

Operation Work Procedure 028

Refilling silo from bulk tanker



METHOD STATEMENT

OWP 028

REFILLING SILO FROM BULK TANKER

INTRODUCTION

This Method Statement is intended to provide, as far as is reasonably practicable, a safe system of work for **refilling CPI silos from bulk tanker**. It details the steps to be taken and the method used to carry out the task safely. All personnel carrying out this activity are expected to co-operate fully with the methods described and follow the risk control measures identified in the associated risk assessment.

PERSONNEL INVOLVED- *Training records are available on request*

Powder Tanker Driver

TRAINING DOCUMENTS

Driving licence
CPI Trained Driver Card
MPQC Driver Skills
CPI training records

ACCESS AND EGRESS TO SITE

CPI expects all clients to comply with the statutory requirements of health and safety legislation and inform us of all known hazards and risks that may affect health and safety of our employees whilst at the client's site.

The driver will report to the site office or supervisor (responsible person) for instructions on arrival at site. A trained signaller may be requested to assist in the manoeuvring of the tanker. The driver must assess the site road conditions and must only attempt to access the site if they are suitable for a road going vehicle.

PERSONAL PROTECTIVE EQUIPMENT

The tanker driver is equipped with the following items:

- Safety footwear
- High visibility clothing
- Safety helmet
- Gloves
- Safety glasses with foam seal
- Dust mask with P3 filter or Powered Respirator
- Hearing protection
- Overalls / full length clothing

The driver will ensure that all relevant items of PPE are worn at all times whilst on site and throughout the delivery. The driver will ensure that all site specific regulations are adhered to.

STATUTORY EXAMINATIONS

All bulk tankers are subject to 12-weekly inspections and 24 month intermediate and 48 month thorough statutory examinations. *Certificates are available from the driver and on request.*

COSHH

Material Safety Data Sheets are available from the driver and on request.

EMERGENCY PROCEDURES

Should an accident or incident occur on the client's site, it will be reported to the site responsible person and the client's accident reporting procedure will be followed. Any forms completed on site will be photocopied and handed to the CPI Site Manager on the driver's return. CPI Driver's Incident form OLS 08 will also be completed and handed to the Site Manager.

EMERGENCY CONTACT DETAILS (only to be used in case of emergency)

For all other enquiries please contact the Sales Contact or Plant Direct.

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1. On arrival, the driver reports to the client site office, agent or responsible person to receive instructions on silo location and site hazards and risk control measures, including safe vehicle and pedestrian routes, presence of overhead power cables and ground unsuitable load bearing.
2. The minimum level of PPE worn by the driver is safety footwear, gloves, safety helmet, safety glasses with foam seal and high visibility waistcoat or jacket. FFP3 dust mask is used when uncoupling hoses and when removing and emptying the filter bag. Hearing protection is used when the compressor is in use. Additional PPE is worn, as directed by the site responsible person.
3. The driver manoeuvres to the relevant location, assisted by a trained signaller as necessary (NB. When delivering from a public highway or reversing into a public highway, a signaller in high visibility clothing is always used. Priority is given to pedestrians and vehicles on the public road. Pedestrians are directed away from any potential danger zone).
4. The tanker is positioned as close as possible to the silo to provide the shortest delivery hose run and to ensure the driver has maximum sight of the tanker, silo and silo filter bag. If the driver's view is restricted a person must be provided by the client to allow the delivery to continue safely.
5. The driver ensures that hose runs are minimised and hoses are free from any obstructions.
6. Unauthorised persons are cleared from the area, maintaining a minimum distance of 2 metres from tanker and silo. Discharge will not take place until this is achieved.
7. The driver visually inspects the vehicle Pressure Relief Valve (PRV) and the hoses, couplings and filter bag prior to commencing discharge.
8. The driver confirms that the silo has sufficient capacity to accept the delivery and is in attendance throughout delivery.

Connecting to Silo

9. The driver connects the delivery hose to the silo inlet and the filter bag to the silo outlet, removes the end cap on the tanker and connects the hose to the tanker, ensuring that each hose connection is fully tightened and secured by pipe clamps.
10. Pipe connection clips and ant-whip devices will be installed prior to commencement of the delivery.

Discharge of Product

11. The driver ensures that material valves, ring jet, boost valves, top air and vent valves are all closed, then engages the Power Take-Off (PTO) and builds tank pressure.
12. When the tank reaches the required pressure, the air injection valve is opened and the filter bag starts to inflate. The driver then opens the product valve and material is then discharged into the silo. *N.B. An under-inflated filter bag may indicate a blockage. If so, the driver follows the Emergency Shut Down procedure (see following section).*

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13. If the driver suspects any problem, discharge is halted and the issue is discussed with the client responsible person. If the issue cannot be resolved, the CPI Site Manager at the dispatching plant is contacted.

