing/loading/unloading area. Fire and dust explosion are a high safety risk. Sanitation is also a concern. Smoking may be allowed in designated areas only. If you are not sure where those are, ask.

**Eating:** Eating should not be allowed during the loading/unloading process or on the customer's site. Cross contact with filth or allergens is of concern. If eating is conducted within the trailer, food and food containers should be kept neat and clean and should be disposed of properly.

**Injuries/Illness:** Employees with cuts, abrasions, and sores should be tended to immediately. Wounds should be covered at all times with suitable, clean bandages. Employees with illnesses that could come in contact with food surfaces are not allowed to work in production areas until they are healed. Touching of product or food product surfaces with bare hands is prohibited.

**Bacteria:** **Bacteria** will grow on surfaces that provide the necessary elements for them to survive. Poor housekeeping, improper or lack of sanitation of food surfaces, and not washing hands are all ways that food surface areas can become contaminated.

**Allergens:** Part of a food safety program is having awareness of allergens. The most common forms of food allergens are peanuts, tree nuts, fish, shellfish, eggs, milk, wheat, and soy. Food allergies can cause effects in humans from mild irritation to life-threatening. It is important to prevent accidental introduction of food allergens into the food system. If food is spilled on clothing, clothing should be changed.

**Foreign material:** This is any object or material, which may become a part of the product being produced, which is not designed to be part of the product being produced. Materials like sand, dirt, rocks, glass, metal, plastic, and cloth are all examples of foreign material that could be found in contaminated food products.

Often times, foreign material gets introduced into food from valves, lids, doors or other openings in containers that are left open when not in use. Equipment that is not properly inspected and cleaned after maintenance or repairs are completed is another way foreign material may be introduced. Poor housekeeping also contributes to the risk of foreign material contamination.

**Prevention of Foreign Materials and Allergens from entering trailer:** There are many ways for foreign material to enter a trailer. Take the time and make the effort to prevent these opportunities. Whenever hatches and hoses are open, ensure they are properly guarded through screening to prevent FM from entering the product stream. Debris around these openings can be sucked into the flow. Observe areas around openings and overhead before engaging the product transfer.



**Jewelry:** No jewelry should be worn while working around a trailer that is open. Rings are not allowed unless snug-fitting gloves are being worn over them.

**Fingernails:** All nails should be kept clean and trimmed. False nails and nail polish are not allowed unless wearing gloves.

**Hearing or eye protection:** Any such protection should be secured to a hard hat or shirt via a lanyard, if worn.

**Conduct:** Professional conduct must be maintained while on duty. As a representative of the company handling food, every employee must conduct themselves in a respectful and sanitary manner. Codes of conduct should be trained and documented with sign off.

### **Inline Tools and Equipment Storage**

Inline screens, tools and equipment used in the delivery process should be properly stored and kept in good repair. They should be maintained through a documented, regular inspection/cleaning program. Parts should not be in disrepair or rusted and should be free from loose material. Proper sanitary storage containers placed on site or in the trailer should be maintained.

- Storage area should be picked up of loose tools, small parts, trash or glass.
- Inline screens should be capped when not in use.
- Spare caps should be stored, mated with plugs.
- Alcohol wipes are a positive addition to clean tool storage containers.

### **Pre-trip Checklist**

Prior to each trip, confirm all required paperwork and samples are present. Read and comply with any special instructions on the Bill of Lading.

Pre-loaded trailers present a costly failure opportunity if the wrong trailer is delivered to a customer. Thorough verification of seal numbers on the trailer to what is listed on Bill of Lading is necessary. If a Pre-Loaded Trailer is to be picked up, hook it to the trailer, THEN verify the correct trailer is picked up by:

- Comparing the rear or bottom compartment seal numbers to those on the Bill of Lading.
- Verifying the trailer number listed on Bill of Lading matches the trailer number. Circle the number on the Bill of Lading to verify it was checked.

