PRODUCT OVERVIEW SHSR

water | wastewater | treatment | recycling

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Overview

MAK Water's Sodium Hypochlorite Sterilisation Recirculated (SHSR) plants are designed to automatically maintain the correct amount of free chlorine in a potable water storage tank, in accordance with the Australian Drinking Water Guidelines (ADWG).

MAK SHSR plants are available either skid mounted for installation inside a suitable building, or containerised with air conditioning to avoid chlorine heat degradation.

MAK containerised SHSR plant

The MAK Advantage:

- High quality Australian designed and built systems
- Experienced team with >4,000 systems operating throughout Australia and internationally
- Nationwide service & maintenance capabilities
- Remote monitoring for expert process support
- Fully automated systems minimise operator attendance
- MAK standard designs for fast lead times
- Optimised designs to suit client's objectives
- Fully customisable to accommodate client specific engineering standards, vendor data requirements and site preferred electrical equipment
- Extensive hire fleet available for rapid deployment

MAK wall mounted SHS plant

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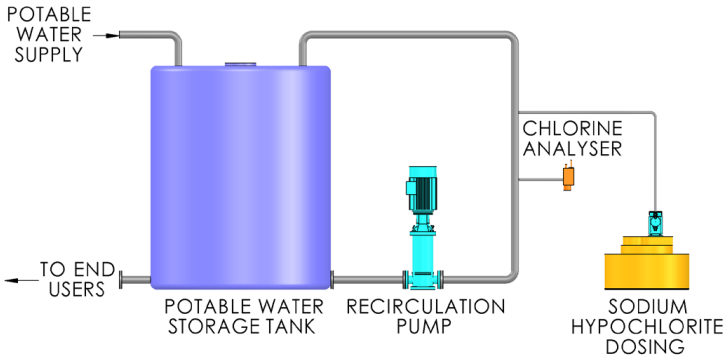
Overview



In order to treat the raw water to Australian Drinking Water Guidelines (ADWG) sterilisation is required. Free chlorine residual in the potable water storage tank is automatically maintained by providing a recirculation system with sodium hypochlorite dosing.

The standard treatment process includes a recirculation pump to turn over the contents of the potable water storage tank twice in a 24 hour period, an inline chlorine analyser which monitors residual free chlorine and a dosing pump to automatically dose liquid sodium hypochlorite as required.

The system components are sized to suit the potable water storage tank and daily water usage. Options are provided for duty standby recirculation and dosing pumps to improve plant reliability.

MAK SHSR plants are available as skid mounted or containerised systems for easy deployment to remote locations.

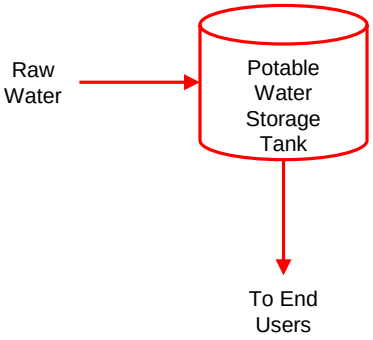
Overview

The following table summarises typical raw water and treated water values:

Parameter	Unit	Raw Water (typical)	Treated Water (typical)
Free Chlorine Residual (target)	mg/L	-	0.2 ~ 2 (ADWG)
Pressure	kPa	> 15 (flooded suction from tank)	100 ~ 200 (recirculation)
Recirculation Flow Rate	L/hr	-	Designed to turn over potable water storage tank twice in a 24 hour period
Temperature	°C	15 to 35	-

NOTE: MAK Water recommends a water analysis be carried out prior to detailed design.

