

The Ultimate
in Water Tank
Cleaning &
Disinfection

YPIWater Pte Ltd
Since 2003



Our Specialized Materials & Tools



Carela Bio-Plus





Carela
Bio-Plus

German
Technology

A mixture of hydrochloric Acid & Hydrogen Peroxide

Hydrochloric Acid $<9\%$ + $\text{H}_2\text{SO}_4 <20\%$

Extensively used in Europe & Marine for drinking water system.

Approved cleaning & disinfection agent by PUB & EU.

KIWA Certification for Assessment on Toxicology Aspects

Application:

Cleaning and disinfection of drinking water tanks.

- Iron and manganese deposits, carbonates and aluminium precipitations are dissolved and removed.

Disinfection

- Besides removing oxides deposits, the protective layers consisting of organisms & colloidal that harbours the germ, bacteria, algae, fungi are broken down & destroy.

Our Reference



- Hotels
- Hospitals
- Government Buildings
- Universities & Polytechnic
- Class A Offices Building
- Shopping Malls
- Condominiums
- High end industries – Semiconductors
- Jurong Island industries
- On board ship



Reasons why our customers preferred Carela methodology over Conventional water tank cleaning

PUB SS636:2018



- The cleaning & disinfection process takes half the time to complete.
- Fast & efficient – Clean & disinfect in **One Step**
- Reduce customer's supervision & attendant need.
- Tanks to be cleaned needs to be lowered once.
- Able to reach all corners of the tank to clean & disinfect.
- Avoid hard scrubbing that destroy smooth surfaces. (Roughen surfaces accumulate encrustations, bacteria & germs)
- Eliminate the need to soak the tank with 50ppm of Chlorine (Full height of water that need to be throw away after 24 hours into the sewage, not open drain)
- Water saving – Total effective volume of all the tanks.

Compliances to PUB Regulations

PUB SS636:2018
Supersede CP48:2005

- **Joint Inspection**

- Conduct a joint site inspection to ensure compliance with PUB regulations on tank security, irregularities, defects & other non-compliance as stipulated in PUB SS636:2018.

- **Faults Notification**

- Report on possible water contamination & leaks.
- Faults reporting of tank interior, faulty valves, rusted parts etc discovered from inside the tank.

- **PUB Submission**

- Schedule of work strictly in accordance to PUB regulation.
- LP submission to PUB before work start & complete.

- **Communication**

- Use of group Whatapps to notify all concern parties.
- Photographs of the tank before and after cleaning.

Compliances to MOM Regulations

MOM regulation
Work @ Height
Confined Space

Confined Space

- Certified Confined space assessor, supervisor & worker.
- Gas check before entry.

Work @ height

- Certified Managing @ Height & WAH supervisors & worker.
- Rescue from Confined Space

Risk Management & Safe Work Procedures

Worker's water borne check.

Occupier to provide proper anchoring point.

Methodology of Application

Conventional as provided in SS636:2018

Brief Description of the
cleaning process

One Compartment at a time

1. Consume and lower the water to 300mm (kneel level)
2. Use non sharp object, brush, green wool to clean the surfaces including the roof and tie rods.
3. Use extension pole to reach the top of the tank (above 3m is a problem.
4. Heavy scrubbing on black & brown encrustations.
5. Spray 200ppm of chlorine above the water level to the roof (flush with water after 30 mins)
6. Drain & flush off the dirty water.
7. Refill the tank with 50ppm of chlorine to max level (soak for 24 hours)
8. Drain off the chlorinated water after 24 hours. (Draining of water could be a problem in many buildings)
9. Refill with fresh PUB water & take water sample.

Time taken to complete one compartment after water are drained, refill for chlorination, re-drain & finally refill with fresh PUB water: 3 days.

Methodology of Application

Carela as provided in PUB SS636:2018

Brief description of the One Step
Cleaning & disinfection Process



Drinking of water -

One Compartment at a time

1. Consume & save water to the lowest level possible.
 2. Drain away excess water that are full of sediments.
 3. Spray Carela from the roof of the tank to the floor, tie rods & etc.
 4. Lightly touch the encrustations & flush the surfaces with water.
 5. Flush with clean fresh water, the surfaces are now cleaned & disinfected.
 6. Wash off the excess water that is concentrated with encrustations.
 7. Refill with fresh PUB water
 8. Take water sample.
- Time taken to complete the work after water are drained: 30 to 120 mins.



Is a matter of trust

Methodology of Application

Carela
as provided in PUB
SS636:2018

Video after applying Carela on
the surfaces of the tank



Drinking of water -



Safety equipment



- Self retractor lifeline
- Rescue pulley (3 to 25m)
- Temporary anchorage
- Tripod
- Hardness with front & back SS buckers
- Air Ventilator
- Calibrated Gas Meter – 4 Gases
- SCBA
- Resuscitator
- ELCB



Reports, Certificate & Forms

Inspection & Compliance Report
Water Sampling Report
Occupier Confined Space PTW
Occupier WAH PTW

All relevant certificates for working
in Confined Space & WAH

Risk Assessment
Safe work procedures
Equipment Calibration Certificate
Worker's water borne medical
checks




WATER TANK INSPECTION CHECKLIST

Date: _____ Building & address: _____

Inspected by: _____

Registered Customer's representative: _____

Item	Defects	LLT	ILT	HLT	Remarks
Water Tank Security Level					
1	Access doors not locked				
2	Access doors using normal locks				
3	Access doors using EM locks (Approval by PUB reqd)				
4	Tank cover not locked				
5	Tank cover using normal lock				
6	Inadequate enclosure				
7	Water tank not segregated from other services (submissions after 20 Mar 15)				
8	SS bracket not installed				
9	SS bracket dislodged				
10	SS brackets not installed properly (not at the centre, not following contour)				
11	Tapered round nuts missing or not fully tightened				
12	Defective locks				
13	Electrode holder not secured				
14	Key movement record to access door not used				
15	Same keys used for access door & water tank manhole covers				
16	Fencing welded mesh opening smaller than 75x25mm (First turn-on 20/3/15)				
17	Fencing not to full height (applicable to LLT)				
18	RTT fencing less than 2.5m & no 300mm outrigger.				



