



**CTRMC FOOD GRADE PRODUCT and BULK
TRAILER WASHING, LOADING and
UNLOADING SUGGESTED MINIMUM BEST
PRACTICES**

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CTRMC FOOD GRADE PRODUCT and BULK TRAILER WASHING, LOADING and UNLOADING SUGGESTED MINIMUM BEST PRACTICES

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INTRODUCTION

This document has been prepared to provide suggested minimum best practices to manufacturers, suppliers, wash stations and terminals of food grade bulk liquid products. This document has been prepared in order to provide best practices and minimum quality and personal safety guidelines for the handling, storage, transporting, receiving, testing, and system maintenance of liquid food grade products as well as washing and sanitizing of bulk liquid trailers. This document is to help in achieving compliance with certain aspects of applicable regulatory standards such as Good Manufacturing Practices (GMP), personal safety, customer requirements, and industry standards.

SCOPE

This document covers food grade locations where personnel may be asked to be on the top of trailer vessels. Personnel can include the facility employee and driver. This involves facilities that wash liquid bulk trailers, load liquid bulk trailers, and unload trailers.

REVISIONS

This is the completed version of the CTRMC Food Grade Product Transfer and Bulk Trailer Wash Guidelines. January 23, 2014.

The first draft was completed March 11, 2013.

The second draft was completed June 28, 2013

GENERAL INFORMATION

Section 1 Facility Requirements

1.1 General GMP

The facility should be in compliance with Good Manufacturing Practices (GMP) given in 21 CFR 110 and customer requirements.

1.1.1. Cleaning Schedule

The facility should have a Cleaning Schedule that is documented and complies with GMP regulations given in 21 CFR 110. An inspection of the facility should be completed and documented. The inspection should also include a comments section for stating what corrective actions were taken. The cleaning program will ensure that the facility is maintained in a clean condition on a regular schedule. This is documented on a Master Sanitation Schedule.

1.1.2. Security

The security of the facility is of extreme importance. Each morning an inspection of the facility should be conducted to make sure that a breach of security has not occurred. Visitors should sign at the office before they are allowed outside the office area and should be accompanied by an employee. All access gates, buildings, and access points should be locked when personnel are not in the immediate area (immediate area would be defined as within eye sight of the personnel) or when the area is not in use by personnel. Every employee is a part of the security team and it is important that they understand the specific security measures. All trailers, railcars and storage tanks should have tamper evident seals on them at all times. Exceptions include activities where: 1) vessels are within secured or supervised areas for washing, loading or heating; and 2) empty vessels that have been returned unsealed that are awaiting inspection and cleaning.

1.1.3. Product Traceability/Retrieval

The facility should have product traceability and a retrieval program for incoming and outgoing shipments. Traceability of all products is accomplished through the vessel #, ship date, Bill of Lading (BOL) and storage tank # if applicable. The shipping records and log sheets are references that support the traceability. The retrieval program is to provide a prompt response and action for determining if a recall or withdrawal is necessary. The retrieval program is to coordinate all activities with customers, distributors, and transfer stations and for implementing the recall from start to final disposition of the product including corrective action. A mock retrieval exercise will be conducted at least yearly. The results should be documented and filed. The facility should have an Emergency Action Plan that includes an emergency contact list.

1.1.4. Glass and Brittle Plastic Program

The facility should have a Glass and Brittle Plastics Program. All equipment and utensils are able to be adequately cleaned and maintained according to GMP regulations given in 21 CFR 110. The facility should have a physical inventory of equipment. The equipment should be monitored when operating. A preventative maintenance program should be in place and documented for equipment.

1.1.5 Pest Control Program

There should be a documented Pest Control program at the facility.

1.1.6 Personal Hygiene Requirements

Location facility personal hygiene requirements (based on the FDA CFR Title 21, Section 110.10) should be followed. This includes rules on hair and beard nets, no jewelry, no eating and drinking, hand washing, proper and clean clothing, etc.

