Tricel® Novo UK6-50

Wastewater Treatment Plants

HOMEOWNER PACK

1301119/0-OCT2022

Contents

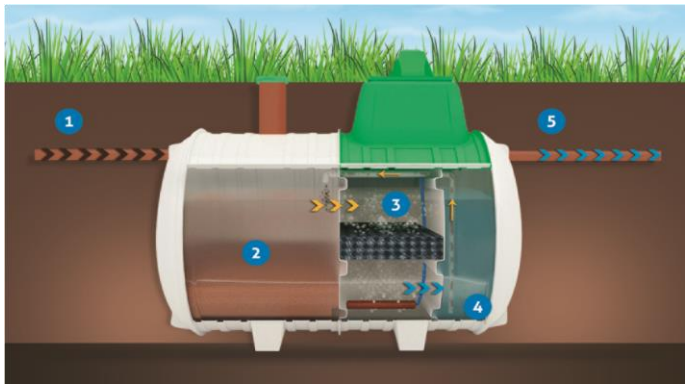
Important
This document must be used in conjunction with Tricel Novo Wastewater Treatment Manual. This document must be used in conjunction with British Water's 'Flows and Loads' when sizing wastewater treatment plants.

1 Introduction: Tricel Novo

Tricel Novo wastewater treatment plants are manufactured from Sheet Moulding Compound (SMC) ensuring a durable and strong product. SMC is a fiberglass-based compression moulded material used in applications that require high strength and durability. Lightweight and compact design facilitate ease of installation for domestic and light commercial applications up to 50 PE.

The Tricel Nov gets manufactured in modular components; the individual modules are fabricated together to make various sized tanks.

1.1 Treatment stages



1. Wastewater from the dwelling, toilets, sinks, shower and further domestic sources enter the plant.

2. The effluent enters the primary settlement chamber. Settlement occurs when the heavier solids drop out of the wastewater and settle to the bottom of the tank to create sludge, and the lighter solids float to the top of the water to create a scum. The top layer acts as a seal and stops odours escaping. This chamber separates up to 70% of the solids present.

3. Next is the aeration chamber, where masses of naturally occurring bacteria inhabit specially designed plastic filter media. The bacteria feed on the waste removing it from the liquid. A continuous supply of air from the low pressure, high volume compressor in the top section of the unit sustains these bacteria. Wastewater passes through the filter media repeatedly, ensuring a very high treatment efficiency.

4. The wastewater then proceeds to the final settlement chamber. Any remaining minute bacterial particles separate from the wastewater within this chamber before discharge from the plant. This process slows the liquid's velocity, allowing for any final trace impurities to settle to the bottom of the tank. A sludge return system then returns these impurities to the primary settlement chamber.

5. The remaining treated wastewater now meets the required standard and is safely passed out of the Tricel Novo plant. The treated effluent is now ready for discharge to a suitably designed discharge area as required by the relevant local authority.

2 Maintenance

Maintenance should be carried out by a professional maintenance operative.

Contact Tricel on 01934 422311 or environment@tricel.co.uk

Warning
Any maintenance carried out inside the tank represents a confined space. Therefore, the maintenance person must be suitably trained to work in confined spaces. Sewage and sewage effluent can carry micro-organisms and gases harmful to human health. Any person carrying out maintenance of the plant must be trained approprately. Wear suitable protection equipment including gloves, goggles, etc. at all times. Always remove contaminated clothing and protective equipment after completion of work. Wash hands and face before eating, drinking or smoking. Please refer to section 1 'Health & Safety Precautions.'

A certain amount of plant maintenance is required on an on-going basis to ensure that the plant is working correctly, and this is the responsibility of the homeowner.

2.1 Regular maintenance

- The vent around the base of the blower housing guarantees a fresh supply of air to the air blower. All vents should be checked to make sure they are not blocked or obscured.
- The vent under the de-sludging cover allows gas to escape and stops the tank from becoming pressurized.
- Ensure the air blower is working by listening for a gentle hum when standing beside the plant.
- The inlet and outlet should be inspected and rodded to remove any blockages if necessary.

2.2 Annual maintenance

- The Tricel Novo will require a full service (available from your supplier) every year to guarantee the maintenance of the efficiency of the plant. You must accommodate service personell with clear access to the tank.

