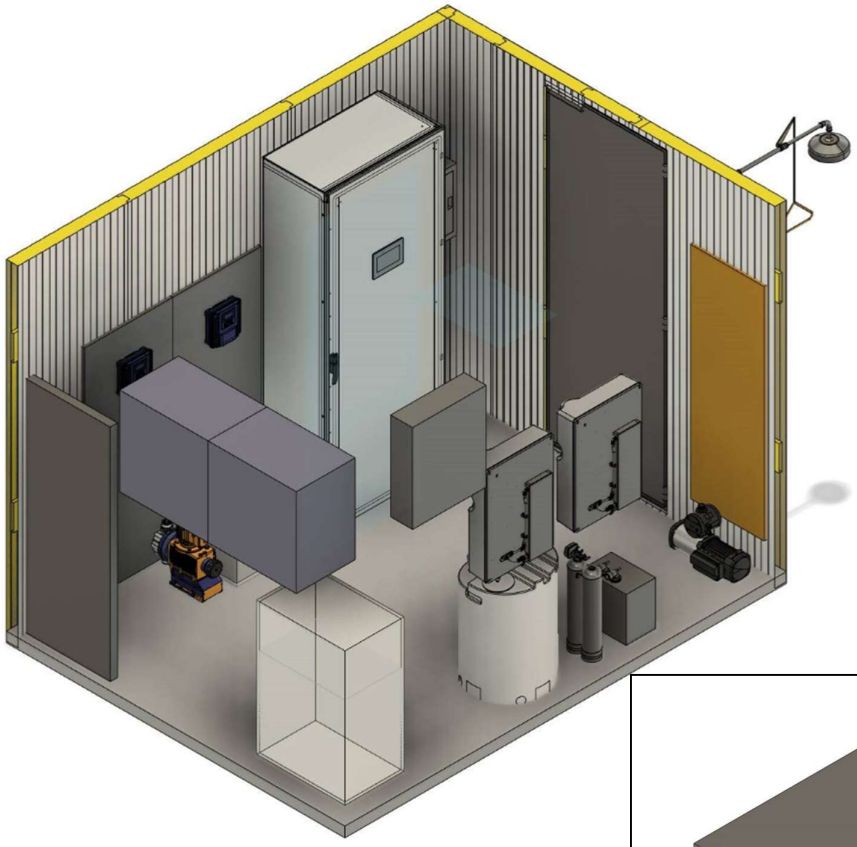
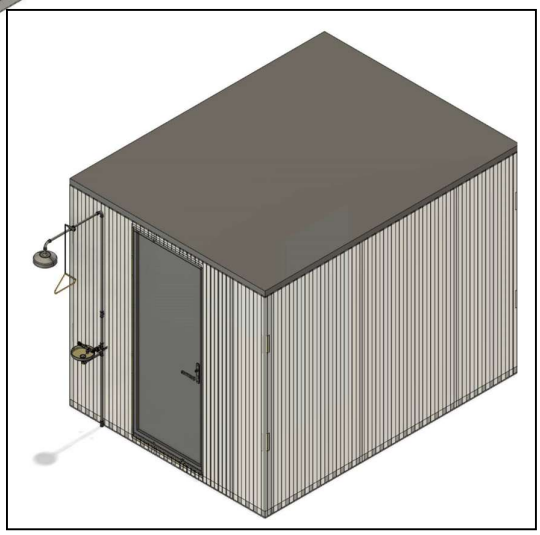
*…… another JONOCO Customer Focused, Quality Solution.*

# HYPROLYSER Hut

*…… all your disinfection requirements in one transportable plant, just add salt.*





servicing the water industry

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Thank you for your interest in JONOCOs' HYPROLYSER hut solution.

JONOCO has been *Servicing the Water Industry* for well over 30 years and is proud of its reputation and the relationships that it has developed with its clients.