1.2 Building and Grounds

The food handling facility may consist of railcar or trailer unloading and truck loading with or without a wash facility. The facility may have portable equipment or be set up with fixed pumps, lines, and storage tanks. The grounds of the facility should be in compliance with GMP regulations given in 21 CFR 110 and customer requirements. The grounds should be maintained to prevent vermin harborage by controlling tall grass and weeds. The roads should be paved or constructed to eliminate dust and standing water. Pavement and floors should be level to prevent tripping hazards.

Buildings should be designed to allow personal to work comfortably above and on bulk trailers, allowing the employee to stand upright. The facility should be equipped with proper fall protection when personal have to be on top of a trailer. This can include proper fall prevention and arrest systems and/or railings around the platform of the trailer. The facility should have a mezzanine which allows personal to climb stairs (with proper railings) to a platform next to the trailer. Below are 2 photographs of a facility equipped with railings that surround the top of the trailer.



On the following page are examples of fall arrest systems that utilize a harness and lanyard located inside a building. The use of knee guards is a best practice.



1.3 Water

Plumbing should be of adequate size and design to provide a sufficient amount of water as required at all use points within the terminal. The water system for the facility should have a filter capable of removing sediment from the incoming city water.

Exterior and interior drains should provide adequate drainage to discharge water to the sewer without backup. There should be no standing water. There should be adequate back flow prevention devices in place.

A sample of municipal water should be taken at least annually from within the facility. Well water, if in use, should be tested at least quarterly. These samples should be cold packed and sent overnight to a micro lab, for microbiological analysis. The microbiological tests should include total plate count, coliform count and fecal coliforms. The micro results should meet current U.S. Environmental Protection Agency regulatory standards for potable water.

1.3 Steam

Steam can be used for heating a railcar to unload the product and to wash trailers.

Boiler treatment chemicals should be approved for food contact use. The certificate for FDA or USDA approval of each boiler treatment chemical should be kept on file. Written boiler start-up and shutdown instructions should be present and follow boiler manufacturer instructions. Boiler maintenance log sheets and service reports should be kept on file.

1.5 Documentation

Procedures should be documented and records maintained.

1.6 Sealing

The facility should have a documented program regarding seals and the security of trailers. The sealing program should guarantee that the tanks, trailers, and railcars are sealed with tamper-evident cable seals when applicable. This program should include the following practices:

- * Secured inventory of seals
- * Inventory tracking system of unused seals
- * Sealing of product access points on product tanks, product handling equipment, trailers and railcars.
- * Recording of seal numbers

1.7 Training

All employees, including drivers, should be educated in food safety, personal safety and procedure operating procedures. This training should be documented including the employee and trainer's name, subject of the training material, date of training and employees signature. A quiz following this training verifies that the training topics were retained and the training was effective.

Section 2 Truck Handling

2.1 Personal Safety

Before going on top of a trailer the employee should verify that the trailer is stationary and will not be moved or driven during this time. Methods to ensure this can include: verify the driver is not in the tractor, remove the trailer from the tractor, place chocks in front of the wheels, and store the driver's tractor keys in a secured area when the top of the trailer might be accessed.

Proper fall protection systems should to be in place and should be in working condition. If a lanyard and harness system is used, the harness must fit on the employee properly and the lanyard must be connected to the harness. The employee should check connections at least twice before going to the top of a trailer. Fall arrest systems components should be tested and replaced on a scheduled basis as required. Manufacturer guidelines should be understood and followed regarding care, use and replacement of equipment.

If a trailer is isolated, the employee must utilize proper 3 point contact while climbing the ladder. The location should establish ladder climbing protocol (See CTRMC Trailer Climbing Outline at www.cargotanksafety.org). The harness and lanyard should be attached to an engineered anchor point. See photographs at the end of this document.