2.3 Annual service

Maintenance should be carried out by a professional maintenance operative.

Contact Tricel on 01934 422311 or environment@tricel.co.uk

During routine servicing, the service technician will perform a series of checks and procedures:

Checks:

- The air-diffuser is monitored to check for sufficient dispersion of air.
- The sludge return system is functioning correctly.
- The covers and locks are in place and good condition.
- General appearance and condition of the treatment plant are good.

Procedures:

- The blower is tested.
- The blower filter is replaced.
- The plant alarm is tested.
- The pump and float-switch are tested (If applicable).
- The vents are cleared of any blockages.
- The sludge level in the primary chamber is measured.
- The diffuser manifold is adjusted if required (If applicable).

2.4 Production of sludge

Important
• The de-sludging of the Tricel Novo is the responsibility of the homeowner. • There is the potential danger of falling into the tank during de-sludging when manholes may be open – take all necessary safety precautions when de-sludging. • Do not allow machinery/traffic drive over the plant. Maintain a distance of at least 4 metres away from the covers on the Tricel Novo. • The access cover should never be left off an unattended Tricel Novo.

When the sludge is occupying 50% of the volume of the primary chamber, de-sludging is required, this is necessery when the sludge is 700mm deep. De-sludging periods, will depend on the occupancy of the dwelling, please refer to the table in section 3.1 'Dimensions.' Carry out de-sludging with a vacuum tanker (Tricel recommend the use of a licensed company).

2.5 De-sludging (emptying the solid waste from the primary chamber)

- Remove the de-sludging access cover(s).
- Empty the Tricel Novo using a vacuum tanker. Ensure the removal of the solids with the liquid.
- Care must be taken not to damage the Tricel Novo with the hose of the vacuum tanker.
- After emptying (de-sludging) the primary sludge chamber of any Tricel wastewater treatment tank, the primary chamber should be re-filled with water, until the water level flows into the aeration chamber (second chamber).
- Replace the de-sludging access cover securely.

3 Operating conditions

Warning
Tricel shall not be liable for any damage or loss, including consequential loss, caused by the failure of any plumbing equipment or failure caused by the inclusionof prohibited material in the plant.

The manufacturer's installation, operation and maintenance instructions outlined in this manual must be followed at all times to ensure the plant operates as designed. Any variations to these conditions could result in the unit not performing to its full potential, and the discharge may not meet the required standards.The property owner has a legal responsibility to ensure that the plant does not cause pollution, a health hazard or nuisance

- De-sludging is a critical part of the successful operation of the Tricel Novo and is the responsibility of the customer.
- Only competent, approved personnel should carry out de-sludging.
- De- sludging must be carried when required as specified, and the plant should by regularly inspected to check the depth of sludge in the primary chamber. If de-sludging is required, carry it out as soon as possible.
- It is necessary to maintain an electrical connection to the plant for it to function correctly, this ensures that the plant has a continuous air supply and where necessary the discharge pump will operate.
- The Tricel Novo is one part of the overall wastewater treatment system, which includes many components (plumbing, ventilation, plant. Each component has to function correctly for the overall system to work which is the responsibility of the homeowner.
- If the plant installation is carried out incorrectly, flooding, overloading, electrical shock or floatation might occur. Tricel is not responsible for incorrectly installed plants.
- Soakaways, drains and the emptying of the primary chamber remains the responsibility of the client. The manufacturer does not cover damage to the installation due to the influx of surface water or the backing up of soak ways or drains.
- To ensure the continuance of the Tricel Novo's performance the user has to take certain precautions including the following:
    - Do not exceed the design loading of the plant.
    - High volume discharges such as those from swimming pools and Jacuzzi's must never enter the plant.
    - Surface water must not enter the plant.
    - Do not allow large quantities of chemicals to enter the plant including but not limited to:
        - Water softener
        - Disinfectants
        - Strong acids and alkalis, or photographic chemicals
        - Oil or grease
        - Petrol or diesel
        - Pesticides
    - Do not allow any of the following to enter the Tricel Novo:
        - Large quantities of milk, alcohol or food
        - Large quantities of bleaches or cleaners
        - Baby wipes, cosmetic and cleaning wipes
        - Sanitary towels

