BIOSeptic

The Ultimate Sewage System

BIOSEPTIC S-TEN NR SINGLE TANK AWTS STS 2022

Service Manual

67 Smeaton Grange Road, Smeaton Grange, NSW 2567

Service 02 4629 6633

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THE BIOSEPTIC PROCESS

The BioSeptic AWTS is a compact sewage treatment plant that safely processes all household wastewater and recycles it as clear odourless water; to be disposed of in evapotranspiration beds (ETA beds), sub surface or surface irrigation.

For the environmentally responsible person this means that the waste is treated and disposed of on the property where it is produced rather than moving the waste problem to another location, such as a town sewage treatment plant.

The BioSeptic process begins when all household wastewater from the kitchen, toilets, bathroom and laundry passes into the primary (septic) tank. The solid waste settles in the primary chambers, where naturally occurring anaerobic bacteria slowly break it down.

The settled wastewater overflows by gravity into the aeration chambers where air is diffused into the two separate aeration chambers to create aerobic bacteria. These quick acting bacteria reduce the organic matter to carbon dioxide and water. Because aerobic bacteria breathe oxygen, there is little odour.

The two self-contained aeration chambers are in series to provide a positive surge control to slow down and ensure correct treatment of high wastewater flows from baths or washing machines.

After aeration the wastewater displaces to the clarifier where any remaining sediment settles out of the water to be recycled to the primary tank. A skimmer keeps the surface of the clarifier moving to prevent mosquitoes breeding.

In the final process the wastewater passes into the chlorine contact chamber/pump chamber, where a small amount of chlorine kills any remaining pathogens. The treated wastewater still retains some nutrients and these can now be safely used to irrigate the garden. Plants are nature's best method to take up the nutrients that must be prevented from flowing into streams and rivers. It is important to have plenty of trees and shrubs to use up the treated wastewater.

BioSeptic owners are able to enjoy a beautiful garden that is kept green and fertile throughout the year at no extra cost. They are able to enjoy the beneficial reuse of a valuable resource rather than having to deal with an unpleasant problem.

DISCLAIMER

The following Health and Safety section is to satisfy BioSeptic Pty Limited's statutory obligation to provide a safe working environment for its employees. The information contained herein is written in good faith and has been researched to the best of the company's ability. BioSeptic Pty Limited accepts no responsibility or liabilities for any injury or mishap should a non-employee use the information.

WORKPLACE HEALTH AND SAFETY

BioSeptic Pty Limited is committed to providing a safe and healthy working environment for all employees. This is achieved by complying with all Workplace Health and Safety obligations and cooperation from it's staff to ensure that they carry out their duties in a safe way that will not cause them or their fellow employees or other members of the public ill health or injury.

BioSeptic Pty Limited has an obligation to ensure the workplace health and safety of each of its employees at work.

Each employee of BioSeptic Pty Limited has the following workplace health and safety obligations whilst at a workplace:

- to comply with the instructions given for the workplace health and safety by the employer, or if the workplace is a construction site, by the principal contractor;
- to wear and correctly use all personal protective equipment and clothing provided by the employer;
- to not wilfully or recklessly interfere with or misuse any equipment provided for workplace health and safety;
- to not wilfully place at risk the health or safety of himself or any other person.

For the purpose of this document, "workplace" is defined as any place where work is, is to be, or is likely to be performed by an employee, self-employed person or employer.

Examples of a workplace

- a construction site; or
- a work vehicle supplied by BioSeptic Pty Limited for use in the performance of work; or
- a residential/commercial property during installation, commissioning or servicing, etc.

Please remember that it is of paramount importance that all employees work in a safe manner and that common sense prevail at all times. If you're not sure—ask. If you're not trained to do it—don't do it.

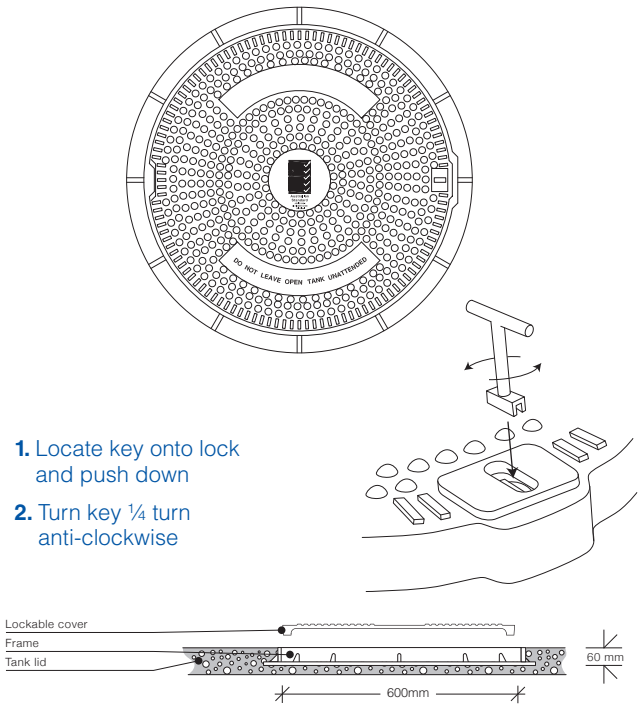
WORKPLACE HEALTH AND SAFETY

The staff and management of BioSeptic Pty Limited have compiled the following information with regard to likely health or safety issues an employee may encounter from time to time when servicing a BioSeptic Performa. It is designed to promote awareness of and provide relevant information concerning these issues, and to educate employees in the practice of safe working methods.