Each facility should perform a physical hazard assessment (PHA) for correct PPE and procedures when cleaning and loading a trailer. This should include the proper practices when working with hot water and steam.

2.2 Pre-Wash Inspection

A wash employee should perform the following operations only after approving the prior commodity and inspecting the interior of the trailer, using proper fall protection, for product residue and foreign materials. Trailer contents should be drained and disposed of according to applicable regulations.

2.3 Washing

The manway cover or hatch covers vent assemblies; pump, gaskets, fittings and in-line product filter should be washed thoroughly with a dilute chlorine solution (approximately 200 ppm) or with a high-pressure wand. Disassembly of some vent housings may be necessary to properly clean the internal parts. The type of wash will depend on the prior commodity that the trailer last carried. One method is the use of a high-pressure wand and 180°F water. After cleaning and sanitizing, fittings and in-line product filters should be stored in a clean container (i.e., bucket) or plastic bag then placed inside a sealed cabinet (i.e., pump or fitting box) on the trailer, if applicable. If the pump is not cleaned during the normal washing procedure of the tank, a separate procedure for pump cleaning should be applied. The hoses may be sanitized by two methods: the preferred method is by connecting them to the trailer outlet for sanitization by trailer wash water. The second method is washing with hot water to remove residual product, verifying the product is removed, and then filling or soaking them in water containing approximately 200 ppm chlorine. All hose connections should be kept off the floor at all times during and after sanitizing.

A power wash spinner or spray ball nozzle should be inserted into the trailer dome. The spinner-jet/spray ball nozzle should be inspected for proper operation at a predetermined schedule and in compliance with the manufacturer's recommendations for proper operation.

The tanker should be flushed with warm/hot water until all obvious traces of the previous contents are gone. After all flush/rinse water has drained, the wash cycle should be started by introducing water at a temperature of approximately 190°F or steam through the wash nozzle. Timing of the wash cycle should not begin until the discharge water from the tanker reaches 180°F. The wash must continue at 180°F for a minimum of 15 consecutive minutes. At this time, the wash water may be recycled by returning it to a hot water source (i.e., a holding tank) or it may be allowed to dump to a sanitary drain.

An in-line sensor mounted in a section of piping at the trailer discharge along with a chart recorder should be utilized to verify the temperature of the discharge water and the time of wash. The wash temperature sensor should be cross checked with a NIST traceable thermometer weekly to ensure that the wash temperature is 180°F. The cross check temperatures should agree within $\pm 2^\circ$ F. Recalibrate the sensor if the temperature differs more than 2° F.

Direct steam injection into the barrel of the tanker is another method of maintaining interior surfaces at 180°F or above for a minimum of 15 consecutive minutes. If steaming is used, a combination of steaming and power rinses should be employed to effectively remove all traces of the prior commodity. After the wash cycle and final rinse is completed, the tanker should be cooled with tempered water or filtered air prior to inspection of the interior.

If air tempering/drying is used, suitable filters should be employed to remove dust particles, oil and odors. When the tanker is cool, it should be inspected. If it is not adequately clean, it should be rewashed. After the tanker has passed inspection and the gaskets are replaced, all access points should be tightly closed and sealed with tamper evident numbered cable seals prior to leaving the wash station unless being loaded immediately. Seal numbers should be recorded on the wash ticket. Washed tankers should be delivered to the production plant or transfer station so that filling can be accomplished within a specified time of washing. If this time elapses prior to filling, the tanker should be rewashed. The wash ticket should be completed and signed by the sanitary wash operator or supervisor prior to releasing the tanker to the driver.

The wash process above is known as a Type 1 and is used for food grade water soluble liquid product. Depending on the prior commodity a Type 2, 3 or 4 conversion wash may be needed. See Appendix B at the end of this document.