**Note:** If either the seal number or trailer number does not match the numbers on the Bill of Lading, contact Dispatch or the shipper immediately. **DO NOT DELIVER!**

To prevent driver error, an industry best practice is the use of an electronic locker system and glad hand trailer locks to lock up paperwork with keys. The driver receives the locker code for the correct paperwork and keys to unlock the correct trailer.



The use of trailer RFID's along with plant gate access control is a new technology that can prevent trailer loading and transportation errors by providing an electronic match of paperwork and trailer before it leaves the shipper's facility.

### **Delivery – Customer Check-in**

When arriving at the customer, check in with the guard or receiving personnel for instructions. Upon arrival at the unloading area, visually note its condition including any customer hoses or fittings. If there are any concerns for personnel safety, product safety, worn fittings, etc., call dispatch. Inform but do not confront the customer.

**Do not cut seals without permission from the customer:** An important step in ensuring food products remain safe and are not contaminated is through the “*OK to Unload*” procedure. All drivers making deliveries must not break any seals on the trailer or begin the unloading process until an employee from the receiving company signs the company's paperwork authorizing the driver to unload. By having this signature, you are ensuring that the correct product is being placed into the correct storage silo/bin and that storage silo/bin has been properly sanitized and capable of holding the complete load. This helps prevent the possibility of cross-contaminating food products. Cutting the seals or unloading without approval may result in a rejection by the customer and significant cost to the carrier.

### **Sampling Procedures**

Ideally, customer samples should be collected during the loading of the trailer and given to the customer on delivery. However, if sampling is done at the customer's site, certain personnel safety and food safety precautions must be taken.

To maintain employee safety, drivers are not allowed to climb on top of trailers to obtain samples. Customer personnel may do so with the proper fall protection.

Extreme care must be taken by customer to prevent foreign material from entering the trailer (insects, perspiration, dirt, loose items, dust, rain, etc.). Sanitary sampling procedures must be followed. A clean sample scoop is required. Never allow scoops, containers or other collection devices made from glass. Proper GMPs including sanitized hands, hair restraints, etc., are required over open product zones. Drivers should note any concerns with customer sampling on the delivery report.

## Unloading Procedures

Prior to unloading, the driver must obtain the customer's signature of authorization including bin number/name on Bill of Lading or trip sheet. Only then can the trailer be hooked up to the unload line for the intended destination bin. Drivers are not allowed to turn valves or select bins. This should be done by the customer's receiving personnel. The following proper unloading procedures should be used to ensure product safety:



- An inline screen should be used during the unload process of most products. Please see [Chapter 2: Vehicle and Transportation Equipment Design Requirements](#) for details on screen size and placement. Some customers may have a permanent screen installed in their line. Drivers should follow shipper's procedures on use and placement of screen.
- Shims: Using any type of shim in the cam lock fittings is strictly prohibited. Shims may break off inside the hose and contaminate the product. If asked to use shims, contact your supervisor immediately for further direction.
  - If approved for temporary use with customer-signed approval, no shim may be used downstream of an inline screen which aids in protecting the product stream from foreign material. Shims must be designed for the purpose, non-rusted ferrous metal and must be tethered to the fitting so it cannot be sucked into the product line/bin. Loose or leaking fittings must be reported ASAP so repairs can be made.
- Cam lock caps and plugs that are removed from pipes should be coupled together and placed off the ground. Uncoupled caps and plugs that come in contact with any unsanitary surface must be sanitized prior to use.
- Hose ends and connection points must not come in contact with the ground. Product hoses are to remain plugged as they are removed from hose tubes. Plugs should be removed just prior to hooking up to customer's fitting to eliminate exposure of contamination to product. When unloading, hoses should be off the ground if possible, with the use of hose stands.