Lifting Concrete Access Lids

1. Always wear safety boots.
2. Make sure that the surrounding tank lid is clear of objects.
3. Use the correct lifters for the style of access cover.
4. Get a firm grip and position your body over the cover.
5. Bend your knees, not your back.
6. With your chin up and your back straight, lift with your legs.
7. Swing the cover onto the tank lid. Do this in two moves rather than one, repositioning your feet for the second move.

Removing Composite Resin Lids



Lifting chlorine drums

Always load drums into the vehicle either with the forklift or with two men.

Make sure that the drum is positioned and secured in the vehicle so that it cannot move if the vehicle has to brake suddenly.

Handling and transporting chlorine

Trichloroisocyanuric acid (Trichlor) is the correct name for the chlorine that has always been used in the BioSeptic system. It must never be mixed with Calcium Hypochlorite as the mixture could explode. However if a non-BioSeptic AWTS is ever serviced and there are chlorine tablets remaining, make sure of the type of chlorine before adding Trichlor.

All vehicles must carry a Material Safety Data Sheet (MSDS) and every technician must have read it and be familiar with the information.

1. When handling Trichlor safety glasses and PVC gloves must be worn.
2. Avoid inhaling chlorine vapour—open drums and containers by standing to the side or holding the container away from your body.
3. Never store chlorine other than in a properly marked and prescribed container.

First aid for chlorine if...

- SWALLOWED
  immediately rinse mouth with water. Give water to drink. Do NOT induce vomiting. If vomiting occurs, place victim's face downward, head lower than hips, to prevent vomit entering lungs. Seek immediate medical assistance.
- EYES
  immediately irrigate with copious quantities of water for at least 15 minutes with eyelids open. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Transport to hospital or medical centre.
- SKIN
  immediately wash contaminated skin with plenty of water. Remove contaminated clothing and wash before re-use. If swelling, redness, blistering or irritation occurs, seek medical advice.
- INHALED
  remove victim from exposure, but avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If breathing laboured and patient cyanotic (blue), ensure airway is clear and have qualified person give oxygen through a facemask. If breathing has stopped, apply artificial respiration at once. In the event of a cardiac arrest, apply external cardiac massage. Seek urgent medical attention.

1. IDENTIFICATION

Product Name	**Trichloroisocyanuric acid**
Other Names	ATCC 200 g Tablets
Uses	Water treatment and disinfectant; Used as biocide in swimming pools, industrial cycling water, drinking water; Mosquito repellent.
Chemical Family	No Data Available
Chemical Formula	C3Cl3N3O3
Chemical Name	1,3,5-Triazine-2,4,6(1H,3H,5H)-trione, 1,3,5-trichloro-
Product Description	Available Chlorine: >=88.5 %

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Schedule 6

Globally Harmonised System

Hazard Classification		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
Hazard Categories		Oxidising Solids - Category 2	
		Acute Toxicity (Oral) - Category 4	
		Acute Toxicity (Inhalation) - Category 4	
		Skin Corrosion/Irritation - Category 2	
		Serious Eye Damage/Irritation - Category 2A	
		Specific Target Organ Toxicity (Single Exposure) - Category 3	
		Acute Hazard To The Aquatic Environment - Category 1	
		Long-term Hazard To The Aquatic Environment - Category 1	
Pictograms			
Signal Word		Danger	
Hazard Statements		**H272**	May intensify fire; oxidizer.
		H302 + H332	Harmful if swallowed or if inhaled.
		H315	Causes skin irritation.
		H319	Causes serious eye irritation.
		H335	May cause respiratory irritation.
		H410	Very toxic to aquatic life with long lasting effects.
		AUH031	Contact with acids liberates toxic gas
Precautionary Statements	Prevention	**P210**	Keep away from heat.
		P221	Take any precaution to avoid mixing with combustibles/organic material.
		P280	Wear protective gloves/eye protection/face protection.
		P261	Avoid breathing dusts or mists.
		P273	Avoid release to the environment.
		P270	Do not eat, drink or smoke when using this product.
		P271	Use only outdoors or in a well-ventilated area.
	Response	**P370 + P378**	In case of fire: Use water for extinction.
		P312	Call a POISON CENTER or doctor/physician if you feel unwell.
		P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
		P337 + P313	If eye irritation persists: Get medical advice/attention.
		P391	Collect spillage.
		P330	Rinse mouth.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
		P332 + P313	If skin irritation occurs: Get medical advice/attention.
		P362	Take off contaminated clothing and wash before reuse.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	Storage	**P403 + P233**	Store in a well-ventilated place. Keep container tightly closed.
		P405	Store locked up.
	Disposal	**P501**	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Physical Hazards	**5.1.1B**	Oxidising substances that are liquids or solids: medium hazard
	Health Hazards	**6.1D**	Substances that are acutely toxic - Harmful
		6.3A	Substances that are irritating to the skin
		8.3A	Substances that are corrosive to ocular tissue
	Environmental Hazards	**9.1A**	Substances that are very ecotoxic in the aquatic environment
		9.2D	Substances that are slightly harmful in the soil environment
		9.3B	Substances that are ecotoxic to terrestrial vertebrates