- Tampons
- Kitchen paper
- Nappies
- Medication

- Service personel must be accomodated with clear access to the plant.
- If others size the plant, Tricel will supply to these specifications. In this case, the responsibility lies with others in relation to the maximum flow/litres per day, the plant capacity and retention times. Similarly, if Tricel size the plant and a greater load is then placed on the plant by the addition of extra houses, bedrooms, schools, crèches, etc. or by other means, Tricel is not responsible for the plant overloading or the quality of effluent as the retention times may be compromised.
- Should the plant be used intermittently or if extended periods of non-use are expected, it is recommended that the plant remains on and in operation. The contents of the plant should not be allowed to turn septic due to non-use.
- The tank is not suitable for vehicular traffic. Tricel also recommends fencing off the area to prevent livestock herds from accessing the plant.Where possible, unnecessary human traffic around the plant should be avoided.
- The Tricel Novo is only suitable for human faeces. No animal faeces must enter the plant.

4 Troubleshooting

Properly installed, operated, and maintained plants will give many years of trouble-free service. All plants are fitted with an alarm, which will alert to irregularities in the plant. If a blower or pump stops working a buzzer will sound to indicate there is a problem with the plant. The buzzer can be muted until the problem is fixed. Once fixed, the alarm will reset automatically, and the mute switch must be turned off. All electrical work shall be carried out by a certified electrician.

4.1 Plant operation

Symptom	Possible causes	Solution
Blower/Pump will not start or run	Fuse blew (if applicable).	Replace with a fuse of suitable size.
	Tripped breaker.	Reset breaker.
	Low line voltage and wet electrics.	An electrician should check the power supply to the plant.
	Defective blower/pump.	Blower/pump must be checked by a qualified person.
	Thermal overload protection triggered by high ambient temperature.	Allow the blower time to cool. The blower will automatically restart when cooled sufficiently.
Blower operates but delivers no air	Low line voltage or wired incorrectly.	An electrician should check the power supply to the plant.
	Filter blocked.	Replace filter.
	Diaphragm damaged/torn (If applicable).	Replace damaged diaphragm.
	Defective blower malfunction.	Air blower must be checked by a qualified person.
Plant fills above working water level	Subsurface disposal plant clogged.	Contact installer to repair sub surface disposal plant/ percolation area.

	Storm water flooding.	Redirect storm water drains. Storm water must never enter the plant.
	Discharge hose/pipe blocked.	Find blockage and remove or replace damaged hose/pipe.
Pump operates but delivers no water	Low line voltage or wired incorrectly.	An electrician should check the power supply to the plant.
	Something caught in impellers.	Clean out impellers or replace the pump. Ensure pump is disconnected from the mains before you attempt to unclog it.
	Delivery hose blocked.	Find blockage and remove or replace the damaged hose.
	Other.	The pump must be checked by a qualified person.
Blowers runs intermittently	Thermal overload tripped.	Protect installation from the sun.
		Air supply vent blocked, clean if necessary.
		Filter blocked, replace if necessary.
		Discharge hose blocked or kinked, remove the obstruction.
	Electrical fault.	Get a qualified person to check that the alarm is installed correctly and the power supply to the plant is correct.
	Diaphragm damaged/torn (If applicable).	Replace damaged diaphragm.
Pump runs intermittently	Thermal overload tripped.	Check for clogged impeller **(WARNING: Ensure the pump is plugged out before you attempt to unclog it.)**
		The pump has run dry so add water.
	Float from the pump stuck.	Ensure the float on the pump is set correct and can move freely.
	Damaged float.	The pump must be checked by a qualified person.
Alarm is sounding, but the pump and blower are working	Air return pipe to the alarm not returning an air signal.	Check that the air pipe is not damaged or bent. Ensure there is air blowing through this pipe. Check that the pipe is inserted into the alarm correctly.
	Electrical fault.	Get a qualified person to check that the alarm is installed correctly.
	The electrical panel is wet.	Get a qualified person to check that the alarm is installed correctly.

Note:

Before taking any corrective action, always positively identify the real source of the odour. Check if the odour is coming from another outside source such as a storm drain. All Tricel Novos' vent gases back through soil pipe and out roof vents. Improperly installed roof vents can cause odour problems. Traps in drains prevent odours from entering the home. To function, they must contain water and be sealed correctly.