- Touching of product or food product surfaces with bare hands is prohibited. When working with hoses, hose caps, pumps and dome lids, care should be taken that only the outside of the equipment is being touched. If contact is made with food surface, it must be sanitized by following company procedures.
- While working around an open trailer, drivers must report any lost items immediately to their supervisor. Lost items such as pens, coins, cell phones, etc., may have entered the trailer and would potentially cause foreign material contamination.
- The driver must remain in attendance, awake, outside of the vehicle and within 25 feet (7.6 meters) in view of unloading process to ensure the unloading process is completed without incident.

### **Delivery Completion Activities**

At the completion of the unloading process, perform the following activities:

- If an inline screen is installed in a vertical position, the connecting hose must be checked for material that may have dropped off the screen.
  - Any foreign material caught by the screen that is not flour, dough or clean scale must be bagged, recorded and immediately communicated to dispatch.
- Properly store the inline screen, hoses and fittings.
- Place return seals on all broken access points and record seal numbers on the Bill of Lading or other form. Missing return empty seals will most likely result in trailer being rejected to wash for subsequent loads.
- Clean up the area. Drivers are to ensure that all broken seals, rubber bands, plastic bags and other debris are picked up and thrown away in the proper container.
- Significant spills need to be reported to the customer and dispatch.

### **Returned Product**

It's important to inspect the interior of the vessel after unloading, with appropriate fall protection, to verify that the load is empty. If there is any measurable amount of product remaining or if the product is being returned for any other reason, it should be documented, reported and the trailer re-sealed. Failure to seal returned product may result in product being downgraded at a significant cost to the carrier.

***Vessel security must be maintained*** – Regardless of whether a trailer is empty or contains product, any points of entry sealed by shipper and unsealed by receiver or customer must be sealed again by the driver.

- If seals are not provided by the customer, carrier seals will be used to maintain the integrity of the vessel.
- If a driver leaves their equipment unattended for any period of time or overnight, the equipment should be re-inspected to verify that there has not been a breach of security. If such a breach is observed, the driver will call dispatch immediately to receive further instruction.
- If customs or government inspection results in a broken seal, the driver needs to reseal, maintain the broken seal, document the situation and call their dispatch.
- If any seal is broken by the customer, they will be asked to reseal the entry point. If that accommodation cannot be made, the driver will reseal the equipment using carrier seals.

### **Reporting Transportation Breakdowns**

Deliveries are scheduled with the customer who is anticipating the trailer's arrival. In the event of a transportation breakdown or delay in meeting the scheduled delivery, prompt notification to carrier dispatch and shipping mill is required. If a breakdown results in a breach of vessel integrity, the shipper will need details and photos to determine the disposition of affected product.

## Chapter 9: Rail-Truck Transfers

Rail to truck transfers is common in the milling industry. This usually involves a milling company loading a rail car and shipping to a transfer location. At the transfer site, the transfer site operator (often the truck carrier) unloads the railcar directly into a bulk trailer. The specific responsibilities of transfer site operation should be established in writing.

All of the same bulk truck-related requirements for design, maintenance, wash, prior load, return to service, inspection/loading and product handling/delivery listed in Chapters 2 through 8 apply. Rail best practices are not within the scope of this best practices document. Refer to shipper requirements as necessary. Best practices for the transfer site listed below should be followed.

### General Site Requirements

Transfer site should be kept clean of flour, and all other materials that attract rodents, birds or other infestation. Transfer site should be paved or have, at a minimum, rock coverage. All areas within 20 feet (6 meters) of the transfer site should be mowed and litter free. Used seals and trash should be picked up and discarded. Adequate drainage is required to prevent standing water. There should be preset track space for food-grade cars away from hazardous material.

The areas should be fenced or part of a secure rail yard. Unauthorized personnel should not be allowed near the transfer area. Vessels and transfer equipment should be sealed or locked when not in use. The railcar needs to be resealed between transfers and when emptied. A record of those seals, date and time should be maintained. Unused seals should be secured in a manner that prevents theft or unauthorized use.

All transfer equipment and trucks should be inspected for foreign material, moisture, loose gaskets, insects, mold, odor, and flour from previous load. An inspection form should be completed and returned to the mill of origin.

