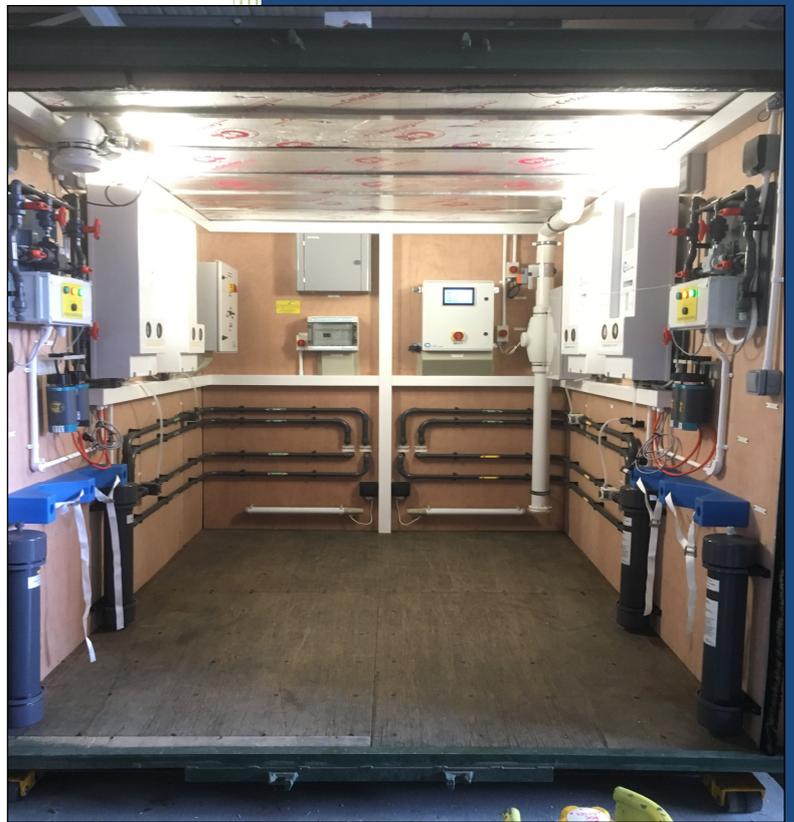




Temporary Gas Dosing Container (multi gas)

CHEMIDOSE LIMITED



For temporary or emergency gas dosing

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Introduction

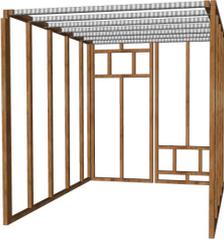
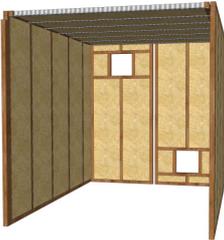
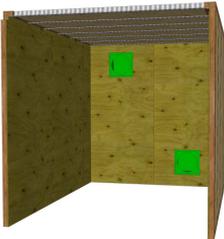
Chemidose Limited has developed this self-contained and secure unit to facilitate emergency dosing requirements or provide a temporary system while gas installations or upgrades are taking place on site.

Housed in a secure shipping container, the system is designed as a “drop and go” unit with external connections for power, telemetry, motive water inlet and treated water outlet.

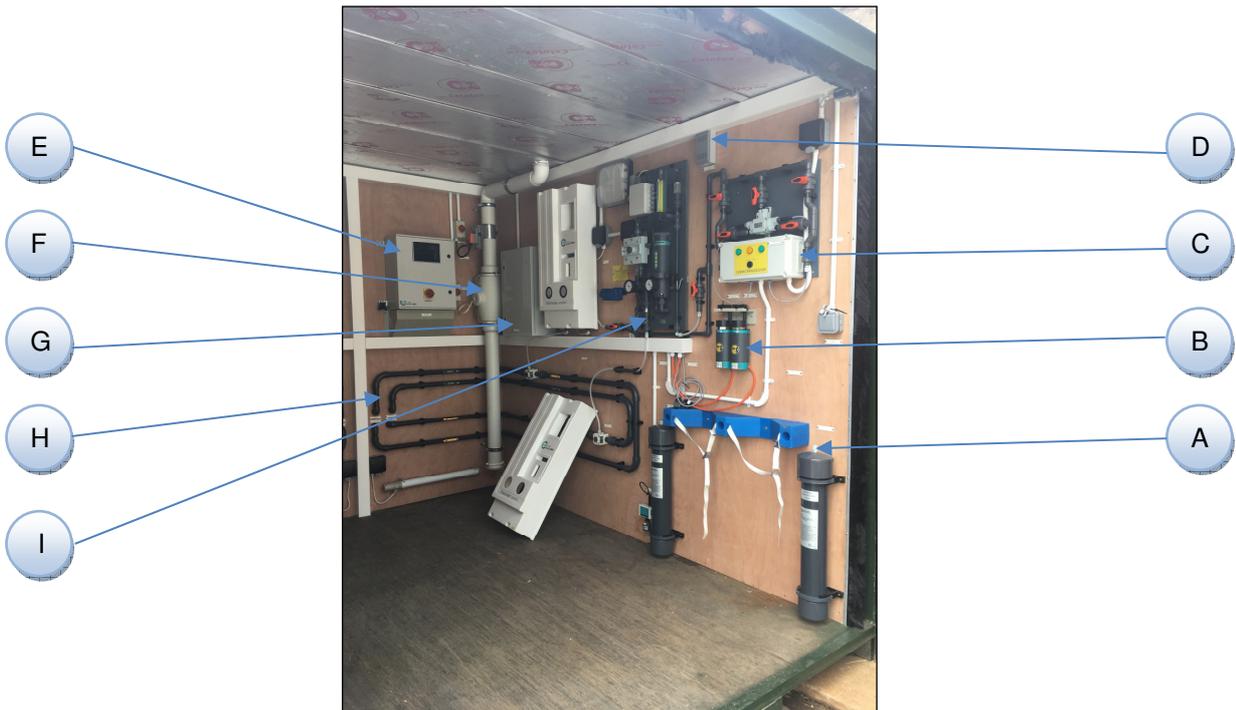
The system offers comprehensive safety and security including:

