



Certificate of Accreditation

On-Site Waste Water Management System

This Certificate of Accreditation is hereby issued by the Minister for Building and Construction pursuant to Section 59(2) of the *Building Act 2000* and the Plumbing Code of Australia as applicable.

System: **KRYSTEL KLEER WASTEWATER TREATMENT PLANT
MODEL POLY ADV 5000 ADVANCED SECONDARY SYSTEM**

**Manufacturer
or Supplier:** **KRYSTEL KLEER PTY LTD -**

Of: **91 LAMPTON AVENUE, DERWENT PARK TAS 7009**

This is to certify that the Krystel Kleer as described in Schedule 1, has been accredited for use as an on-site waste water management system in single dwellings (within plumbing installations in Tasmania). This accreditation is subject to the conditions and permitted uses specified in Schedule 2, and the Plumbing Code of Australia as applicable.

Dale Webster
Director of Building Control
Delegate of the Minister for Building and Construction

Date of Issue: 23 June 2015

Certificate Number: FOL/15/4057

This Certificate of Accreditation is valid until 23 June 2020 subject to conditions unless withdrawn earlier by the Director

Schedule I - System Description

(Informative)

The Krystel Klear Advanced secondary wastewater treatment system for all blackwater and greywater.

The Krystel Klear model Poly ADV5000 AWTS is designed to treat the wastewaters from a residential dwelling occupied by a maximum of 10 persons. The Krystel Klear model Poly ADV5000 system is contained in a single vertical axis type cylindrical rotationally moulded polyethylene collection well with a design capacity of 5430 litres and manufactured by Quality Tanks (QLD) Pty Ltd. The treatment tank of the Krystel Klear model Poly ADV5000 system contains the following components:

Primary sedimentation chambers 1 and 2 – The total volume of the 2 chambers is 2400 litres. Chamber 2 contains a rectangular block of filter media measuring 550 mm long x 550 mm wide x 1200 mm high with an effective surface area of 34 m². The chambers are designed to physically separate foreign material such as fat, grease or scum and solids from the incoming wastewater.

Contact aeration chamber – Effective volume of the chamber is 1370 litres. The chamber contains a rectangular shaped block of filter media measuring 1650 mm long x 550 mm wide x 1120 mm high with a surface area of 78 m². Micro-organisms grown on the surface of the filter media assist the biological aerobic treatment process and capture the suspended solids. Aeration is continuous over the whole of the media through air diffusers located at the bottom of the chamber.

Sedimentation/clarification chamber – Effective volume of the chamber is 940 litres. Solids captured on the bottom of the chamber are returned to the inlet of the first primary chamber at regular intervals.

Disinfection chamber/Pump out chamber – Effective volume of the chamber is 720 litres. The treated effluent is stored in the chamber after making contact with the solid chlorine tablets stored in the polyethylene canister. Contact with the chlorine tablets can be controlled by adjusting the cylinder's opening area. The chamber contains a submersible irrigation pump such as a Davey 16 metre head pump or equivalent to direct treated effluent to the land application system. The irrigation pump is located on a platform 33 mm above the floor of the chamber to allow for a minimum of 30 minute chlorine contact time. Air is supplied to the contact aeration chamber by a Thomas model LP-80H air blower with an output of 80 litres/ minute or equivalent.

Schedule 2 - Conditions of Accreditation (Normative)

Definitions

Where included in this Certificate of Accreditation or Schedules:

AS/NZS 1547 means Australian Standard AS/NZS 1547:2012 On-site domestic- wastewater management;

AS/NZS 1546.3 means Australian Standard AS/NZS 1546.3:2008 On-site domestic wastewater treatment units Part 3: Aerated wastewater treatment systems.

AS/NZS 3000 means Australian Standard AS/NZS 3000:2007 Electrical installations.

AS/NZS 5667 means Australian Standard AS/NZS 5667.1:1998 Water quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and preservation and handling of samples.

BOD₅ means 5-day Biochemical Oxygen Demand.

Council means the Municipal Council having jurisdiction.

Commissioned means when the test results from a NATA Certified Laboratory show that the water quality requirements for the *system* have been met and all pre- commissioning tests have been carried out in accordance with AS/NZS 1547 on all associated equipment including the land application system or as required by the conditions of *permit*.

Designer means a person who is accredited under the *Building Act 2000* and who has a specialty in the area of designing on-site waste water management system installations.

Director means the Director of Building Control.

DO means dissolved oxygen

EC means electrical conductivity.

E. coli means *Escherichia coli* of the family Enterobacteriaceae which is a bacterium used in public health as an indicator of faecal pollution.

ELG means Emission Limit Guidelines for Sewage Treatment Plants that Discharge Pollutants in Fresh and Marine Waters: 2001

EP means Equivalent Population or Equivalent Persons.

FAC means free available chlorine.

g/m³ means grams per cubic metre, which is equivalent to milligrams per litre (mg/L).

Informative defines the application of Schedule 1, which is for information and guidance only.