2.4 Pre-Load Inspection

The loader is responsible for verification that a vessel is suitable for loading. The prior commodity of the trailer should be verified to assure compatibility with the product to be loaded. The wash ticket is required to confirm that the trailer was sanitized. All customer supplied vessels and/or customer arranged pickups should pass inspection. Vessels that do not pass an inspection should not be loaded. Security tamper evident cable seals should be applied properly on all openings,

cabinet doors, and hose tubes of the trailer upon arrival. The seals should be confirmed against the wash ticket. As stated before the pre-wash inspection, proper fall protection should be used.

2.5 Loading

All products should be loaded at their specified loading temperature. There should be screen protection (or dome adapter with a filter vent) around the dome loading spout (or over the entire open hatch) if the trailer is bottom loaded. The temperature of the outgoing product should be taken and recorded if required. The temperature probe used should be calibrated on a predetermined schedule. Samples should be taken during or after trailer loading. Samples should be tested as required by the supplier and customer. The retain samples should be appropriately labeled to allow traceability. All access points, hose tubes and pump should be sealed with identifiable numbered tamper evident cable seals. The seal numbers should be recorded on the bill of lading.

Section 3 Shipping Documentation

The bill of lading should be sent with outgoing shipments and should conform to DOT regulatory requirements and specific customer requirements. Other documents, such as the Certificate of Analysis and Trailer Wash Certificate, should also be sent.

Section 4 Unloading Product at Consignee

When delivering and unloading product at a consignee, all personal hygiene policies described in section 1.1.6 of this document should be followed. Security of the product should be maintained. During unloading there should be no direct access to product and proper screens and vents must be used to protect product. Hose ends must be maintained off of the ground.

Refer to Appendix A for responsibilities of the employee and driver. Having both the employee and driver present during the unloading is recommended.

Typically product is unloaded outside. Personal safety, especially fall protection, is important, when unloading product. The number of times the top of the trailer should be accessed should be kept at a minimum. Ideally the consignee has a fall protection system that can be utilized while on top of a vessel. If a sample is required by the customer and fall protection is not available, the sample shall be taken from the trailer bottom discharge. See below for an example of a permanently installed fall protection system.



If a fall protection system is not available at a consignee, a lanyard and harness might be attachable to the trailer. **CAUTION:** The trailer anchor point must be rated for 5000 pounds of static force. Below is an unacceptable method of attaching a lanyard and harness to a trailer.



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Please see Appendix A for details for the facility employees and the driver for loading and unloading bulk liquid food product

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APPENDIX A: Responsibilities of Food Establishment Employee and Driver

Food Employee	Driver
Transportation Equipment - Trailers	
Before the (un)loading operation starts, employees should check that the transport equipment offered meets all quality, food safety and personal safety requirements for the operation to be carried out.	Before entering the site, drivers should check that the tractor, trailer and all ancillary equipment are fit for the operation and meets all requirements as specified in the driver's instructions for the operation.
Site Instructions	
Employees should always adhere to the facility instructions and be an example for drivers. Employees should witness the entire loading and unloading of product, unless site procedures stipulate otherwise.	Unless specifically agreed otherwise, drivers should always report at the facility entrance and ask for instructions. These instructions may include emergency procedures, required PPE, personal hygiene requirements, parking restrictions, route to loading or unloading point and general info such as the prohibition of smoking, alcohol and drugs, prohibition of the use of mobile phones, driving speed limits etc. Drivers should always adhere to the facility instructions. Drivers should witness the whole loading and unloading process, unless facility instructions stipulate otherwise.
Driving and Parking at the Facility	
Where possible, employees should ensure that vehicles are driven and parked according to facility instructions and should report any observed unsafe situations to the site management	Drivers should proceed to the unloading or loading area and park the vehicle according to facility instructions. Driver should drive at a safe or posted speed and follow all driving instructions. Drivers should take necessary precautions to prevent any movement of the vehicle during loading/unloading.
Personal Protective Equipment (PPE) and Personal Hygiene Requirements	
Employees should wear PPE and follow personal hygiene requirements as required by the facility and should ensure that the driver does the same.	Drivers should wear PPE and follow personal hygiene requirements as required by the facility instructions. As a minimum the driver should have the following PPE available in his vehicle: safety helmet, safety shoes, safety glasses, hairnet and beard guard, suitable working gloves and clothing covering the whole body.
Emergency Preparedness	
Prior to the start of the operation, employees should indicate the location of the site safety equipment to the drivers, e.g.: fire extinguisher(s), eyewash, safety shower, first aid equipment, emergency escape routes and assembly areas, emergency alarm activation, decontamination equipment and absorbent materials.	Prior to the start of the operation, drivers should check the location of the site safety equipment, e.g.: fire extinguisher(s), eyewash, safety shower, first aid equipment, emergency escape routes and assembly areas, emergency alarm activation, decontamination equipment and absorbent materials.