4.2 Odours

Symptom	Possible causes	Solution
Effluent odour directly outside the house or inside the house	Pipe connections to toilets or drains not connected correctly.	Check that the traps / U - bends in the drains are fitted and the joints sealed.
	An air vent on pipe-work not fitted or fitted incorrectly.	Ensure all effluent pipes are vented correctly, vents are normally fitted to all pipes, and they should be higher than the eve of the roof.
	Pipe work is damaged or blocked or fitted incorrectly.	Inspect pipe work to ensure it is undamaged and clear of obstructions or sagging.
Bad effluent odour directly over the tank	Pipe work to or from the tank is blocked.	Check the level of liquid in the tank. Ensure the pipes are not blocked and are fitted correctly to the tank.
	Chemical kill of bacteria.	Ensure pumps are working properly (If applicable). If the symptom persists for 48 hours or more, remove all liquid and replace with clean water.
	No air delivery - Hydraulic/Organic is overloading the tank vent.	Check blower is functioning properly
Note:	Smoke bombs/pellets, available from a plumber's merchants, can be used to trace the source the odour.	

5 Certification

The Tricel Novo has successfully passed stringent European testing and is approved to the new European standard EN 12566-3 Small wastewater treatment plants for up to 50 PT-Part 3: Packaged and/or site assembled domestic wastewater treatment plants. The Tricel Novo was placed through a rigorous 38-week test, by the certified laboratory PIA GmbH-Testing Institute for wastewater technology in Aachen, Germany www.pia-gmbh.com.

The Tricel Novo passed all structural testing (crush test & durability test) carried out by PIA staff. Water tightness tests were performed by PIA at our headquarters on the range of tanks up to 50PE and successfully passed all of the required tests.

5.1 Declaration of performance

CE

- Declaration of Performance

DOP01CPRUk03201414

1. Classification of Product:

Small wastewater treatment plant for up to 50PT – Packaged and/or Site Assembled Domestic Wastewater Treatment Plant as set out in EN12566 Part3

2. Name of Product:

Tricel Novo UK6 – UK50

3. Product Characteristics

Material	Glass Reinforced Plastic (GRP)
Technology	Submerged Aerated Filter combined with Activated Sludge
Shape	Horizontal Cylinder with domed ends. 620mm x 620mm and Ø200mm Access openings as required.

4. Intended for Use:

To treat domestic wastewater for up to 50 population equivalent

5. Name, Address and Contact Information of Manufacturer:

Tricel (Killarney).
Ballyspillane Ind. Est.
Killarney,
Co. Kerry.
Tel: +353 (0) 64 6632421
Web: www.ie.tricel.eu

6. Plant of Assessment of Verification as set out by the CPR, Annex V:

Plant 2+

7. Name, Address and Notified Body Number of Notified Body who carried out Initial Type Testing

Prüfinstitut für Abwassertechnik
GmbH Hergenrather Weg 30
D-52074 Aachen
Germany

NB 1739

8. Declared Performance: Treatment Performance

Essential Characteristic	Performance*		Harmonised Technical Specification
Nominal Organic Daily Load Nominal Hydraulic Daily Load	0.36 kg/d 0.90 m^3/d		
COD BOD_5 SS NH_4**	91.6% 95.9% 95.3% 79.9%	52 mg/l 11mg/l 16 mg/l 8mg/l	EN12566-3
Electrical Power Consumption	1.1 kWh/d		

*Performance results obtained at average organic daily load of 0.26kg/d and hydraulic daily load of 0.9m^3/d

**Determined at temperatures $\geq 12^0$

Material Performance

Essential Characteristic	Method	Performance	Harmonised Technical Specification
Water Tightness	Vacuum Test	Pass	EN12566-3
Crushing Resistance	Pit Test	Pass (also wet conditions)	
Durability		Pass	
Reaction to Fire		Class E	

9. The performance of the product identified in point 2 is in conformity with the declared performance in Point 8. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Michael Stack

27/03/2014

Michael Stack
Managing Director

CE

Tricel (Killarney)
Ballyspillane Ind Est
Killarney
Co. Kerry
Ireland

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DOP01CPRUK03201414

EN 12566-3

Packaged wastewater treatment plants for
treatment of domestic wastewater

- Product: Tricel Novo UK6 – UK50 Range of Wastewater Treatment Plants
- Material: GRP