Process Steps

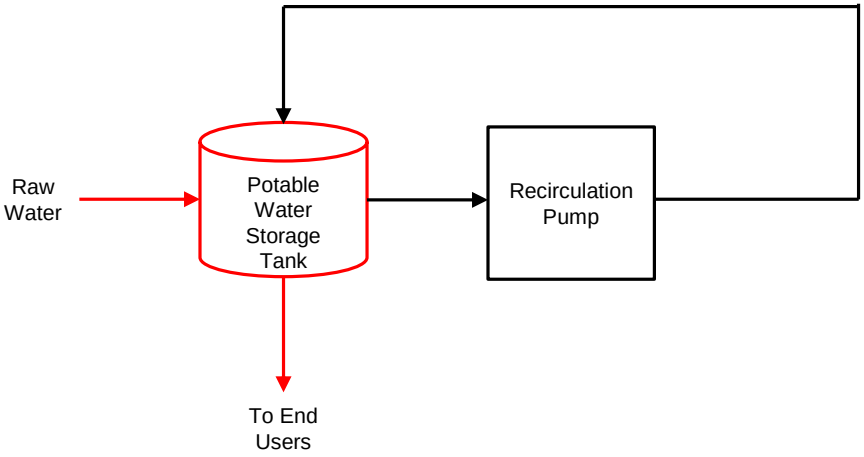


Potable Water Storage Tank

The potable water storage tank provides the required storage capacity of potable water.

If required, MAK Water can provide the potable water storage tank, distribution pump and control system for distribution of treated water to end users.

Process Steps

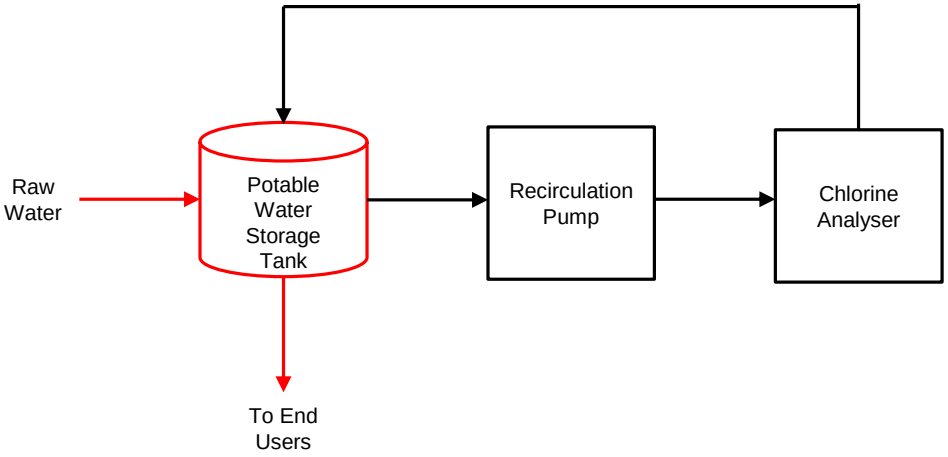


Recirculation Pump

The first step in the process is recirculation of the contents of the potable water storage tank.

The recirculation pump is sized to turn over the contents of the potable water storage tank twice in a 24 hour period.

Process Steps

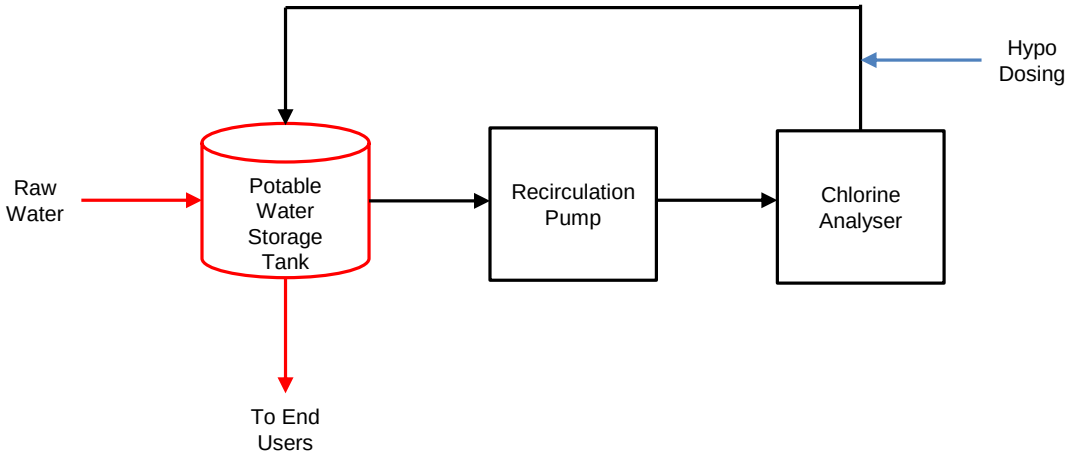


Chlorine Analyser

The recirculated water is continuously transferred to a chlorine analyser for measurement of free chlorine via a sample line connected to the recirculation line.