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Food Employee	Driver
Documentation and Labeling	
<p>The employee should check that all data and information on the transport documentation match with the product to be loaded or unloaded. Employees should sign all relevant documents to confirm that the operation was satisfactorily completed. If there are any remarks, these should be written on these documents.</p>	<p>The driver should provide all relevant documents to the employee. Documents may include: weighing ticket, delivery note, certificate of analysis, cleaning certificate and transport document. The driver should ensure that arrival/departure times, temperature, volume and weights, as applicable, are noted and that signature(s) are obtained on all copies of the transport document. Customs and other documentation should be completed as required. Any deviations noted at the loading and unloading point should be communicated by the driver to the facility and be written on the transport documents before departure.</p>
Product Samples	
<p>When required or agreed at order entry stage, the employee should ensure that the driver provides the supplier's sample. Storing of samples in the drivers cabin should be avoided at any time.</p>	<p>If the taking of samples is absolutely unavoidable, they should be taken by qualified facility personnel with adequate safety precautions. The number of times the top of the trailer should be accessed should be kept at a minimum. Ideally the consignee has a fall protection system that can be utilized while on top of a vessel. If a sample is required by the customer and fall protection is not available, the sample shall be taken from the trailer bottom discharge. Drivers should ensure that the supplier's sample is stored in a safe way and handed over at the delivery point. Storing of samples in the driver's cabin should be avoided at any time. Packaging and labeling of the sample should be in accordance with legal requirements.</p>
Elevated Work	
<p>Employees should follow facility procedures when working at heights, including proper use of fall protection equipment.</p>	<p>Employees should follow facility procedures when working at heights, including proper use of fall protection equipment.</p>
Tank Capacity	
<p>The employee should verify if the tank can accommodate the quantity to be transferred. Before loading, the employee should verify, the capacity of the transport trailer with the driver. Before unloading, the employee should check the capacity and current volume of the storage tank to be used</p>	<p>Before loading, the driver should verify with the employee if the trailer can accommodate the quantity to be transferred. Before unloading the driver should verify that the storage tank can hold the amount in the trailer.</p>
Equipment under Pressure	
<p>The employee should always check if the trailer and/or equipment is under pressure before making or breaking any connections, and communicate any concerns and findings with the driver.</p>	<p>The driver should always check if the trailer and/or equipment is under pressure before making or breaking any connections, and communicate findings with the operator. Before leaving the site after loading/unloading, the driver should seek permission from the operator to depressurize the trailer (if necessary).</p>
Loading of product into multiple tanks or multi compartment tanks	
<p>Employees should ensure that the correct product and quantity is loaded into the designated tank and / or compartment(s) according to the product being received. Product connection points should be properly labeled.</p>	<p>The driver should ensure that the employee is loading the correct product into the correct tank and / or compartment. If the driver is alone, the driver should ensure the trailer is attached to the proper tank.</p>