JONOCO has always listened carefully to the needs of the industry and from this has developed several products that have been well received by the industry. Quality products that have contributed to better, easier and safer workplaces

The HYPROLYSER Hut is yet another JONOCO project that combined new technology, in the effective and efficient generation of sodium hypochlorite with our tried and tested methods of sodium hypochlorite handing and dosing.

The HYPROLYSER Hut provides all the advantages in the storage, handling and use of a chemical that is not a dangerous good, greatly reducing our client's CAPEX and OPEX costs. No longer are there any requirements to invest in any onsite chemical transfer, containment or safety systems. The reliance on others to safely deliver a dangerous good to your site is also a thing of the past, no more chemical supply contracts. The deployment of a HYPROLYSER Hut will not only reduce costs, but it will contribute to what will be a safer workplace for operational staff and for the environment.

For further information relating to this product or any of the other products or services that JONOCO can offer please contact either Paul, Noel or Peter. They would be more than happy to speak to you about how JONOCO can work with you in delivery our *Customer Focused, Quality Solutions*.


Thank you

Paul Dick,
Mechanical Manager
0425 768 991

Noel McKay,
General Manager
0418 592 754

Peter Smith.
Commercial Manager
0412 885 561

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## Concept Introduction
## …… the HYPROLYSER Hut

The *HYPROLYSER Hut* comprises a 3m long by 2.4m wide insulated transportable building housing all the equipment required in the generation and dosing control of sodium hypochlorite.

The building is constructed using 75mm insulated Colorbond panels. The floor structure of the building is fabricated from galvanised mild steel. Flooring comprises 18mm compressed fibre cement panelling that is covered by 2mm vinyl flooring. A single metal cladded door measuring 2040mm x 905mm is provided.

To help maintain a suitable operating environment within the building a small reverse cycle air conditioning unit is provided.

All service connections to the building are made by way of gland plates that are provided in the floor of the building adding to the security of the site.

Figure 1 - Typical HYPROLYSER HUT building

The HYPROLYER Hut can be fitted with one or two sodium hypochlorite generation units. A chemical storage is provided within the building itself. Any requirement for a larger chemical storage can be addressed by using an external storage tank.

Chemical delivery (dosing) may comprise either a single dosing pump or two dosing pumps that can be arranged in either a duty/ standby or duty/ duty assist manner.

A single chlorine residual analyser that is typically used for post dose analysis is provided. A further two analyser systems can be provided should you require additional water analysis.

With water conservation in mind, a sample water return system can be provided to return water safely to process.

A service water system is provided for the purposes of washdown capability. A water tap and hose are provided. Additionally, should you desire, the service water system can comprise an emergency shower/ eyewash unit that is placed outside of the building. This is not a mandatory requirement, but we understand your potential needs.

From an Operational Technology standpoint, the control system comprises a PLC/ RTU and modem all backed up on a 24Vdc system. The requirements of which will take into consideration your Cyber Security needs (Refer to section on *Operational Technology* below).

Electrically the *HYPROLYSER Hut* provides its own supply distribution system along with internal and external lighting. Options for the provision of an Automatic Transfer Switch (ATS) or Basic Transfer Switch (BTS) along with generator connection are available.

