

Starplast

Mod. LUM01.01 - Rev. 00 del 01.12.2021



USE AND MAINTENANCE MANUAL

PRIMARY biological treatment plant

Consult and keep this booklet.

Follow the instructions inside for proper use.

Starplast plants are made of polyethylene by means of rotational moulding and comply with national and European regulations, relating to the CE marking of the product, with reference to specific types of operation.

RULES FOR THE PROPER FUNCTIONING OF A PLANT

- Correct sizing
- Correct installation
- Regular periodic maintenance

ALLOW TO

- Reduce pollutant emissions into the environment as much as possible
- Reduce the frequency of extraordinary maintenance operations
- Increase the useful life of the plant
- Comply with regulatory and authorisation requirements

Given that every operation must be carried out by specialised and authorised personnel, with this booklet STARPLAST provides the minimum indications for correct management and installation of the system.

For any technical-commercial information, please contact our Technical Office, which will be at your complete disposal for **consultancy, installation, start-up, system management and indications regarding the Starplast Point nearest to you.**

TYPES OF PLANT

GREASE SEPARATORS **DEG**



SEPTIC TANKS **SET**



IMHOFF TANKS **IMF**



FUNCTION AND USE

PRIMARY TREATMENT

This is the first stage of the wastewater purification process, involving the sedimentation of suspended solids through physical and/or chemical-physical processes, following which, before discharge, the BOD5 of the water being treated must be reduced by at least 20% and the Total Suspended Solids by at least 50%. The combination of biological processes of fermentation and anaerobic digestion allows the digestion and stabilisation of suspended and sedimented organic substances by considerably reducing their volume.

A SEDIMENTATION PROCESS IS THEREFORE USED AS THE PRIMARY TREATMENT.

Sedimentation takes place in special tanks in which there must be:

- the separation of the particles from the liquid medium
- collection of the particles as sludge
- the concentration of the sludge and its removal

The primary purification process is therefore a physical/biological process, using the bacteria already present in the sewage to be treated.

STANDARDS, CERTIFICATIONS AND FINAL DELIVERY OF THE DISCHARGE

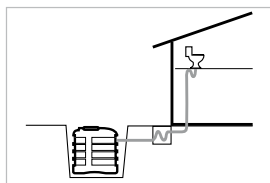
The following table shows the main certifications and possible discharge addresses that characterise the various types of treatment of the biological plants supplied.

PRODUCT	STANDARDS	FINAL DELIVERY OF THE DISCHARGE
■ GREASE SEPARATOR DEG	CE UNI EN 1825	 T3 public sewer
■ SEPTIC TANK SET	CE UNI EN 12566-1	 T3 public sewer
■ IMHOFF TANK IMF	CE UNI EN 12566-1	 T3 public sewer

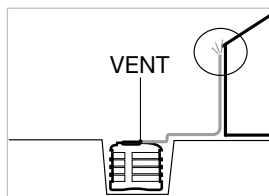
PRELIMINARY CHECKS AND INSTALLATION

STARPLAST tanks are specially sized and made for underground use, therefore (except in special cases to be agreed with the Technical Office of Starplast) should never be used for external use. For details of the installation methods, please refer to what is indicated in the document “underground/laying method” in the annex.

In any case, it is essential to follow the following guidelines:



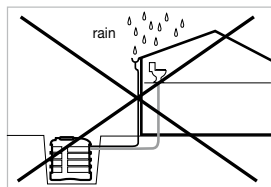
To avoid any return of odor in the bathrooms, always place a siphoned shaft upstream of the plant.



ALWAYS CONNECT BIOGAS

Make sure that the biogas vent is free to prevent the tank from going into pressure/depression. Connect the same to the ventilation pipe of the house, or provide that it is sent to an appropriate place where it is prevented from filling; always and in any case at a level higher than the level of installation of the tank cover itself.

Check and verify that the section of the pipeline is proportionate to the pressure drops and allows the correct disposal of the biogas and on the way there are goosenecks or water accumulation points that prevent the flow of gas.



In any case, rainwater must not enter the plant.

After placing the tank, make the hydraulic connections for water supply and drainage as specified in the installation manual.