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Food Employee	Driver
Hoses and Other Equipment	
The employee should check if the equipment owned by the facility, e.g. product hose, couplings, gaskets and seals, are in good condition, appropriate for use and product and pressure resistant. The employee should visually check the internal cleanliness of the equipment.	The driver should check if the equipment owned by the carrier e.g. product hose, couplings, gaskets and seals, are in good condition, appropriate for use and product and pressure resistant. The driver should visually check on the internal cleanliness of the equipment.
Connections	
All site connections should be properly labeled. The employee is responsible for correctly connecting the product to the correct storage tank. The driver is responsible for making the connections to the vehicle, unless procedures stipulate otherwise. When making or breaking connections, co-ordination and co-operation between the employee and driver is of important to avoid incidents.	The driver should be familiar with the equipment of the vehicle, e.g. (un)loading valves, number and capacity of compartments, hoses, couplings and gauges. The driver is responsible for making the connections to the vehicle. The employee is responsible for making the connections to the storage tank, unless procedures stipulate otherwise. When making or breaking connections, coordination and co-operation between the driver and employee is important to avoid incidents.
Permission to Load and Unload	
The employee should give clear approval to the driver to operate equipment on the vehicle such as valves, compressor and pump before starting the loading or unloading process. Employees should operate the storage tank valves, and the pump, as applicable.	The driver is only allowed to operate equipment on the vehicle such as valves, compressor and pump after clear approval of the employee to start the loading or unloading process. The driver should not operate equipment located at the facility.
Vehicle Restrictions	
The employee, in co-operation with the driver, should ensure that the maximum permissible vehicle gross weight is not exceeded. Employees should ensure that the minimum and maximum permissible temperature of loading or unloading the trailer is observed.	The driver, in co-operation with the employee, should ensure that the maximum permissible vehicle gross weight is not exceeded. During loading of the vehicle, the driver should assure the maximum permissible axle weight is not exceeded.
Disconnection	
Employees should ensure that before disconnecting hoses, all valves are closed and all hoses are free of pressure and product.	Before departure the driver should ensure that all hoses are disconnected, drained, blanked off (if necessary) and properly stored. All dome lids and valves should be closed and properly tightened. Any loose equipment should be removed and stored properly. The driver should ensure that it is safe to leave the (un)loading point by walking around the vehicle.
Reporting of Unsafe Conditions, Near Misses and Incidents	
Employees should report all loading/discharge problems, unsafe situations or conditions, near misses and incidents, as per company policy.	Drivers should report all loading/discharge problems, unsafe situations or conditions, near misses and incidents, as per company policy.
Securing the Trailer	
Before leaving the facility, the employee must verify that the trailer is properly closed and secured with seals and seal numbers are properly documented. Employees should not allow the vehicle to leave the loading / unloading site in an unsafe condition.	Before leaving the facility, the driver must verify that the trailer is properly closed and secured with seals and seal numbers are properly documented. Drivers should verify that the vehicle is in safe condition to leave the loading / unloading site.

APPENDIX B – Types of Trailer washes

There are three types of conversion washes that can be used based on the prior commodity.