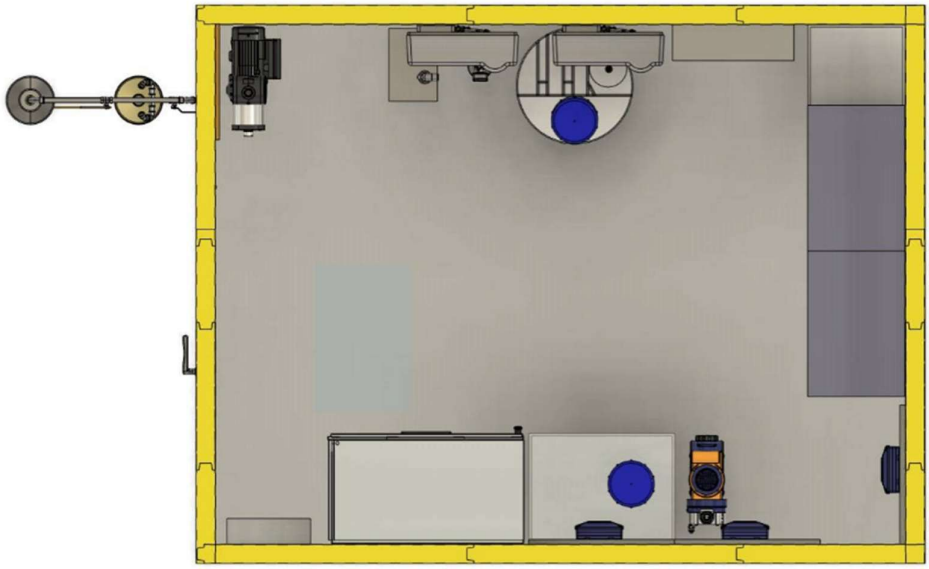

Figure 2 – HYPROLYSER HUT Floor plan

The process within the *HYPROLYSER Hut* flows around the plant room in a clockwise (left to right) fashion making it easier for first time visitors to understand the process.

## The Benefits of Sodium Hypochlorite Generation

***……. risk reduction***

The *HYPROLYSER Hut* comprises chemical generation systems that use the principle of electrolysis. The generation system can produce 0.6% sodium hypochlorite solution (NaClO) at a rate of 5 L/h to 60 L/h using either a single or two iSEC units.

A biproduct of the chemical generation system is hydrogen gas. This biproduct is safely expelled outside of the building using a forced ventilation system. Any failure of this ventilation system or any detection of Hydrogen gas within the building results in the chemical generation process being halted.

A water conditioning system comprising a water softener and chiller is used to feed water to the chemical generation process. A biproduct of the water softener that is produced, the quality of which is subject to raw water quality, must be appropriately managed. It may either need to be stored on site for collection and proper waste disposal or may be able to be released to sewer subject to proper analysis.

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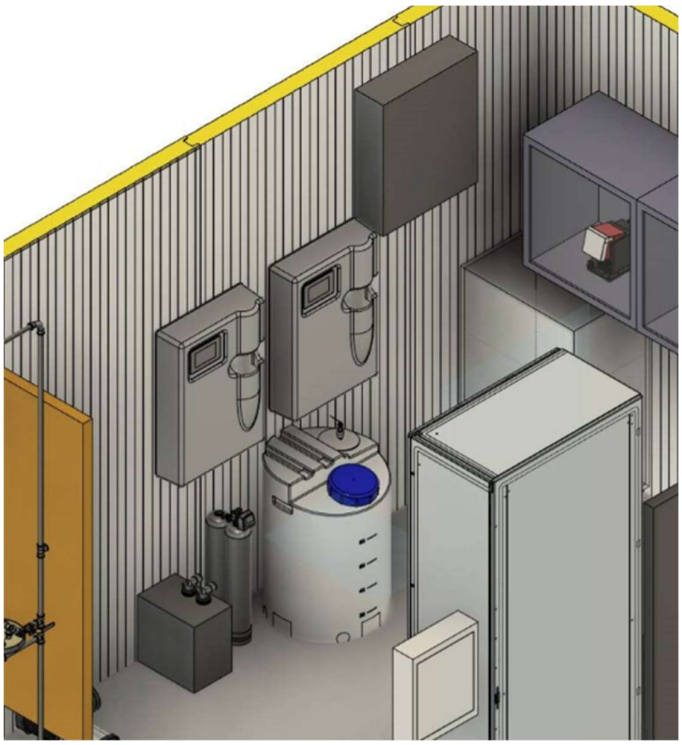

Figure 3 – Chemical Generation system (ISEC) and associated water conditioning system

The generation of sodium hypochlorite at 0.6% strength results in many of the mandatory dangerous good's requirements being removed.