The sample line take off is located prior to the sodium hypochlorite dosage point in order to measure the chlorine residual in the water coming from the potable water storage tank.

Process Steps



Sodium Hypochlorite Dosing & Monitoring

Chlorine in the form of sodium hypochlorite is dosed into the recirculation line.

The requirement for chlorine dosing will be based on residual trim using the feedback signal sent by the chlorine analyser to the control system. The system will only dose chlorine when the measured free chlorine residual is less than the programmed set point. The dosage of sodium hypochlorite will occur for as long as required to establish and maintain the free chlorine residual within the target range.

The sodium hypochlorite storage tank is fitted with a low level switch to alert the operator of a low level condition: the tank level should be checked regularly and topped up as required.

Options - ClearAccess™

Optional ClearAccess™ Remote Monitoring enables personnel to view and operate the plant remotely. This saves time in response to emergencies and assists local operators to diagnose problems. It prevents unnecessary service call-outs and improves reliability and plant uptime.

Process Support via ClearAccess™

Key Functionality:

- Remotely view and operate the plant on your PC, smart phone or tablet
- Automatic alerts (email or SMS) on alarm conditions
- Automatic report generated daily and emailed to your inbox
- Real time monitoring of process data, such as flow rates, pressure and alarm conditions/status messages
- Password protected system with two login security levels

ClearAccess™ from your Smart Phone or Tablet

Inclusions:

- Additional electrical instrumentation (premium package)
- Additional PLC hardware and programming
- Programming of email alert system

NOTE: Remote monitoring requires an internet connection or mobile network coverage (client to provide SIM card).

Options – Containerised Plant

MAK SHSR plants can be installed in ISO sea container for safe, fast deployment by sea, road and rail. Installing the plant inside a sea container is an ideal way to protect the plant and equipment from harsh operating conditions in remote sites. The durable construction assures the plant is able to be transported through rough terrain and perform to the design requirements on arrival at remote sites (plug and play operation).

Standard 20' Container

Premium Fit Out (insulation, floor coating and access door)

Standard Inclusions:

- As new, freshly painted inside and out (high gloss enamel)
- Distribution board with separate circuits for lights & aircon
- Overhead internal lighting & reverse cycle air conditioning
- GPO's for maintenance work

Premium Container Fit Out Options:

- Chemically resistant, non-slip floor coverings
- Wall and ceiling insulation
- Personal access doors & windows
- Smoke detectors and alarming
- Safety shower & eyewash station with flow switch & lighting
- Winterisation for extreme climates (-40ºC/-40ºF)
- High spec/high build two-pack epoxy container painting

Containerised WTP with access door, window and safety shower & eyewash station

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Project Experience

Project	Department of Housing Remote Aboriginal Communities
Location	Eastern Goldfields, Western Australia
Date	2014
Scope	D&C, commissioning & operator training
Capacity	Various potable water storage tank sizes
Raw Water	Potable water
Treated Water	Potable water (ADWG)
Features	Supplied 7 individual containerised SHSR plants for separate remote communities Duty/standby dosing and recirculation pumps Vandal proof installation Insulated container and air conditioning to avoid chlorine heat degradation Auto plant restart on power outages Fast 8 week delivery time

Project Experience

Project	Rio Tinto – Hope Downs 4 - In Pit Facility
Location	Pilbara, Western Australia
Date	2014
Scope	D&C, commissioning & operator training
Capacity	10 kL Potable water storage tank
Raw Water	Potable water
Treated Water	Potable water (ADWG)
Features	Fast 6 week delivery time Compliance with ADWG Standard containerised plant MAK Standard (Data Sheet Product)

Project Experience

Project	Unity Water
Location	Landsborough, Queensland
Date	2015
Scope	D&C, installation & commissioning
Capacity	500 kL Storage tank
Raw Water	Recycled waste water
Treated Water	Recycled for construction water
Features	Water recycled for reuse as construction water Duty/standby dosing pumps Integrating into existing system Custom design (wall mounted) and equipment flexibility Custom installation as per site requirements