Emergency Shut Down

14. In the event of accidental release from a filter bag or hose, the operator halts the discharge and fits their dust mask as quickly as possible.
15. Emergency stop buttons are present on most vehicle types to facilitate a quick stop. If these are not present, then closure of any air valves and product valves is required to halt the delivery. Note that latent pressure in the system may result in continued discharge of material or dusty laden air for some time after the closure of the valves.
16. When safe to do so, the driver then resets the tanker controls by ensuring that all material valves and all air valves are moved to the closed position, opens the vent valves to depressurise the tank and air lines, and then disengages the PTO and ensuring the engine is turned off.
17. The driver must then inform the client responsible person. CPI Driver Incident Report form OLS08 is completed and returned to the dispatching plant.

Blockage Procedure

18. In the event of a blockage in the delivery pipework, the driver follows the blockage procedure, bearing in mind **AT ALL TIMES** that the pipework **may contain pressurised air**, and any attempt to **remove or uncouple pipes** should be carried out with **due caution**.
19. A dust mask and protective eyewear is worn while attempting to clear any blockage.
20. The driver first shuts down the compressor, disengages the PTO and turns off the engine, then fully opens the Saunders valve to depressurise the tank. Product valves **remain open** at this point to allow air to return from the pipework through the product to the tank. This helps to lower any residual pressure in the delivery pipework. All air supply valves are **closed**, including boost, ring jet, aeration and top air valves.
21. The system is left for a minimum of 15 minutes to allow the pressure in the delivery pipework to return to atmospheric. It is acknowledged that pressure gauges on the tank may not represent accurately the pressure in the pipework.
22. All product valves are **closed** before any pipework is decoupled
23. The driver wraps and covers the pipe coupling **at the tanker** with a rag or similar then **very carefully** cracks the joint while listening for any air escaping, as there is a danger of powder being ejected under pressure if the joint is opened as normal. If any pressure is evident, it is allowed to dissipate slowly through the rag. This procedure is followed for any further joints until all pipes are clear.

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Completion of Discharge

24. If the blockage is within the silo or the tanker's on-board pipework, the driver contacts the Site Manager of the dispatching plant
25. Once the blockage is cleared, the pipework is re-connected and the delivery completed.
26. When all material has been fully discharged, the driver closes all material, boost, ring jet and aeration valves, shuts down the compressor, opens the tank vent valve and turns off the engine. The tanker is **never** depressurised through the silo.
27. Ensuring that the pressure has dropped to atmospheric, the driver then disconnects the hose and filter bag and stows them securely in the travel position.

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RISK ASSESSMENT

Activity or issue	Hazards	CONTROL MEASURES
1 <ul style="list-style-type: none"> Arrival and manoeuvring on site 	<ul style="list-style-type: none"> Slips, trips and falls Unfamiliar risks resulting in injury, damage to property Accident whilst on site 	<ul style="list-style-type: none"> Sites are surveyed by the sales team with results communicated to the drivers Drivers regularly visit sites and area aware of relevant safety issues All drivers are CSCS trained All drivers report to the site office for safety instructions including on safe vehicle and pedestrian routes All drivers are trained in vehicle and pedestrian safety through CPI toolbox talks Travel routes are minimised observing marked pedestrian routes at all times Signallers are provided where necessary to aid safe reversing and manoeuvring of vehicles Driver PPE is safety footwear, gloves, safety helmet, safety glasses with foam seal and high visibility waistcoat or jacket. FFP3 dust mask when uncoupling hoses and removing and emptying the filter bag. Additional PPE according to site-specific regulations Incidents are reported via CPI Driver Incident Report form OLS08 All accidents / incidents are reported to the site agent or responsible person. Completed accident forms are copied to the Site Manager
2 <ul style="list-style-type: none"> Access & egress of vehicle 	<ul style="list-style-type: none"> Slips, trips and falls 	<ul style="list-style-type: none"> All drivers follow procedures for safe vehicle access and egress using appropriate steps and grab handles and 3 points of contact at all times. Safety footwear is worn by drivers Vehicles are illuminated during conditions of reduced visibility
3 <ul style="list-style-type: none"> Use of bulk tanker 	<ul style="list-style-type: none"> Injury to persons Contact with obstructions or other vehicles Contact with overhead cables Failure of pressurised tanker Movement of vehicle during discharge Overfilling of silo High occupational noise levels 	<ul style="list-style-type: none"> Only trained, competent and authorised drivers persons operate tankers Drivers ensure tanker, silo and hoses are at least 2m clear of non-essential persons and equipment and 5m clear of overhead cables or obstructions All vehicles and auxiliary equipment are subject to daily checks and inspected prior to use All tankers are subject to 12-weekly inspections, 24-monthly intermediate and 48-monthly thorough statutory inspections An automatic Pressure Release Valve is fitted, set at 2.0 barg Access to the cab or bed while the tanker is pressurised is not allowed. Cab doors must be locked at all times during the discharge process.