1. There are ***no requirements*** for any liquid chemical spill containment or management that is associated with chemical delivery vehicles.

2. There are ***no requirements*** for any liquid chemical transfer control or management.

3. There are ***no requirements*** for storage tank bunding

4. There are ***no requirements*** for Hazardous Chemicals/ Dangerous Goods signage or notifications to any local safety authorities.

5. There are ***no requirements*** for any on site safety system or spill containment systems (kits).

Furthermore, the ongoing commitment to the management and control of safety systems, management tools and operational procedures/ audits associated with the use of a hazardous chemical may be removed. All attributing to an improved and safer working environment for all employees and for the environment. Ongoing operational costs are greatly reduced and the reliance on others to deliver hazardous chemicals to site, that sometimes puts these sites at risk of failure, becomes a thing of the past.

## Flexibility in Design

*…… what the client needs*

JONOCO understands the importance of tailoring our products to your exact needs.

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For this reason, JONOCO has sort to provide a *HYPROLYSER Hut* solution that is flexible in meeting your design needs.

Not only can the *HYPROLYSER Hut* be sized to meet the chemical dosing demands of your site, but it can also be tailored in several ways to provide you with only the systems and equipment that you require and to have these systems and equipment selected with your operational and preferred equipment selection needs in mind.

Configuration requirements that have been considered in the design of the *HYPROLYSER Hut* solution include the following.

**Operational (Control system) Technology (OT)**

**…… Understanding your Cyber Security requirements**

Special consideration is given to the Cyber Security requirements that we know you face today. We understand that you are now responsible for the security management of your OT systems. OT systems that also require you to carefully select and manage service providers engaged in the configuration and maintenance of these systems.

The OT systems of the *HYPROYSER Hut* are delivered with your Cyber Security requirements in mind. You can nominate the OT systems and services providers that are to be used. You can place the management of this with us or alternatively, we can work with you in your management and delivery of all OT related works. For clients that are yet to implement their own Cyber Security requirements, we can offer the supply and configuration of OT systems for the HYPROLYSER Hut and will work closely with you in doing this.

Documentation provided with the *HYPROLYSER Hut* includes an operational control philosophy, detailing how the equipment is to be controlled and monitored. This document will assist you in the development of any detailed operating methodologies that may be required to suit your site. We are happy to work with you in your development of the OT software/ systems to ensure applicable equipment warranties are maintained.

**Water Quality Measurement**

***…… Provision and use of Analysers***

The *HYPROLYSER Hut* is provided, as standard with a single chlorine residual analyser that can also include pH measurement/ correction. This analyser is typically used in the control of the chemical dosing process.

The *HYPROLYSER Hut* has the capacity to install a further two analyser systems to meet your onsite monitoring or control needs.

A second or third analyser system may be installed for pre-dose measurement or final process measurement (i.e. downstream of major tank storage). Any pre-dose measurement may also be used in the control (enabling/ disabling) of the *HYPROLYSER Hut* dosing system.