NATA means National Association of Testing Authorities.

Normative defines the application of Schedule 2, which is an integral part of the Certificate of Accreditation (CoA).

PCA means Volume Three of the National Construction Code series (Plumbing Code of Australia).

Permit means a Permit issued by the council Permit Authority pursuant to section 82 of the *Building Act 2000*.

Permit Authority means a person or body authorised for that purpose by the council of the municipal area in which the on-site waste water management system is installed.

pH means potential/power of Hydrogen (e.g. how acidic or alkaline the wastewater is).

Plumber means a person who holds an appropriate class of licence under the *Occupational Licensing Act 2005* as a Plumber Practitioner (Certifier).

Supplier means the party that is responsible for ensuring that products meet and, if applicable, continue to meet, the requirements on which the certification is based. The supplier for the Krystal Kleer Pty Ltd, 91 Lampton Avenue Derwent Park Tas 7009.

System means Krystal Kleer wastewater treatment plant model poly ADV 5000 Advanced secondary System.

TN means Total Nitrogen.

TP means Total Phosphorus.

TSS means Total Suspended Solids.

General

For each installation the owner/occupier of a premise shall make an application to the Local Authority to install a Krystal Kleer model Poly ADV5000 AWTS as a waste water treatment system.

The Krystal Kleer model Poly ADV5000 AWTS shall be supplied, and installed in accordance with the certificate of accreditation by the Director of Building Control.

Any modification or variations to the accredited design of the Krystal Kleer model Poly ADV500 AWTS shall be submitted for separate consideration and variation of the Certificate of Accreditation by the Director of Building Control.

Each Krystal Kleer model Poly ADV5000 AWTS shall be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached to the lid with the following information:

- brand name of the system,
- manufacturer's name or registered trademark and
- month and year of manufacture.

The manufacturer shall supply with each Krystal Kleer model Poly ADV5000 AWTS an owner's manual, which sets out the care, operation, and maintenance and on-going management requirements of the system.

The manufacturer shall provide the following information to each local authority where it is intended to install an AWTS in their area once Departmental accreditation has been obtained: Statement of warranty, Statement of service life, Quality Assurance Certification, Installation manual, Service manual, Owner's manual, Service Report Form, Engineering Drawings on A3 format, Detailed Specifications, A4 Plans and Accreditation documentation from the Department of Justice.

Installation and Commissioning

The Council shall require that on completion of the installation of the Krystal Kleer model Poly ADV5000 AWTS, the system is inspected and checked by the manufacturer or the manufacturer's agent. The manufacturer or the agent is to certify that the system has been installed and commissioned in accordance with its design, conditions of accreditation and any additional requirements of the Council.

All electrical work must be carried out by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.

Maintenance

The Council shall require the owner/ occupier of premises to enter into an annual service contract with the supplier of the system, or plumbing contractor.

The Krystel Klear model Poly ADV5000 AWTS shall be serviced at three monthly intervals in accordance with the details set out in the owner's and service manual and in accordance with this accreditation.

Each three monthly service shall include a check on all mechanical, electrical and functioning parts of the system including: Pump and air blower, The control panel and alarm system, Slime growth on the filter media, Operation of the sludge return system, Sludge build up in the Sedimentation Chamber, Chlorine disinfection unit, The effluent irrigation area and On-site testing for three residual chlorine and dissolved oxygen.

The Council shall require that a service report sheet, in triplicate, is completed for each service. The original shall be given to the owner, the duplicate forwarded to the Council and the triplicate retained by the service contractor.

On-going management

The owner's manual prepared by the manufacturer shall contain a plan for the on-going management of the Krystel Klear model ADV5000 AWTS. The plan shall include details of: the treatment processes, procedures to be followed in the event of a system failure, emergency contact numbers, maintenance requirements, inspection and sampling procedures to be followed as part of the on-going monitoring program developed by the local authority.

At each anniversary of the accreditation date the manufacturer shall submit to the Director of Building Control a list of all Krystel Klear model Poly ADV5000 AWTS installed in TAS during the previous twelve months. The Director of Building Control may randomly select up to 10% of the installed Krystel Klear model Poly ADV5000 AWTS from each year of installation.

The manufacturer, at its own cost, shall arrange for the selected Krystel Klear model Poly ADV5000 AWTS to be inspected and sampled. Sampling is to be organised by an independent JAS/ANZ accredited agency. Samples for BOD5, SS and Thermo tolerant coliforms are to be determined by a NATA registered laboratory, and samples for disinfectant concentration, if applicable, are to be determined on site.

The results are to be provided to the Director of Building Control by: address of premises, date inspected and sampled, sample identification number, BOD5, SS, Thermo tolerant coliforms, disinfectant concentration and service history (if available).