1. Type 2- Water Based Products: Vessels previously hauling water based food products.

- A. All previous product must be drained from vessel interior. Vessel interior scraping or spraying with high-pressure potable water or reuse solutions should be performed as necessary. Drain thoroughly.
- A. Perform visual inspection to assure effective removal of product from the vessel.
- B. Rinse vessel thoroughly with warm [75 – 110°F (23 – 43°C)] potable water or re-use solutions. Drain thoroughly.
- C. Remove, hand wash and sanitize all vents and vent tubes. Hand-wash and sanitize rear valve assembly and top hatch. If present, air vents located at the top of the vessel must also be hand washed and sanitized, regardless if vent was previously used.
- D. Apply to the vessel a hot cleaning solution consisting of a USDA-A1 rated cleaner (at prescribed level) or equivalent food grade cleanser under pressure through CIP system for a minimum of 15 continuous minutes. The period of 15 minutes should commence only when the effluent at the outlet reaches a temperature of 160°F (71°C). A minimum effluent temperature of 160°F (71°C) should be sustained for the duration of the rinse period. Temperatures below 160°F (71°C) at drain outlet are never acceptable, unless cleaner is being used at the concentration, the temperature and times recommended by the manufacturer. Cleaners can be “circulated” during this 15 minute cycle. Drain thoroughly. Cleansers used in this cleaning cycle should be single use cleansers and should not be re-cycled cleansers.
- E. Rinse vessel with potable water until no residual cleaning solution is detected. Do not use recycled rinse water. Drain thoroughly.
- F. As appropriate, perform visual inspection of vessel interior in a manner providing for safe and sanitary evaluation, without entering vessel. When tanker entry by a person takes place or is required, the cleaning process described in sections (d), (g), and (h) must be repeated.
- G. Sanitize vessel interior surfaces with a no-rinse food-grade chemical sanitizer solution applied in accordance with manufacturers instruction. Drain Thoroughly. Apply seals to all openings immediately and before leaving wash area. Seals must be applied so as to insure all openings are inaccessible unless seals are broken.
NOTE: Cleaning solutions should be applied at concentrations and temperatures specified by the manufacturer to achieve proper cleaning.

2. Type 3 – Water/Oil & Oil-Based Products: Vessels previously hauling water/oil or oil based food products.

- A. All previous product must be drained from vessel interior. Vessel interior

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scraping or spraying with high-pressure food grade degreaser solution should be performed as required.

- B. Perform visual inspection to assure effective removal of product from vessel.
- C. Rinse vessel thoroughly with warm [75 – 110°F (23 – 43°C)] potable water or re-use solutions. For oil-based products only, hot potable water greater than 110°F (43°C) is acceptable. Drain thoroughly.
- D. Remove, hand wash, and sanitize all vents and vent tubes. Hand-wash and sanitize rear valve assembly and top hatch. If present, air vents located at the top of the vessel must also be hand washed and sanitized, regardless if vent was previously used.
- E. Apply hot food grade degreaser solution (at prescribed manufacturers' recommended temperatures and concentrations) under pressure through CIP system for a minimum 15 minutes. Drain thoroughly. Temperatures below 160°F (71°C) are never acceptable at exit unless a cleaner is used at the temperature and times recommended by the manufacturer.
- F. If degreaser solution is not compatible with cleaning solution in next step, prior to applying cleaning solution, rinse tanker with warm [75 – 110°F (23 – 43°C)] water for a minimum of ten minutes. Drain thoroughly.
- G. Apply to the vessel a new, fresh, virgin (regardless of compatibility with degreaser in step f) hot cleaning solution consisting of a USDA-A1 rated cleaner (at prescribed level) or equivalent food grade cleanser under pressure through CIP system for a minimum of 15 minutes. The period of 15 minutes should commence only when the effluent at the outlet reaches a temperature of 160°F (71°C). A minimum effluent temperature of 160°F (71°C) should be sustained for the duration of the rinse period. Temperatures below 160°F (71°C) at drain outlet are never acceptable.
Note: Cleaner should be used at the concentration, temperature, and times recommended by the manufacturer.) Drain thoroughly. Cleansers used in this cleaning cycle should be single use cleansers and should not be re-cycled or reused cleansers.
- H. Rinse vessel with potable water until no residual cleaning solution is detected. Do not use recycled rinse water. Drain thoroughly.
- I. As appropriate, perform visual inspection of vessel interior in a manner providing for safe and sanitary evaluation, without entering vessel. When tanker entry by a person takes place or is required, the cleaning process described in sections (d), (g), and (h) must be repeated.
- J. Sanitize vessel interior surfaces with a no-rinse food- grade chemical sanitizer solution applied in accordance with manufacturers instruction. Drain Thoroughly.
- K. Apply seals to all openings immediately and before leaving wash area. Seals must be applied to insure all openings are inaccessible unless broken.
NOTE: Cleaning solutions should be applied at concentrations and temperatures specified by the manufacturer to achieve proper cleaning.

