

Portable Dosing Unit

The purpose of this project is to provide a portable dosing unit (PDU) which incorporates dual chemical dosing systems. The chemicals used in this case will be 12.5% Sodium Hypochlorite and 25% Aqueous Ammonia. This system can be used either on water mains or water storage tanks provided with dosing connection points, at pressures not exceeding 10bar (100mWG)

The primary function of this unit is to perform emergency dosing and planned dosing (or “top-up”) of a water main or water storage following the determination of a failure within the existing disinfection process.

Another possible use for these units includes the super-chlorination of a water main or water tank following remedial or new works.

These units are designed with a maximum storage capacity of 60 litres (4 x 15litres carboys) of 12.5% sodium hypochlorite and 15 litres (1 x 15 litre carboy) of 25% Aqueous Ammonia.

JONOCO Pty Ltd were responsible for the design, manufacture and supply of trailer mounted (mobile) disinfection units to meet the necessary customer’s requirements.



Photo 1 –Portable Dosing Unit (PDU)

project profile



This unit is based on a purpose built 2.1m x 1.2m twin axle trailer with lockable canopy housing both the two chemical storages and delivery systems as well as a potable water storage and delivery system.

The main systems and ancillary equipment comprising the PDU are as follows:

Sodium Hypochlorite System, comprising

- Chemical Dosing Pump (rated 60l/hr @ 10bar)
- Storage Bund, capable of containing a potential spill from 4 No. 15 litre carboys.
- Flow meter & Controller, used in the control of the delivery of chemical.
- 3-way valves,
- Waste tank (15 Litre capacity)
- Dosing hose reel, containing 6mm (ID) x 23m length dosing line with quick connectors
- Dosing hose extension, 6mm (ID) x 20m length including quick connectors

Ammonia System, comprising

- Chemical Dosing Pump (rated 60l/hr @ 10bar)
- Storage Bund, capable of containing a potential spill from 1 No. 15 litre carboys.
- Flow meter & Controller, used in the control of the delivery of chemical.
- 3-way valves,
- Waste tank (15 Litre capacity)
- Dosing hose reel, containing 6mm (ID) x 23m length dosing line with quick connectors
- Dosing hose extension, 6mm (ID) x 20m length including quick connectors

Potable Water System, comprising

- Delivery pump with automatic pressure control.
- Pressure vessel (60 Litre capacity)
- 240 Litre storage tank
- Emergency face / eye wash unit
- Retractable wash down hose fitted with trigger nozzle

Electrical Equipment, comprising

- Petrol driven generator
- Electrical Distribution
- Ventilation System
- Fixed Lighting
- Portable Lighting



Photo 2 – Portable Dosing Unit
(Rear View)

project profile



Photo 3 – Chemical Dosing System.

The PDU comprises of two relatively independent chemical dosing systems used in the storage and delivery of 12.5% Sodium Hypochlorite and 25% Ammonia. The sodium hypochlorite system is located in the lower (bottom) level of the chemical handling side of the PDU trailer, while the ammonia system is located above or over the sodium hypochlorite system on a shelf that can be removed for maintenance purposes.



Photo 4 — Chemical Bund (Insert HDPE removable divider)

The Chemical Storage Bund is provided in the base of the trailer which is divided into two sections. One section (the larger) is used for the storage and containment of Sodium Hypochlorite, while the smaller is used for the storage and containment of Ammonia.

project profile



Photo 5 – Chemical Dosing Pump

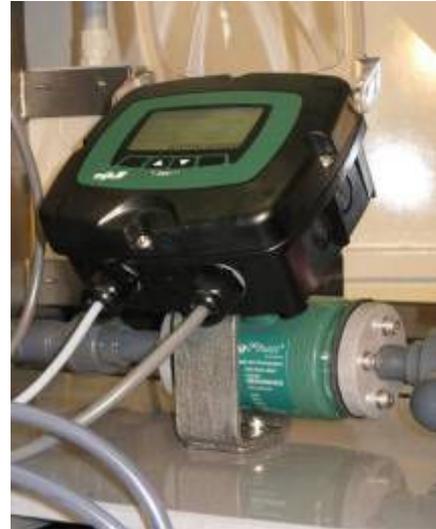


Photo 6— Flow Meter

The chemical dosing pumps used in the delivery of each chemical to the dosing point have the capacity of delivering 60 litres/ hour at 10 bar.

The chemical dosing pumps principle function is to draw chemical from the operating carboy, by way of suction pipe work and valving and deliver it to the dosing point through the dosing line.

The Flow Meter / Controller System, comprising of a flow element and converter is used in the control of the chemical dosing system.



Photo 7—Manual 3-Way Valve (Selection of Chemical or Potable Water)

Two 3-Way (manual) valves have been provided with each chemical dosing system.

A 3-Way valve is installed prior to the flowmeter and is used to select either the chemical supply or potable water. Potable water is selected at times when the dosing system is to be purged of chemical.