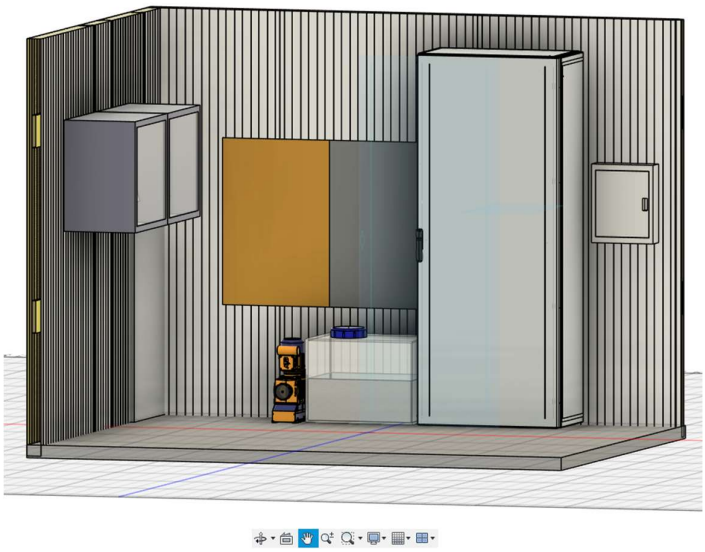

Figure 4 – Analyser Systems, and sample water return system

**Water Conservation**

***…….. Provision of a Sample Water Return System***

We understand that water conservation is important. If water conservation is a requirement for you then the HYPROLYSER Hut can be supplied with a sample water return system that will return sample water safely back to process. The sample water return system comprises a small storage tank (~50L), a sample water return pump with a maximum capacity of 10bar. Instrumentation is used to control and monitor the system.

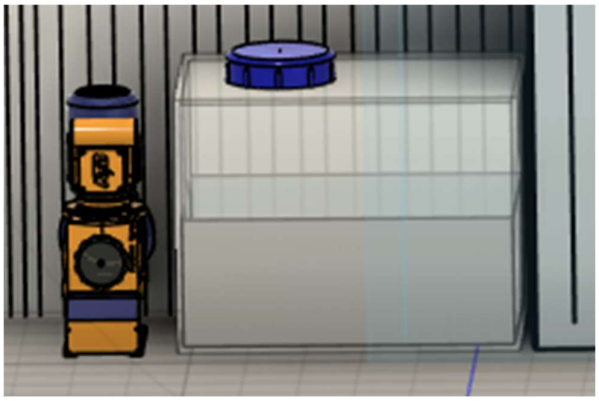

Figure 5 – Sample Water Return System, comprising sample water storage tank and return pump.

**Chemical Dosing**

***…… Dosing Pump Selection and Redundancy***

The number and type of dosing pumps used can be nominated by you. A maximum of two dosing pumps can be provided within the *HYPROLYSER Hut* building.

Each dosing pump is mounted within an enclosure with a clear door. This is to protect Operators from high pressure lines.

Control valving is provided with each dosing system to ensure reliable and repeatable operation.

You may choose to have a single dosing pump system or have two dosing pumps that may be arranged in either a duty/ standby or duty/ duty assist manner. You may also choose the type of dosing pump, or we can recommend one for you.

Figure 6 – Dosing pump cabinets

**Chemical Storage**

**…… Capacity to store**

The sodium hypochlorite storage tank is floor mounted and positioned below the dosing pump cabinet(s) within the building. The capacity of the storage tank is dependent on several factors including the dosing demand of the site as well as the amount of chemical that is to be stored in the event of a chemical generation plant outage.

Standard storage tank sizes from 200L to a maximum of 1000L can be provided. You may choose one of the sizes offered or you may instead specify a size of your own. Any tank with a volume greater than 1000L may trigger the need for an externally mounted storage tank.

Tanks are provided with instrumentation to monitor level both locally and via SCADA.

We can assist you in the determination of the tank storage capacity for your needs.