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Trichloroisocyanuric acid	C3Cl3N3O3	87-90-1	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do NOT induce vomiting. Call a Poison Centre or doctor/physician for advice. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Protect unharmed eye. Remove contact lenses if present and easy to do. Continue rinsing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes. If eye irritation persists, get medical advice/attention or consult an eye specialist.
Skin	IF ON SKIN (or hair): Remove material from skin immediately. Flush skin and hair with running water for at least 15 minutes. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician for advice. Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim calm and warm - Obtain immediate medical care.
Advice to Doctor	Treat symptomatically. Ensure that attending medical personnel are aware of identity and nature of the product(s) involved, and take precautions to protect themselves.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area - Do not move cargo if cargo has been exposed to heat. Cool containers with water spray until well after fire is out; If impossible, withdraw from area and let fire burn. Avoid getting water inside containers. Dam fire control water for later disposal.
Flammability Conditions	OXIDISING SUBSTANCE: Will accelerate burning when involved in a fire.
Extinguishing Media	Use flooding quantities of water for extinction - Do not use dry chemicals, Carbon dioxide (CO2) or foam. For large fires: Flood fire area with water from a protected position.

Fire and Explosion Hazard	Risk of violent reaction or explosion: May explode from heating, shock, friction or contamination. May ignite combustibles. Containers may explode when heated. Runoff may create fire or explosion hazard.
Hazardous Products of Combustion	Fire may produce irritating, toxic and/or corrosive gases, including Nitrogen oxides (NOx), Hydrogen chloride (HCl), Chlorine.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways; Runoff may create fire or explosion hazard.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) and chemical splash suit. Structural firefighter's uniform will provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	1W

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not contaminate - Keep combustibles away from spilled material. Prevent exposure to heat. ELIMINATE all ignition sources. Avoid generating dust. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Sweep up (avoiding generation of dust) then immediately spread as a thin layer in an uncontaminated, dry open area, to avoid the possibility of hot spots forming. Gradually hose to drain ensuring large dilution. Do not store or transport swept up material. Do not return spilled material to original container. Avoid getting water inside containers, a violent reaction may occur. Where a spill has occurred in a confined space or an unventilated building, and the material is damp and evolving chlorine, the rate of chlorine evolution can be reduced by covering the thinly spread solid with soda ash. Due to high risk of contamination, recycling/recovery is not recommended (see SECTION 13).
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas.
Decontamination	Flush with large quantities of water.
Environmental Precautionary Measures	Spillages and uncontrolled runoff should be prevented from entering drains and watercourses.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground. Large spills: Immediately contact Emergency Services; Consider initial downwind evacuation of areas within at least 100 m.
Personal Precautionary Measures	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8). Large spills: Wear self-contained breathing apparatus (SCBA) and chemical splash suit.

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation - Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Minimise dust generation and accumulation. Avoid breathing dust/mist/vapours and contact with eyes, skin and clothing. Use personal protective equipment as required (see SECTION 8). Keep away from heat and sources of ignition - No smoking. Do not contaminate or mix with other chemicals. Take any precaution to avoid mixing with combustibles. When mixing with water, NEVER add water to product - ALWAYS add product to water and use clean, dry dispensing equipment. Avoid release to the environment; Collect spillage (see SECTION 6).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Maximum storage temperature: 25 °C. Keep container upright and tightly sealed. Keep away from heat and sources of ignition - No smoking. Protect from moisture/humidity (hygroscopic). Do not use wooden shelves. Keep/store away from combustibles and incompatible materials (see SECTION 10). Store locked up.
Container	Keep in the original container or suitable material, i.e. steel, stainless steel.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product.

	DECOMPOSITION PRODUCT: Chlorine (CAS No. 7782-50-5): - Safe Work Australia Exposure Standard: TWA = 1 ppm (3 mg/m3) Peak limitation. - New Zealand WES: TWA = 0.5 ppm (1.5 mg/m3); STEL = 1 ppm (2.9 mg/m3).
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation and for chlorine/dust inhalation protection. Recommended: BE-P (Inorganic vapour/Acid gas/Particulate) filter respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Tightly sealed goggles. - Hand protection: Wear protective gloves. Recommended: Nitrile rubber (Minimum break-through time: 480 min; Minimum thickness: 0.11 mm). - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Long-sleeves, plastic apron, boots if handling large quantities.
Special Hazards Precaustions	Thermal hazards: Wear suitable protective clothing to prevent heat.
Work Hygienic Practices	Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas. Wash contaminated clothing and shoes before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystalline (powder, granules, tablets)
Odour	Chlorine, pungent
Colour	White or green
pH	2.0 - 3.3 10 g/l (20 °C)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	0.1 g/l in water (decomposes slowly) - 12 g/l in water
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	~850 kg/m3
Corrosion Rate	No Data Available
Decomposition Temperature	225 - 230 °C
Density	2.07 g/cm3
Specific Heat	No Data Available
Molecular Weight	232.41 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available

Additional Characteristics	No information available.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	Risk of violent reaction or explosion: May explode from heating, shock, friction or contamination.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	Exothermic reaction with water.
Properties That May Initiate or Contribute to Fire Intensity	OXIDISING SUBSTANCE: Will accelerate burning when involved in a fire. May ignite combustibles.
Reactions That Release Gases or Vapours	Nitrogen trichloride is formed on contact with water or humidity. During heating or in case of fire, poisonous gases are produced, including nitrogen oxides (NOx), hydrogen chloride (HCl), chlorine.
Release of Invisible Flammable Vapours and Gases	Gives off hydrogen by reaction with metals.