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RISK ASSESSMENT

HAZARD		RISK	CONTROL MEASURES
3	<ul style="list-style-type: none"> Use of bulk powder tanker (continued) 		<ul style="list-style-type: none"> The driver ensures there is sufficient capacity in the silo prior to discharge The driver wears hearing protection when the compressor is engaged and tanker is discharging Pipe clips shall be installed over all Storz couplings used in the delivery process. Anti-whip devices shall be installed across all pipe to pipe connections.
4	<ul style="list-style-type: none"> Use of transfer hose 	<ul style="list-style-type: none"> Injury to persons Damage to property Failure of hose / coupling 	<ul style="list-style-type: none"> All hoses and couplings are inspected prior to each discharge Hose runs are kept to a minimum, ensuring hoses are free from obstruction The driver maintains sight of tanker, filter bag and silo, or receives assistance from the site agent or responsible person Hoses and couplings are inspected prior to each delivery In the event of a blockage or failure of the hose or coupling, the discharge is halted immediately and the blockage procedure is implemented
5	<ul style="list-style-type: none"> Use of articulated trailer 	<ul style="list-style-type: none"> Injury to persons Damage to property in collision 	<ul style="list-style-type: none"> Drivers are trained in the use, coupling and uncoupling of articulated trailers The driver ensures that trailer and vehicle handbrakes are applied when coupling and uncoupling the artic trailer A Signaller or Banksman may be requested to assist in the manoeuvring of the vehicle
6	<ul style="list-style-type: none"> CPI products 	<ul style="list-style-type: none"> Emission to atmosphere with exposure of personnel (skin contact and inhalation) Environmental effects 	<ul style="list-style-type: none"> Product is fully enclosed in tanker and silo In the event of a blockage or failure of hose or coupling, discharge is halted immediately to minimise release Gloves, safety glasses with foam seal and a dust mask with P3 filter or powered respirator worn when uncoupling hoses and removing and emptying the filter bag
7	<ul style="list-style-type: none"> Manual Handling 	<ul style="list-style-type: none"> Musculo-skeletal injury to persons 	<ul style="list-style-type: none"> Manual handling is limited to the connection of hoses and use of hand tools All drivers are trained in safe manual handling techniques
8	<ul style="list-style-type: none"> Lone working 	<ul style="list-style-type: none"> Injury to driver 	<ul style="list-style-type: none"> Drivers are not permitted to fill silos on site without a client responsible person available

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HAZARD	RISK	CONTROL MEASURES
9	<ul style="list-style-type: none"> Delivery from public highway 	<ul style="list-style-type: none"> Additional potential exposure of members of the public or damage to public property
		<ul style="list-style-type: none"> The client ensures all appropriate safeguards are in place for delivery from a public highway The driver assesses the unloading area with particular reference to roadway condition, access width, other vehicles, site personnel and plant, members of the public, weather conditions and any other prevailing hazards and ensures any additional risks associated with the public highway are adequately controlled A competent signaller provided by the client and positioned in a safe place is used to assist the driver The signaller wears high visibility clothing and uses agreed hand signals The signaller gives priority to the passage of pedestrians and other road users The driver assesses the need for any further assistance in relation to manoeuvring the vehicle and carrying out delivery and ensures these are in place before commencing Pedestrians are not directed around the vehicle on to the roadside, unless there are suitable barriers protecting them from traffic Pedestrians or vehicles will not be permitted to traverse delivery pipelines at any time
10	<ul style="list-style-type: none"> Reversing onto a public highway from customer site 	<ul style="list-style-type: none"> Vehicle or pedestrian collision
		<ul style="list-style-type: none"> A competent signaller provided by the client and positioned in a safe place is used to assist the driver when reversing onto a public highway

PRESSURISED BULK POWDER TANKER DETAILS

	RIGID TANKER	ARTIC TANKER
Make and Model		
Gross Vehicle Weight	Up to 32 Tonnes	up to 44 Tonnes
Safe Operating Limits	2.0 bar	2.0 bar
	-40 to +80 °C	-40 to +80 °C