A second 3-way valve is provided downstream of the dosing pump. This valve is used to either connect the discharge of the dosing pump to the dosing line or to allow pressure to be bled from the dosing line prior to disconnection at the dosing point on the water main.

project profile



Photo 8 – Waste Tank

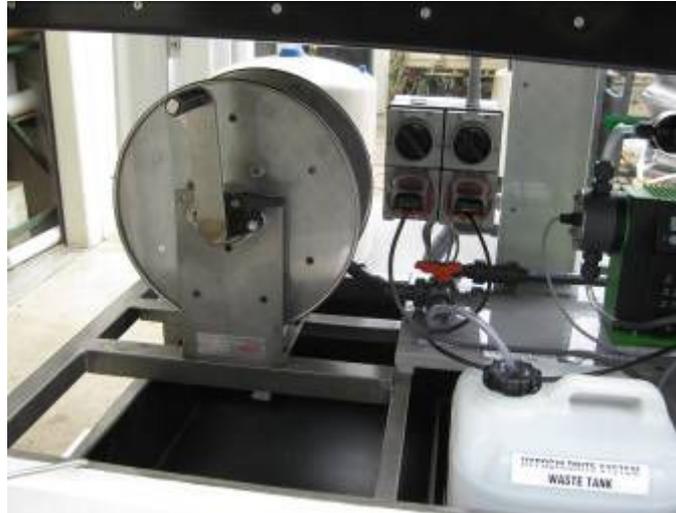


Photo 9— Dosing Line

A 15 litre Waste Tank is provided for each chemical dosing system and is used for the collection of any waste produced during the dosing process. The primary function of the waste tanks is to retain any chemical which is bled from the dosing lines.

Each chemical dosing system of the PDU is equipped with a 23m x 6mm dosing line, these dosing lines are provided on a stainless steel hose reel that is located at the rear of the PDU.



Photo 10 - 20m long Extension Dosing Lines



Photo 11—Injection Point Assembly

Each chemical dosing system is provided with its own dedicated dosing line extension and injection point assembly, all of which are appropriately colour coded.

The dosing line, extension dosing line and injection point assembly are all fitted with quick connect “dry-break” couplings, allowing for the safe disconnection of all lines,

project profile



Photo 12 – Potable Water Delivery Pump



Photo 13— Potable Water Pressure Vessel

The delivery pump incorporating a 60 litre pressure vessel is used to deliver potable water to the emergency eyewash and wash down hose reel as well as flushing either chemical dosing systems.

This delivery pump is controlled by way of a pressure switch mounted on the discharge side of the pump which is set to 28MWG.



Photo 14 - Potable Water Storage Tank



Photo 15—Emergency Face / Eyewash Unit

A 240 Litre storage tank is fabricated from translucent HDPE for the potable water. The PDU has a total potable water storage capacity of around 300 litres, as an additional 60 Litres of potable water is stored within the pressure vessel associated with the potable water pump.

An emergency face / eyewash unit is provided and is easily deployed to the outside of the trailer for easy access.

project profile



Photo 16 – Retractable Hose Reel

The 15m wash down hose is provided to facilitate the wash down of the PDU as well as flushing of the chemical dosing system. The hose reel is located towards the rear of the PDU on the potable water side and may be accessed from either the side or rear doors.



Photo 17 - Ventilation Fan

A permanently mounted ventilation fan has been provided to feed clean air into the PDU thus forcing any contaminated air out of the PDU via the ventilation grill in the rear door.



Photo 18—Rotating Ventilation Cowl

The PDU is also fitted with a rotating ventilation inlet cowl (located on the roof of the PDU) this operates effectively while the PDU is in transit.

project profile



Photo 19 – Electrical Appliance Inlet

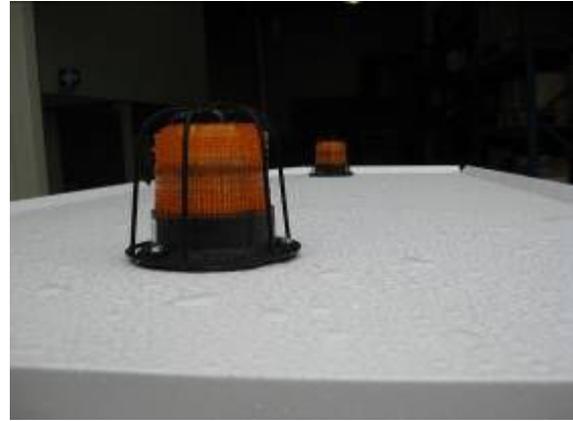


Photo 20 – Warning Strobes

An electrical appliance inlet socket on the front of the trailer allows for the connection of electrical supply from either the trailer or any other source of 240 VAC, 50HZ supply. Two 240Vac warning lights (strobes) have been position on the roof of the PDU. These warning lights are operated via a selector switch located at the front of the trailer.



Photo 21 – Onboard Petrol Generator.

All of the Portable Dosing Unit equipment is 240 VAC supplied.

240VAC can also be supplied via the on-board petrol generator where electrical supply is not available.

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