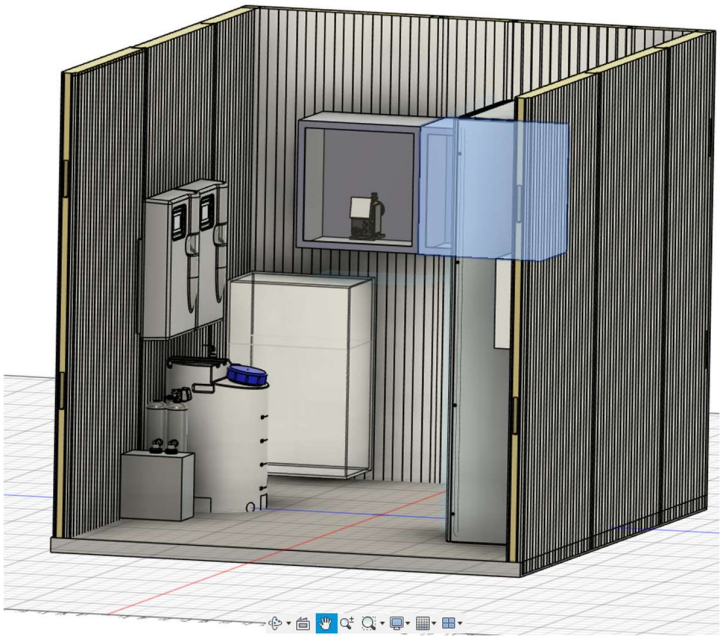

Figure 7 – Chemical storage tank

**Mains Supply Reliability**

***…… Provision of automatic or manual backup supply systems***

At locations where mains supply is unreliable, or simply if you desired to improve the reliability of your system, the *HYPROLYSER Hut* can be supplied with an ATS (Automatic Transfer System) and on-site generator. This will ensure that the system remains operational at times of power failure. Alternatively, a BTS (Basic Transfer Switch) along with appliance plug can be supplied allowing the *HYPROLYSER Hut* to be supplied via a portable generator as required.

**Safety Systems**

***…… Provision of an emergency Shower/ Eyewash Unit.***

While the need for an emergency shower/ eyewash is not mandatory, the *HYPROLYSER Hut* can be provided with one. The unit would be externally mounted and is fed from the service water system that is provided as standard.

At locations where the existing mains supply pressure is identified as insufficient to adequately supply the shower/ eyewash unit, a service water booster pump would also be supplied and fitted. Noting that the requirement for a booster pump may also be necessary to satisfy the chemical generation system which requires service water pressure to be maintained between 200 and 300kPa (20 and 30mWG).

The emergency shower/ eyewash unit is easily detachable from the outside of the *HYPROLYSER Hut* when it comes time to transport the unit.

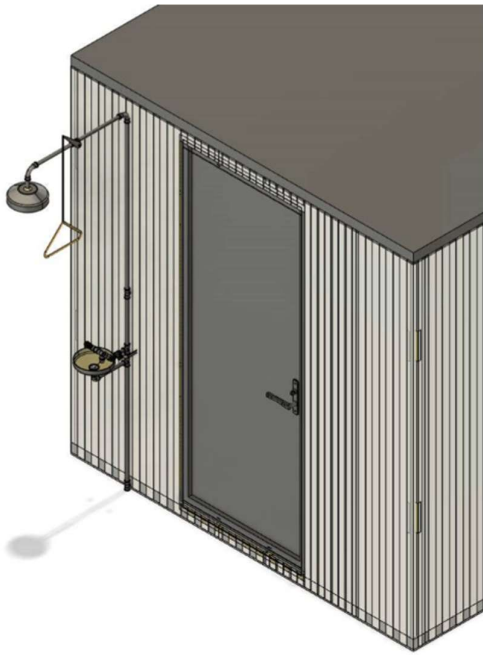

Figure 8 - Emergency Shower/ Eyewash installation

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## Selection in Design

### *……. customising your solution*

As part of the design process of the *HYPROLYSER Hut* JONOCO and our suppliers will work with you in the determination of how to best satisfy your requirements. Our objective is to provide a customised solution to suit your specific needs whether they are design based (i.e. equipment selection/ configuration) or just site considerations.

We will tailor a solution to your needs.

To assist JONOCO in the provision of a customised solution, we have provided an online form that you can complete. This can be done by completing the form provided via the link below or alternatively, you may request an application form be emailed out to you.

If you require any assistance in completing this form, then please reach out to one of our team members who will be more than happy to provide support.

Please use this link to submit your requirements:

https://forms.office.com/r/tA8itwPWYc