10. STABILITY AND REACTIVITY

General Information	Highly reactive oxidising chlorine compound. May cause fire or explosion. Gives off hydrogen by reaction with metals. Exothermic reaction with water.
Chemical Stability	Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid	Keep away from heat. Do not contaminate. Protect from moisture/humidity.
Materials to Avoid	Incompatible/reactive with easily oxidisable material such as organic compounds, reducing agents, nitrogen containing compounds, sodium or calcium hypochlorite, other oxidisers, acids and alkalis.
Hazardous Decomposition Products	Nitrogen trichloride is formed on contact with water or humidity. During heating or in case of fire, poisonous gases are produced, including nitrogen oxides (NOx), hydrogen chloride (HCl), chlorine.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information

- Acute toxicity: Harmful if swallowed and if inhaled.
- Skin corrosion/irritation: Causes skin irritation. In contact with skin moisture, the chemical produces hypochlorous acid and, at high concentrations, the chemical will be a severe skin irritant [NICNAS].
- Eye damage/irritation: Causes serious eye irritation. The possibility of serious damage to eyes cannot be ruled out [NICNAS].
- Respiratory/skin sensitisation: Not classified. Not known to be a dermal sensitiser [NICNAS].
- Germ cell mutagenicity: Not classified. Not considered mutagenic [NICNAS].
- Carcinogenicity: Not classified.
- Reproductive toxicity: Not classified.
- STOT (single exposure): May cause respiratory irritation.
- STOT (repeated exposure): Not classified. Does not have high repeat dose toxicity via the oral route; Could be moderately toxic via inhalation, although the main symptoms are consistent with an irritant effect [NICNAS].
- Aspiration toxicity: Not classified.

Acute

Ingestion	Acute toxicity (Oral): - LD50, Rat: 490 mg/kg [Supplier's SDS].
Other	Acute toxicity (Dermal): - LD50, Rabbit: 7,600 mg/kg [Supplier's SDS].
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	No information available.

Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Very toxic to aquatic life with long lasting effects - Prevent entry into drains and waterways.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Due to the high risk of contamination, recycling/recovery is not recommended. Dispose of contents/container by controlled incineration and in accordance with local/regional/national regulations.
Special Precautions for Land Fill	Contaminated packaging: Emptied container might retain product residues - Follow all warnings even after the container is emptied.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
EPG	31 Oxidizing Substances
UN Number	2468
Hazchem	1W
Pack Group	II
Special Provision	No Data Available

Land Transport (Malaysia)
ADR Code

Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
EPG	31 Oxidizing Substances
UN Number	2468
Hazchem	1W
Pack Group	II
Special Provision	No Data Available

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
EPG	31 Oxidizing Substances
UN Number	2468
Hazchem	1W

Pack Group	II
Special Provision	No Data Available

Land Transport (United States of America)
US DOT

Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
ERG	140 Oxidizers
UN Number	2468
Hazchem	1W
Pack Group	II
Special Provision	No Data Available

Sea Transport
IMDG Code

Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
UN Number	2468
Hazchem	1W
Pack Group	II
Special Provision	No Data Available
EMS	F-A, S-Q
Marine Pollutant	Yes

Air Transport
IATA DGR

Proper Shipping Name	TRICHLOROISOCYANURIC ACID, DRY
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
UN Number	2468
Hazchem	1W
Pack Group	II
Special Provision	No Data Available

National Transport Commission (Australia)
Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General Information	CHLORINATING COMPOUNDS (containing >20 % available chlorine) are listed in Schedule 6 of the SUSMP.
Poisons Schedule (Aust)	Schedule 6

Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code	HSR001359

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	201-782-8
Europe (REACh)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	TRCHIS0100, TRCHIS0101, TRCHIS0110, TRCHIS0115, TRCHIS0200, TRCHIS0201, TRCHIS0205, TRCHIS0210, TRCHIS0215, TRCHIS0400, TRCHIS0500, TRCHIS0501, TRCHIS0502, TRCHIS0503, TRCHIS0504, TRCHIS0505, TRCHIS0506, TRCHIS0507, TRCHIS0508, TRCHIS0550, TRCHIS0600, TRCHIS0601, TRCHIS0710, TRCHIS0711, TRCHIS0715, TRCHIS0725, TRCHIS0800, TRCHIS0815, TRCHIS0900, TRCHIS0915, TRCHIS0925, TRCHIS0926, TRCHIS0927, TRCHIS1000, TRCHIS1001, TRCHIS1002, TRCHIS1003, TRCHIS1004, TRCHIS1005, TRCHIS1006, TRCHIS1007, TRCHIS1008, TRCHIS1009, TRCHIS1010, TRCHIS1011, TRCHIS1012, TRCHIS1013, TRCHIS1014, TRCHIS1015, TRCHIS1016, TRCHIS1017, TRCHIS1018, TRCHIS1019, TRCHIS1020, TRCHIS1021, TRCHIS1022, TRCHIS1023, TRCHIS1024, TRCHIS1025, TRCHIS1026, TRCHIS1027, TRCHIS1028, TRCHIS1029, TRCHIS1030, TRCHIS1031, TRCHIS1032, TRCHIS1033, TRCHIS1034, TRCHIS1060, TRCHIS1100, TRCHIS1200, TRCHIS1325, TRCHIS1500, TRCHIS1600, TRCHIS1700, TRCHIS1701, TRCHIS1800, TRCHIS1801, TRCHIS1802, TRCHIS1803, TRCHIS1804, TRCHIS1805, TRCHIS1806, TRCHIS1807, TRCHIS1808, TRCHIS1810, TRCHIS1900, TRCHIS2000, TRCHIS2001, TRCHIS2002, TRCHIS2100, TRCHIS2101, TRCHIS2102, TRCHIS2120, TRCHIS2500, TRCHIS2501, TRCHIS3000, TRCHIS4000, TRCHIS4800, TRCHIS4801, TRCHIS4802, TRCHIS5000, TRCHIS5400, TRCHIS5500, TRCHIS6000, TRCHIS6001, TRCHIS6002, TRCHIS6100, TRCHIS6400, TRCHIS6401, TRCHIS6500, TRCHIS6501, TRCHIS6502, TRCHIS6505, TRCHIS6600, TRCHIS6601, TRCHIS6700, TRCHIS6701, TRCHIS6800, TRCHIS6801, TRCHIS6802, TRCHIS6803, TRCHIS6900, TRCHIS6901, TRCHIS7000, TRCHIS7001, TRCHIS7002, TRCHIS7200, TRCHIS7201, TRCHIS7300, TRCHIS8000, TRCHIS8900, TRCHIS9000, TRCHIS9100, TRCHIS9101, TRCHIS9102, TRCHIS9103, TRCHIS9105, TRCHIS9106, TRCHIS9107, TRCHIS9108, TRCHIS9110, TRCHIS9118, TRCHIS9200, TRCHIS9201, TRCHIS9202, TRCHIS9203, TRCHIS9205, TRCHIS9210, TRCHIS9218, TRCHIS9300, TRCHIS9302, TRCHIS9305, TRCHIS9310, TRCHIS9318, TRCHIS9400, TRCHIS9500, TRCHIS9600
Revision	4
Revision Date	25 Aug 2017

Key/Legend

< Less Than
> Greater Than
AICS Australian Inventory of Chemical Substances
atm Atmosphere
CAS Chemical Abstracts Service (Registry Number)
cm² Square Centimetres
CO2 Carbon Dioxide
COD Chemical Oxygen Demand
deg C (°C) Degrees Celcius
EPA (New Zealand) Environmental Protection Authority of New Zealand
deg F (°F) Degrees Farenheit
g Grams
g/cm³ Grams per Cubic Centimetre
g/l Grams per Litre
HSNO Hazardous Substance and New Organism
IDLH Immediately Dangerous to Life and Health
immiscible Liquids are insoluable in each other.
inHg Inch of Mercury
inH2O Inch of Water
K Kelvin
kg Kilogram
kg/m³ Kilograms per Cubic Metre
lb Pound
LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.
ltr or **L** Litre
m³ Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m³ Milligrams per Cubic Metre
Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.
mm Millimetre
mmH2O Millimetres of Water
mPa.s Millipascals per Second
N/A Not Applicable
NIOSH National Institute for Occupational Safety and Health
NOHSC National Occupational Heath and Safety Commission
OECD Organisation for Economic Co-operation and Development
Oz Ounce
PEL Permissible Exposure Limit
Pa Pascal
ppb Parts per Billion
ppm Parts per Million
ppm/2h Parts per Million per 2 Hours
ppm/6h Parts per Million per 6 Hours
psi Pounds per Square Inch
R Rankine
RCP Reciprocal Calculation Procedure
STEL Short Term Exposure Limit
TLV Threshold Limit Value
tne Tonne
TWA Time Weighted Average
ug/24H Micrograms per 24 Hours
UN United Nations
wt Weight

WORKPLACE HEALTH AND SAFETY — GENERAL

Wastewater can be injurious to health

Some wastewater that flows into a BioSeptic system may contain disease-bearing pathogens that can be harmful, so care needs to be taken to prevent contamination.

Avoid contact by:

- wearing PVC gloves and safety glasses;
- avoiding being splashed on the face and ingesting the water;
- not transferring water to the mouth, nose or eyes by wiping the face with a wet hand;
- covering all cuts with a plaster or waterproof bandage;
- washing hands and face before smoking or eating;
- washing hands after using the toilet and at the end of the day before driving home;
- not getting clothes wet from irrigation sprays.

Working alone and without supervision

Extra care needs to be taken when working alone. The BioSeptic system has been inspected by Work Cover and deemed safe to be serviced by a service technician working alone. However, never attempt a job that is dangerous for one person—always arrange for assistance where it is needed.

You will never be asked to complete any task for which you have not been trained.

Using hand and power tools

Use all tools in the correct manner, do not use the wrong tool for the job.

When using percussion tools always wear:

- steel-capped boots;
- safety glasses;
- hearing protection;
- gloves.

Always concentrate on the job—do not allow yourself to be distracted. Stop work before looking away at a distraction.

When using power tools:

- always use a battery powered tool when possible;
- make sure that the extension lead has a current service tag;
- do not allow leads or tools to be exposed to water or rain;
- support electrical leads off the ground;
- do not use power tools in the rain.

Finally, if you are in doubt about any procedure, contact your supervisor.