2. Type Four Wash – where previous load carried foods with potential allergenic risks.

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- A. Seek specific approval as to the appropriateness of this type wash based upon customer's requirements.
- B. All previous product must be drained from vessel interior. Vessel interior scraping or spraying with high-pressure food grade degreaser solution should be performed as required.
- C. Perform visual inspection to assure effective removal of product from vessel.
- D. Rinse vessel thoroughly with warm [75 – 110°F (23 – 43°C)] potable water or re-use solutions. For oil-based products, hot potable water greater than 110°F (43°C) is acceptable. Drain thoroughly.
- E. Remove, hand wash, and sanitize all vents and vent tubes. Hand-wash and sanitize rear valve assembly and top hatch. If present, air vents located at the top of the vessel must also be hand washed and sanitized, regardless if vent was previously used.
- F. Apply hot food grade degreaser solution (at prescribed manufacturers' recommended temperatures and concentrations) under pressure through CIP system for a minimum 15 minutes. Drain thoroughly. Temperatures below 160°F (71°C) are never acceptable at exit unless cleaner is used at the temperature and times recommended by the manufacturer.
- G. If degreaser solution is not compatible with cleaning solution in next step, prior to applying cleaning solution, rinse tanker with warm [75 – 110°F (23 – 43°C)] water for a minimum of ten minutes. Drain thoroughly.
- H. Apply to the vessel a new, fresh, virgin (regardless of compatibility with degreaser in step f) hot cleaning solution consisting of a USDA-A1 rated Cleaner (at prescribed level) or equivalent food grade cleanser under pressure through CIP system for a minimum of 15 minutes. The period of 15 minutes should commence only when the effluent at the outlet reaches a temperature of 160°F (71°C). A minimum effluent temperature of 160°F (71°C) should be sustained for the duration of the rinse period. Temperatures below 160°F (71°C) at drain outlet are never acceptable unless cleaner is being used at the concentration, temperature, and times recommended by the manufacturer. Cleaners can be circulated during this step. Drain thoroughly. Cleansers used in this cleaning cycle should be single use cleansers and should not be re-cycled or re- used cleansers.
- I. Rinse vessel with potable water until no residual cleaning solution is detected. Do not use recycled rinse water. Drain thoroughly.
- J. As appropriate, perform visual inspection of vessel interior in a manner providing for safe and sanitary evaluation, without entering vessel. When vessel entry by a person takes place or is required, the cleaning process described sections (e), (h), and (i) must be repeated.
- K. Sanitize vessel interior surfaces with a no-rinse food- grade chemical sanitizer solution applied in accordance with manufacturers instruction. Drain Thoroughly.
- L. Apply seals to all openings immediately and before leaving wash area. Seals must be applied so as to insure all openings are inaccessible unless seals are broken.

NOTE: Cleaning solutions should be applied at concentrations and temperatures specified by the manufacturer to achieve proper cleaning.

REFERENCES:

National Juice Products Association (NJPA) “Model Tank Wash Guidelines for the Fruit Juice Industry”:

<http://www.njpa.com/GenericTankerWashPolicy11-07-02finaldraft.pdf>

US Occupational Safety and Health Administration (OSHA) – 29 CFR 1910.23
“Protection for floor openings”

US Occupational Safety and Health Administration (OSHA) – 29 CFR 1910.66 “Powered
Platforms, Manlifts, and Vehicle-Mounted Work Platforms”

US Food and Drug Administration (FDA) – current Good Manufacturing Practice in
Manufacturing, Packing or Holding Human Food – 21 CFR Part 110

Corn Refiners Association - CRA LIQUID SWEETENER TERMINAL AND WASH
GUIDELINES

<http://www.corn.org>