Effluent from the Krystel Klear model Poly ADV5000 AWTS taken in any random grab sample shall comply with the following standard: BOD5 – Less than 30 mg/L, SS

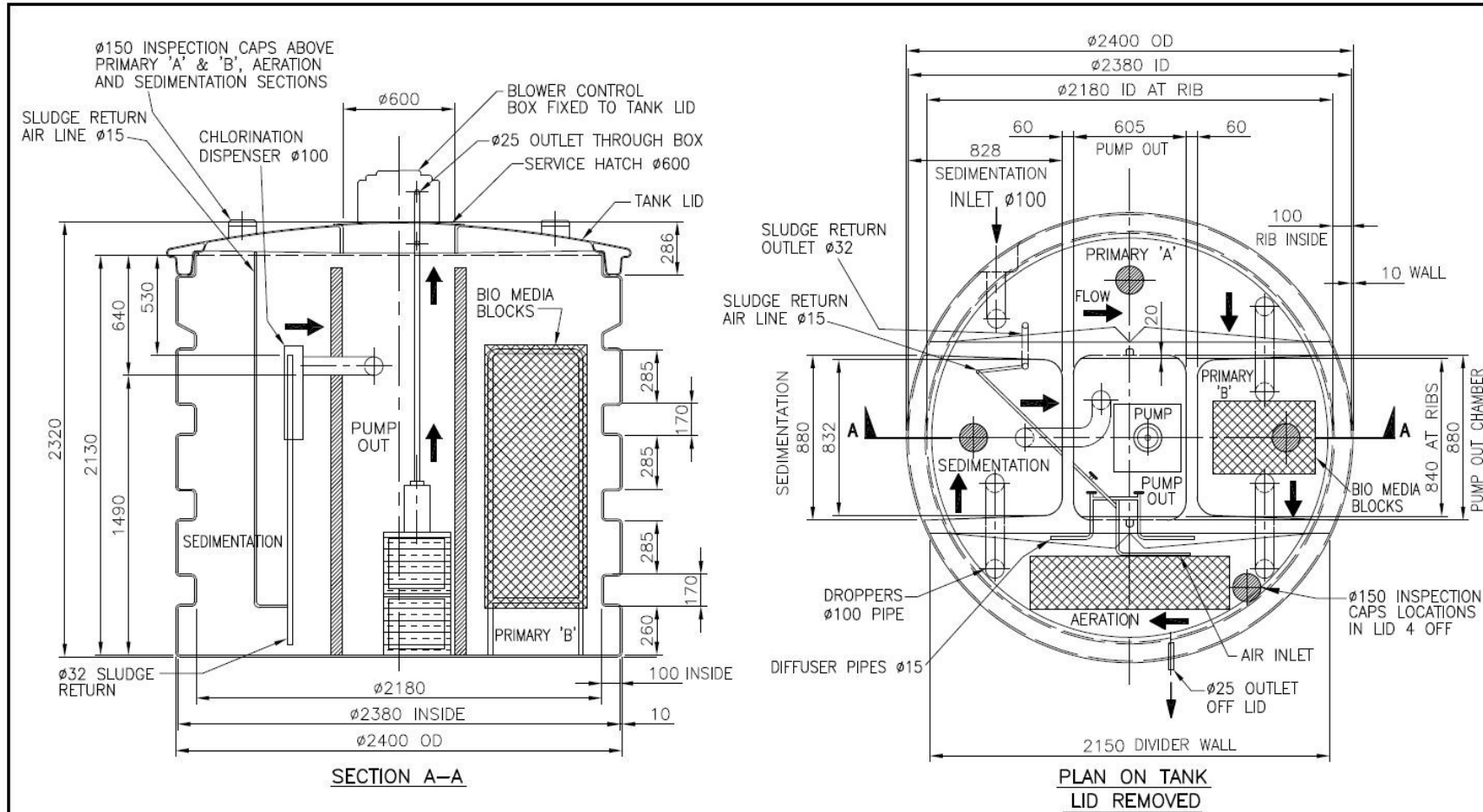
- Less than 45 mg/L, Thermo tolerant coliforms – Less than 100 cfu/100 ml and free residual chlorine
- Greater than 0.2 and less than 2.0 mg/L, where chlorination is the disinfection process.

Permitted uses

The effluent is suitable for re-use for garden purposes by way of any of the forms of irrigation as described in AS/NZS 1547:2000. Above ground spray irrigation, surface drip irrigation covered by mulch or sub-surface drip irrigation installed at around 100 mm depth. Each of the three forms of irrigation is subject to the approval of the Council.

Krystel Kleer Specifications

FOL/15/4057



TOTAL CAPACITY OF TANK : 8640 LITRES

CAPACITY OF CHAMBERS AT WORKING LEVELS :-

1. PRIMARY 'A' : 1440 LITRES
2. PRIMARY 'B' : 961 LITRES
3. AERATION : 1371 LITRES
4. SEDIMENTATION : 940 LITRES
5. PUMP OUT : 720 LITRES

TOTAL CAPACITY OF CHAMBERS AT WORKING LEVEL : 5432 LITRES

ISSUED : 6 MARCH 2012

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KRYPEL KLEER ADV 5000
POLY TREATMENT PLANT