WORKPLACE HEALTH AND SAFETY — GENERAL

Working outside

The company supplies a uniform plus protective clothing. It is the employee's responsibility to ensure that it is worn. According to the weather, the following should be worn:

- a hat to protect the head from the sun;
- sunscreen on exposed skin. It is recognised that long sleeve shirts are not practicable in this work so extra attention must be given to applying sunscreen to the forearms;
- a raincoat;
- sunglasses between sites.

General care

Always take care when entering a client's property for hazards such as garden implements lying in long grass, children, animals, etc. Remember it is their property and may not be expecting a visit to the back garden when they are away.

Most clients have given a signed statement that there is free and unimpeded access to the BioSeptic system. However, they may have recently bought a new dog and forgotten to inform the company. Particular care must be taken when commissioning new systems; until the Notice of Occupancy is returned we are unaware of any animals or other problems. Any dangerous animals and the necessary precautions are noted on the service history sheet.

Specific care

1. Always wait for at least a minute after removing the access cover, and allow the air to clear before looking directly into the tank.
2. Never lean too far into the tank. Always have your chest on the tank lid not inside the tank.
3. a) **Old style control boxes**
   The only replaceable components are the air switches. Do not interfere with the control box electrical connections unless you have an Electrical Connect and Disconnect Licence. The control box has been specifically designed so that all equipment is plugged in. Changing the control box is a job for suitably qualified personnel.

   b) **New style boxes fitted after March 2019**
   Unplug the power lead from the supply before opening the box.
4. Drive carefully and observe the road rules, and especially speed limits.

SERVICING — GENERAL

Conduct

Personal presentation – every service technician is expected to maintain a clean and tidy personal appearance throughout the day. BioSeptic Pty Limited will supply additional uniforms in accordance with their service life expectancy.

Before leaving to service a BioSeptic, ensure that you take all necessary tools and materials to avoid additional unnecessary trips.

Always go to the front door and knock and make sure that the householder knows that you are entering the property to service their BioSeptic. Greet the client by name and ask them if they have noticed anything about the BioSeptic since the last service that they want checked.

Make sure that all gates are closed behind you so that animals and children do not escape. Do not leave access covers off even to return to the vehicle for a minute as animals and children can climb over fences to have a look in your absence and fall into the tanks.

Leaving the site

- Replace access covers securely. Are covers safe or do they need replacing or repairing?
- Replace cover box lid.
- Pack up all tools and empty packaging and return to vehicle.
- Check that all items on the service sheet have been completed and either hand it to the owner or leave it in the mail box.
- If the householder is home take time to explain the service sheet to them. Compliment them on the way that they keep their LAP and tell them that their BioSeptic is working well, or coach them in ways to improve the performances based on the results and comments that you have written on the service sheet.

Remember the client is paying for the service and expects some feedback and likes to see value for their money. Also, a happy client may bring more business by recommending us to their friends.

SERVICING — PROGRAMME

The quarterly service shall cover these items:

- Air blower filter
- Blower operation
- Sludge and skimmer returns
- Irrigation pump
- Clarifier
- Potential Hydrogen test
- Free residual chlorine test
- Replenishment of chlorine tablets
- Low air alarm
- High water alarm
- Air diffusers
- Land application area

Annual service item

At the fourth and eighth service the sludge in the septic tank is measured. If the sludge and scum accumulation is at or higher than the transfer holes in the baffle then the householder is to be instructed to have the tank pumped out by an appropriate service.

QUARTERLY SERVICING

Quarterly service procedures

The Steps and Important Points sheets can be used as a check list.

Remove access covers and allow air to clear for at least a minute.

Check inside cover box for vermin. Beware of snakes and spiders. Spray with insect spray if infested.

Air Blower Filter

Remove blower filter and shake clean if only lightly soiled and dry. If it is heavily soiled replace with a clean one.

Alarm

Remove air alarm hose from nipple and go to alarm and check that light and buzzer are operating. Ask client to assist if they are home. The alarm location is recorded on the history sheet.

Remove high water alarm from nipple and replace with low air alarm tube, check that the high water alarm is working as above. If nobody is at home go to location of the alarm. If alarm cannot be observed, but it can be heard record that nobody was home and that it could not seen. Just because it can be heard does not mean that the lights are working.

Diffusers

Observe the operation of the four diffusers, they should all be bubbling equally. If not close the ball valves to the active ones to clear the inactive diffusers, readjust so that they are all bubbling equally.

Clarity readings

Take a sample from the pump chamber and place it in a 400mm clarity tube. After the bubbles have settled and in the best light observe the cross at the base of the tube. Release water from the tube until the cross can be seen. Record the height of the remaining water on the service sheet.

Record the reading on the service sheet.

Clarifier

If floating scum is present agitate it with a stick or piece of pipe, increase the skimmer flow rate and direct the scum to the skimmer orifice. After the scum has cleared reset the skimmer to 1.5mL/minute.

Use a sludge dipper to observe the quantity of sludge in the hopper. There will always be sludge there. Ideally it should be a light to dark brown colour, getting darker towards the bottom.

Sludge sampling is a matter of experience, as the sludge can vary according to the flow through the system. Therefore, giving definitive guidelines can be misleading. However, there should not be more than 100mm of really dark sludge at the bottom of the dipper. Ideally there should be 300-400mm of brown to lighter brown sludge, with the top layer floating and not dense.