- Steel outer shell with high security lockbox
- External audio visual alarms wired to gas detection system with external test switch
- Option of secure LPCB level 2 cylinder clamps for gas cylinders contained within the container
- Telemetry outputs for system and gas detection status

The container is fully insulated with heating and ventilation linked to a controller to maintain optimal operating conditions.

	2" x 2" tanalised timber is used to provide a framework for lining the steel container.
	Aluminium T-bar sections are used to support the roof insulation.
	50mm Celotex insulation is then fitted between the timber frame, the roof supports and also to the inside of the doors.
	Finally, 1/2" exterior grade ply is used to line the internal walls and doors. Metal vents are inserted for ventilation and extraction and colour matched to the shipping container.

Internal equipment



A. Cylinder straps with vent scrubbers	I. Chlorinator with cover removed
B. Gas shutdown motors	J. Gas injector
C. Chemichangeover panel	K. Gas detection controller
D. Heating thermostat	L. Gas shutdown controller
E. Gas treatment controller	M. Power distribution board
F. Extractor with damper	N. Sulphonator
G. Ventilation controller	O. Room lighting
H. LPCB level 2 cylinder clamps	P. Motive water circuit

Functionality

The system is capable of housing two gas cylinders on either side of the container (supplied by the customer) providing very flexible options for configuration but as standard, designed for duty/standby chlorine and sulphur dioxide dosing.

Vacuum regulators are directly mounted to the cylinders. The vacuum regulators allow the gas to be pulled under vacuum to the injector and also provide a barrier between the pressurised cylinder and the vacuum line.

The two cylinders operate on a duty / standby cycle with the cylinders switching automatically to the reserve bank when the duty bank has been depleted.

The vacuum is generated via the injector by a motive water supply taken from site.

On the outside of the container, there are three enclosures. One is for water connections with motive water in and treated water out. The second enclosure has a three phase appliance connector for power and the third is a control junction box for easy connection of controls and signals.

Four automatic gas feeders (2 x Chlorine and 2 x Sulphur Dioxide) can run as individual units or in duty/standby mode.

A touch screen HMI with PLC based Aquaprocessor allows easy operator interface.

4-20mA signals for motive water and chlorine analysers are presented to the container from site which is in turn wired to the gas controller. This adjusts the chlorinators and sulphonators proportionally.

Output signals are also available in the junction box for connection to site telemetry.

Gas monitoring equipment linked to a controller provides intelligence and controls how the extractor fan and alarm beacons operate and also shuts down the cylinders in a high alarm condition.

A warning beacon stack with sounder is fitted to the top of the container to show the status inside.

Two heaters linked to a room thermostat are installed to keep the room above 15 deg C and an extractor fan linked to a cooling thermostat can be adjusted to prevent overheating in the summer.

Operation

The system has been designed for minimal maintenance.

The only checks that should be required is that the alarm beacon status is green (signifying that the system is functioning normally) and to check whether the gas supply has switched to the reserve drum.

This can be done either by checking the “No reserve” orange lamp status on the Chemichangeover units, or if connected to the signal JB, via site control.

Vacuum changeover systems

The vacuum changeover units will automatically switch to the reserve cylinder once the gas has run out in the duty cylinder and show that the reserve is in use by activating the “No Reserve” amber warning light. This information is also available remotely using the control outputs.

At this point, a new delivery should be booked.

Once a new cylinder has been installed, the “No Reserve” light should be turned off by pressing the “Reserve Reset” button.

Alarm conditions

Two gas sensors have been placed either side of the container near to the gas equipment.

In normal operation, gas levels in the room should be under 2ppm. During this condition, the external green light will be lit and room extraction will cut in and out as required dependent on the room temperature.

It is quite normal for levels to rise slightly above 2ppm if for instance, the cylinder is being changed. If the level is above 2ppm but under 8ppm, the external red light will flash and the fan should come on to remove the excessive gas.

If the chlorine gas level rises above 8ppm, the external red light will flash and the external sounder will activate. This will also stop the extraction and shut the dampers (regardless of room temperature) in an attempt to contain the gas leak.

The system also monitors the health of the gas sensors. If a sensor fails, the red light will be activated.

To summarise:

Light status	Sounder status	Safety level	Action
Steady green	Off	Safe	Safe to use
Flashing red	Off	Warning	Check status on the alarm panels or via feedback to control room
Flashing red	On	Danger	Check control panel status from control room and only enter container with full BA