Notified Body:	Prüfinstitut für Abwassertechnik GmbH Hergenrather Weg 30 52074 Aachen
Number.:	NB 1739

Treatment capacity	
- Nominal organic daily load: (BOD_5) - Nominal Hydraulic daily flow (Q_N)	As Set Out in Table CE for each Model
Effectiveness of treatment:	
Treatment efficiency ratios (at tested organic daily load BOD5 of 0,26 kg/d and daily hydraulic flow of 0.9m^3/d)	COD: 91,6 % BOD_5: 95,9 % SS: 95,3 % NH_4-N: 56,7 %
Water tightness: (Vacuum test)	
Crushing resistance: (Pit test)	Pass (also Wet conditions)
Durability	Pass
Fire Resistance	Class E

6 Terms & conditions

Subject to our standard terms and conditions, which are available on request.

7 Treatment Plant service report

TRICEL ENVIRONMENTAL

Treatment Plant Service Report

Invoice No:		Date:	
Customer Name & Address:			
Customer Contact No:			
Plant Model & Size:			
Blower Type & Size:			

	YES	NO	COMMENTS
Gravity Outlet:			
Pumped Outlet:			
Inlet Free Flowing:			
Thickness of Crust:			
De-Sludging Required:			
2nd Stage P-S-T Crust:			
Aeration Good?			
Final Stage Sludge Return Working:			
Blower Diaphragms Changed:			
Loss of Pressure Alarm Tested:			
Blower Airline Inspected:			
Air Filters Changed:			
Record air pressure from compressor in m/bar			
Outlet Pump Inspected:			
Float Switch Inspected:			
High Level Alarm Inspected:			
Plant Covers Left Locked:			
Covers in Good Condition:			
Remarks/Advice Given:			

Servicing Company Name:				
Service Engineer:				
	Print:		Date:	
	Sign:			
Client:				
	Print:		Date:	
Date of Next Service Due:	Sign:			

TRICEL ENVIRONMENTAL

Treatment Plant Service Report

Invoice No:		Date:	
Customer Name & Address:			
Customer Contact No:			
Plant Model & Size:			
Blower Type & Size:			

	YES	NO	COMMENTS
Gravity Outlet:			
Pumped Outlet:			
Inlet Free Flowing:			
Thickness of Crust:			
De-Sludging Required:			
2nd Stage P-S-T Crust:			
Aeration Good?			
Final Stage Sludge Return Working:			
Blower Diaphragms Changed:			
Loss of Pressure Alarm Tested:			
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Float Switch Inspected:			
High Level Alarm Inspected:			
Plant Covers Left Locked:			
Covers in Good Condition:			
Remarks/Advice Given:			

Servicing Company Name:				
Service Engineer:				
	Print:		Date:	
	Sign:			
Client:				
	Print:		Date:	
Date of Next Service Due:	Sign:			

TRICEL ENVIRONMENTAL

Treatment Plant Service Report

Invoice No:		Date:	
Customer Name & Address:			
Customer Contact No:			
Plant Model & Size:			
Blower Type & Size:			

	YES	NO	COMMENTS
Gravity Outlet:			
Pumped Outlet:			
Inlet Free Flowing:			
Thickness of Crust:			
De-Sludging Required:			
2nd Stage P-S-T Crust:			
Aeration Good?			
Final Stage Sludge Return Working:			
Blower Diaphragms Changed:			
Loss of Pressure Alarm Tested:			
Blower Airline Inspected:			
Air Filters Changed:			
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Outlet Pump Inspected:			
Float Switch Inspected:			
High Level Alarm Inspected:			
Plant Covers Left Locked:			
Covers in Good Condition:			
Remarks/Advice Given:			

Servicing Company Name:				
Service Engineer:				
	Print:		Date:	
	Sign:			
Client:				
	Print:		Date:	
Date of Next Service Due:	Sign:			

Your local recommended service provider

Treatment plant installed by: ----------

Date of installation: ----------

Serial number: ----------

Tricel Environmental UK, A trading brand of Dewey Waters Ltd.,
Tricel Weston, Winterstoke Road, Weston-super-Mare, BS24 9AN, United Kingdom
Tel: 44 (0) 1934 422 311 I Email: environment@tricel.co.uk I www.tricel.co.uk