Excessive amounts of sludge may indicate an incorrectly set sludge return. To remove the sludge, fully open the air valve and agitate the sludge in the hopper so that it is pumped back to the septic tank. When the sludge has cleared the water flowing into the septic inlet will run clearly. Reset the sludge return to 2litres/minute.

Sludge return

Remove the inlet inspection opening and place a suitable 500mL-collection vessel under the sludge return outlet. It should fill to overflowing in 15 seconds, although this can vary quite a lot according to whether or not there is flow through the system, so a variation of +/- 3 seconds is allowed. The ideal flow is 2 litres/minute.

The adjustment is made with the right side black air valve looking at the clarifier. If a particular system is hard to adjust, err on the high side as a slow return may stop before the next service.

Skimmer

Adjust in a similar way to the sludge return, using the black air valve on the left side looking at the clarifier. This return is easy to adjust, and a 500mL vessel should be filled in 20 seconds. The correct flow is 1.5litres/minute.

QUARTERLY SERVICING

Pump

Check the pump operation by lifting the float switch with a hook.

Land application area (LAA)

Locate the land application area and check as follows:

- All sprays operating?

  (If it is too far between the tank and the LAA to see the sprays operating after activating the pump, ask the householder to look at the sprays. If no one is available, check to see that water has been sprayed out. Record the number of operating sprays.)
- Is there surface ponding or run-off of treated water?
- Does the vegetation require maintenance?
- Is the LAA clear of impediments, such as parked cars, caravans, or boats?
- If there are two LAAs, are they being rotated and rested correctly?
- Is there evidence of stormwater infiltration onto the LAA?
- Is there any encroachment onto the buffer zone around the LAA?

Record under Comments any remedial action needed to be taken by the householder, such as a polite note for the householder to read the LAA section of their Owner's Guide.

Chlorine

Take care and wear gloves and glasses when handling chlorine, refer to the Health and Safety section for more information and first aid.

Remove the chlorine canisters from the chlorinator. Examine the bottom tablets to make sure that they are free and not held up inside the tube. Record the number of remaining tablets. Add tablets to a minimum of five in each canister, more for high flow systems. Replace canisters carefully in chlorinator and make sure that they are seated properly.

Decide on the quantity from the tablets added in previous services (this information is recorded on the history sheet). On the service sheet record the tablets added.

Chlorine test

Take a sample of water from the pump chamber after the pump has been activated. The correct place to sample for chlorine in the Performa is at the level of the pump shelf. This is the transfer point from the chlorine contact chamber and the pump chamber.

Place a DPD tablet (reagent) or the contents of a DPD sachet into a 100mL container and shake vigorously with the lid in place.

Pour the mixed liquid into a test vial and place it into a colorimeter. Place more of the sample, without the reagent, into another vial, this is known as the test blank.

Rotate the colour wheel until the colour matches in both windows. Read off and record the chlorine concentration. The reading is in milligrams per litre (mg/L). The reading must be between 0.2mg/L – 2.00mg.mL.

If the reading is outside of the range repeat the test with a new sample.

It is unlikely that the reading will be too high. However, if the reading is too low, it could be for the following reasons:

QUARTERLY SERVICING

FAULT	REMEDY
Low chlorine reading	No flow through the system? Try and service system at an earlier time of day at next service
No chlorine	Fill up chlorine canister
	Investigate why there was none
	Late service?
	Customer did not renew service agreement in time?
	Excessive use? Add more chlorine than usual. Speak to householder about water use?
Only one chlorine canister	Fit second canister in holder
Chlorine wicked up and not dropping	Loosen tablets carefully, make sure canister vents are clear
Canister not seated properly	Seat canister properly

pH test

Testing for pH is no longer required in the 2022 accredited system. This section has been retained as a record of how pH can be tested. Apart from adding lime there is nothing that can be done by the householder to change the pH level.

It only needs to be done if the system does not appear to be functioning correctly. A low or high pH can inhibit the action of the chlorine. If it is outside of the desired range it is most likely to be too low.

If it is below 6.8 instruct the client to add a cup of agricultural lime down the lavatory once a week to raise the pH. Use only agricultural lime (calcium oxide) not hydrated lime (calcium hydroxide). Agricultural lime has an ultimate pH of 8.0, so it is less likely to overdose the system.

Take a sample of water from the pump chamber after the pump has been activated.

Place a DPD tablet (reagent) or the contents of a DPD sachet into a 100mL container and shake vigorously with the lid in place.

Pour the mixed liquid into a test vial and place it into a colorimeter. Place more of the sample, without the reagent, into another vial, this is the test blank.

Rotate the colour wheel until the colour matches in both windows. Read off and record the pH reading. The ideal range is 7.0-7.4.

If the reading is outside of the range repeat the test with a new sample.

Using the sludge dipper or sludge judge

Lower the dipper through both the inlet and outlet inspection holes to the bottom of the septic tank. Jiggle the string to locate the ball onto the bottom of the tube, pull the tube out of the tank by the string. Firmly hold the string and tube together to keep the ball in place so that the liquid does not escape. Measure off the level of sludge on the graduations on the tube. Record the results on the service sheet.