LIMITS OF USE

Starplast biological treatment plants are used for the purification of domestic and assimilated wastewater. A waste water containing pollutants with a maximum permissible concentration of:

- | | | | | | |
|--------------------------|----------|------------------------------------|------------|-----------------------|--|
| • pH: | 6÷8 | • N-NH ₄ ⁺ : | 30 mg/l | • Total hydrocarbons: | 10 mg/l |
| • BOD ₅ : | 300 mg/l | • N-NO ₃ ⁻ : | 20 mg/l | • Total surfactants: | 10 mg/l |
| • COD/BOD ₅ : | ≤ 2,2 | • Ntot: | 12 gr/A.E. | • Cl ⁻ : | concentration detected in the supplied water + 40 mg/l |
| • SST: | 400 mg/l | • Ptot: | 2 mg/l | | |

For all other parameters further covered by the Tables of reference to the discharge referred to in D. Lgs.152/06 and s.m.i. upstream of any treatment, for incoming water, the limit values prescribed by the same for the discharges indicated in the decree or in the discharge authorization of the plant. Never exceed the above limits and pay attention to the hydraulic loads influencing the plant because an excessive discharge rate can irreparably damage the plant and its purification process. The STARPLAST biological plants are **sized for a maximum flow of 200 litres/P.E.** per day. In case of excessive punctual hydraulic loads and/ or abnormal discharges other than the concentrations exposed above, the remediation of the plant and a new start-up procedure of the plant after verification of the effectiveness of the constituent parts of the products will be necessary.

PROHIBITIONS

- Supplying rainwater to installations
- Enter coarse solid materials such as paper, cardboard, newspapers, textiles and anything else that may obstruct the piping and equipment of the plant
- Enter dangerous liquids (toxic, irritant, explosive, flammable etc...)
- Use and enter alkaline, acid or high ammonia and bleach sanitizing liquids
- Enter in the discharges substances that may damage the bacterial flora
- Enter detergents that are not completely biodegradable

START-UP

The start-up of a primary biological purification plant requires a period of time ranging from 20 to 45 days before it reaches full capacity. Once the products are filled with clean water and regularly connected hydraulically, feed the plant with raw sewage. It is possible, at this stage, the use and dosage of specific bacterial colonies to accelerate the start of the purification cycle.

MAINTENANCE

For a good functioning of the plants it is essential that they are not conveyed to coarse bodies (plastic bags, diapers, etc.) that could obstruct parts of the plant or that products harmful to the bacterial flora are not introduced (strongly acidic or strongly basic products).

Conduct and periodic checks

Once the cleaning process has started, the following checks must be carried out at least quarterly:

- Check that the vent pipe is free and, if clogged, clean it.
- Periodically check the integrity of the pipes, gaskets and fittings to which the products are connected.
- Check and remove coarse materials which must not obstruct the inlet and outlet pipes of the sewage and vent.

During normal operation, the purification process will take place autonomously returning a purified waste with levels of BOD₅, COD, SST aligned with current standards. Routine maintenance consists in the purging of solids from the digestion compartment and oils, fats, foams on the surface, with a maximum annual frequency, that is according to the cadences indicated in local regulations (ARPA, Region, etc.). Remove sludge in case of excessive concentration. It is however necessary to leave an adequate amount of sludge (at least 1/3 of the purged volume) in the digestion compartment in order not to affect the correct purification process.

In case of power supply to the plant different from those of the project and for problems of setting the purification process, contact your trusted technician or the Starplast Technical Office.

The cadences and control activities described above are indicative, as they can be subject to customization by Starplast service centers, depending on the potential of the plant, the characteristics of the influential waste (restaurant discharges, residential housing, etc.) and specific customer needs. For all maintenance operations it is advisable to keep a proper record of the operations carried out.

SHEET TO BE PHOTOCOPIED AND KEPT FOR VERIFICATION AND MAINTENANCE PURPOSES

PLANT TYPE

CHECK DATE

CONTROL AND CLEANING OF THE VENT PIPE

GASKET CONTROL

REMOVAL OF COARSE MATERIALS

REMOVAL OF EXCESS SLUDGE

REMOVAL OF FLOATING MATERIAL

OTHER MAINTENANCE OPERATIONS

CHECK CARRIED OUT BY



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