Chemical Laboratory (Singapore) Pte. Ltd.

30 Kallang Pudding Road #04-03 Vallant Industrial Building Singapore 349312
Tel: (65) 6253 5122 Fax: (65) 6250 4837 E-mail: chemlabs@singnet.com.sg

Lab No: CLS/606597/2019

Date: 15th July 2019

CERTIFICATE OF ANALYSIS

Customer : **YPI Water Pte Ltd**
Bld 1092, Lower Delta Road
#04-10
Singapore 169203

Date of Submission : 12th July 2019
Date of Analysis : 12 – 14 July 2019
Sample Description : One (1) sample of Drinking Water
Sample Marked : Changi General Hospital Medical Centre B3
Low Level Tank 1

RESULTS OF ANALYSIS:-

1. PHYSICAL AND CHEMICAL ANALYSIS	Standard Method (22 nd Ed 2012)	Results	PUB Guideline
Colour (in Hazen Units)	APHA 2120B	<5	<5
Turbidity (in NTU)	APHA 2130B	0.30	<5
pH Value	APHA 4500-H ⁺	7.7	7.0-9.0
Conductivity @ 25°C, µS/cm	APHA 2510B	141.8	80-550
Residual Chlorine (as mg/L total Cl ₂)	APHA 4500-Cl ₂ G	0.83	<2.0
Iron (as mg/L Fe)	APHA 3111B	<0.01	<0.04

2. BACTERIOLOGICAL EXAMINATION	Standard Method (22 nd Ed 2012)	Results	PUB Guideline
Standard Plate Count, CFU/mL (35°C, 48 h)	APHA 9215A,D	51	<500
E. coli Count, CFU/100mL (35°C, 24 h)	APHA 9222D, 9225	<1	<1

3. REMARKS
* Based solely on the above analytical criteria, the sample of water analyzed was found to comply with the PUB guideline values for both chemical and bacteriological tests.
The above analysis is based solely on the sample submitted by the customer.

Yours faithfully,

Mr. Lim Yew Seung
Manager

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CPU – colony forming units
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pdf

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* The results reported herein have been performed in accordance with the terms of accreditation under the Singapore Accreditation Council.

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LA 2000-0184

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International Union of Pure and Applied Chemists
Royal Australian Chemical Institute
Royal Society of Chemistry
Royal Society for the Protection of Health

(IUPAC)
(RACS)
(RSC)
(RSPH)

Before & After

Summary of Benefits to the Occupier

Carela Cleaning



Conventional Cleaning



One year later



- The whole tank is clean & disinfected without a doubt.
- Eliminate the need to soak the tank with 50ppm of chlorine.
- Saving a full tank of water (Eff. Vol)
- Avoid 2 rounds of drainage problems. (Many buildings has this problem)
- Water tanks are normalized earlier in proper sequent.
- Full report & notification.

Before & After

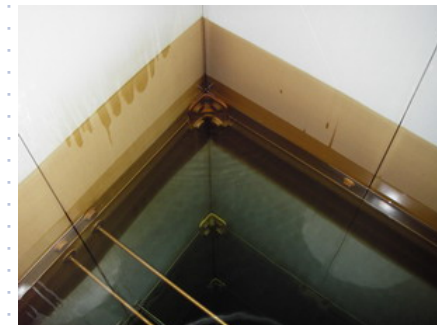
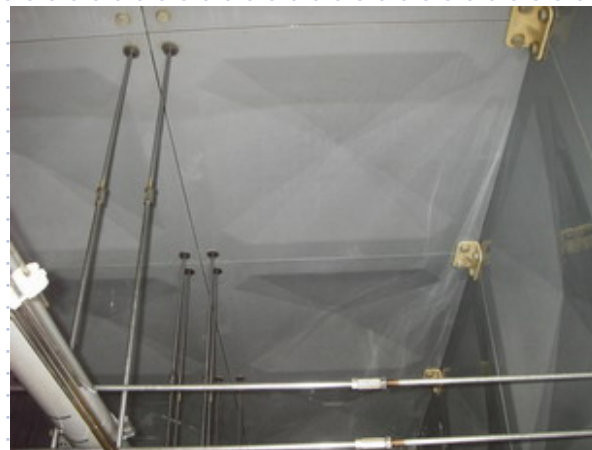
RC Tank with &
without tiles



Before & After

Stainless Steel Tank
Fiberglass Tank
RC Tanks

**LOOKS
LIKE NEW**



Need a site
evaluation

Or
Quotation

Thank You

Please Contact:



YPIWater Pte Ltd (Since 2003)

1092, Lower Delta Road
Unit 04-10, Singapore 169203

eMail: yan.cc@ypewater.com

Office: 6272 9812

Mobile 9459 4501