SERVICING

Steps and important points

Remove manhole covers

- Clean air blower filter
- inspect sludge return
- test irrigation pump
- inspect sediment chamber
- top-up chlorine tablets
- test low air pressure alarm
- test water pH
- Inspect diffusers
- inspect skimmer
- check operation of irrigation sprays
- test free residual chlorine
- check blower operation
- test high level water alarm

Accurately complete the service sheet

Re-fit manhole covers

Annually observe sludge accumulation in septic tank

SERVICING

STEPS	IMPORTANT NOTES
Remove Manhole Covers	septic tank, treatment tank, watch your back
Remove blower cover	remove dust filter, check condition, clean with soap and water
	rinse thoroughly, renew filter as necessary, re-fit dust filter
Inspect diffusers	they must be working evenly, adjust as necessary
Inspect sludge return	rotate ball valves as necessary, adjust to 2 litres/minute
Inspect skimmer	adjust height of inlet as necessary
	water to be halfway up cut face, adjust to 1.5 litres/minute
Inspect pump	pump operational, float switch has clear arc of swing
Inspect sediment chamber	inspect for growth or scum—if present, agitate with stick and increase skimmer for a minimum of 2 minutes to remove scum. Reset skimmer to 1.5 litres/minute when growth or scum has cleared.
Sample chlorine chamber water	follow instructions in manual
	test for chlorine levels
	NB Test should be conducted less than 6 hours prior to last flow
	top up chlorine tablets to a minimum of 5, based on history of use
Safety	wear gloves and eye protection
Test air pump alarm	remove blower tube from control box
	alarm should activate
Check clarity	fill a 400mm clarity tube with water from the pump chamber, wait for bubbles to settle, observe in the best light the cross in the bottom of the tube
	release water until the cross is clearly visible, record the measurement on the side of the tube, record results on Service Sheet
Test high water alarm	place blower alarm tube on high water nipple to activate alarm
	return tube to blower alarm nipple
Inspect septic tank	

LOCAL COUNCIL SERVICE REPORT

NSW GOVERNMENT Health

BIOSeptic The Ultimate Sewage System

Local Council STS (DGTS) Service Report: (Version 5: August 2017)

Owner's Name:	Local Council:	
Installation Address:		
System Brand & Model:	☐ Domestic	☐ Commercial
Date of this service: / /	Date of last Service: / /	Next service due: / /

Has the STS/DGTS been **serviced** in accordance with the manufacturer's / supplier's requirements and using the service sheet? ☐ Yes ☐ No
If "No" why?

STS/DGTS **functioning** correctly? ☐ Yes ☐ No
If "No" why?

According to sludge-judge or other methodology is de-sludging needed? ☐ Yes ☐ No
If "Yes" what action is recommended?

Offensive odours? ☐ Yes ☐ No If "Yes" what action is recommended?

Alarms tested and functional? ☐ Yes ☐ No If not "functional" what action is recommended?

Final Effluent Quality

Tested?	☐ Yes	☐ No
Disinfected?	☐ Yes	☐ No
Chlorine tablets remaining?	☐ Yes	☐ No
Quality?	☐ Satisfactory	☐ Unsatisfactory

On what evidence is this judgment made? If "Unsatisfactory" what action was recommended?

Land Application Area

Surface ponding?	☐ Yes	☐ No
Run off?	☐ Yes	☐ No
Excess plant growth?	☐ Yes	☐ No
Effluent leaving premises?	☐ Yes	☐ No
High risk areas contaminated?*	☐ Yes	☐ No
Operating satisfactorily?	☐ Yes	☐ No

* Patio, play areas, BBQ, etc

Overall Condition of STS? ☐ Excellent ☐Good ☐ Fair ☐ Poor
Comments / Action Recommended / Repairs Needed / Repairs Performed:

Has the owner / occupier taken recommended actions? ☐ Yes ☐ No

Service Agent:	Contact Details:
Signature:	Date:

Source: Adapted from "Checklist 4.2: Operational AWTS inspection report for use by service providers and Council inspectors" in Designing and Installing On-Site Wastewater Systems, Sydney Catchment Authority, May 2012

BIOSeptic
The Ultimate Sewage System

SERVICE SHEET

Technician's initials: .....

Service date: .....

Chlorine mg/ltr ☐ Tablets Remaining ☐ Tablets Added ☐

Clarity ☐ mm Total ☐

	working	*not working*	
Irrigation Pump	☐	☐	.....
Air Blower	☐	☐	.....
	cleaned	*changed*	
Filter	☐	☐	

Alarms Operating	**Visual**			**Audio**		
	yes	*no*	*unable to check*	*yes*	*no*	
Pump alarm	☐	☐	☐	☐	☐	.....
Blower alarm	☐	☐	☐	☐	☐	.....

Sludge Build-up	*satisfactory*	*unsatisfactory*	
in Septic Tank	☐	☐	.....
in Aeration Tank	☐	☐	.....
in Sediment Tank	☐	☐	.....
	checked	*adjusted*	
Sludge Return System	☐	☐	.....
Skimmer	☐	☐	.....

Irrigation Area ☐ Area satisfactory ☐ Area requires attention

☐ No. of sprays .....

Blower make ..... Model ..... Serial No. .....

Operation ☐ fair ☐ OK ☐ good Odour: ☐ nil ☐ slight ☐ strong

.....

.....

Client copy ☐ left ☐ posted Posted to Council / /

Owner's Comments .....

.....

DECLARATION

I have read and understood the Workplace Health and Safety section of this manual and I have received instruction in safe working and protecting my health as well as the health and safety of those working with and around me.

Name: .....

Signed: ..... Date: .....

Supervisor's Name: .....

Signed: ..... Date: .....