PRESTAR

Eco - Friendly Bio - Toilets

A Step towards Sanitising India

Technology Transfer by DRDO

MINISTRY OF DEFENCE
DEFENCE RESEARCH & DEVELOPMENT ORGANISATION
बलस्य मूलं विज्ञानम्

About Prestar

Established in 2002, Prestar Infrastructure Projects Limited, is now one of the leading names in Prefabricated Buildings and Shelters. An ISO 9001:2008 company based in Kolkata, Prestar is a prominent manufacturer of Pre fabricated Buildings & Shelters, PUF Shelter, Colour Coated Roof Sheets, Metal Beam Crash Barrier etc

With fully equipped modern manufacturing facilities, Prestar is a professionally managed company, poised to take up the toughest & most demanding of challenges

Our Beliefs

At Prestar, Customer Satisfaction is the cornerstone of all that we do. Designing products of international standards, maintaining the highest standards of Quality & Commitment and keeping alive the tradition of service to the nation are values that we cherish the most

Philosophy

At Prestar, we know that customer satisfaction is the cornerstone of our success. Our goal is your satisfaction

Our Technical Team

Mr. B.K. Chatterjee (Technical Head)

Mr. Azad Ali Khan (GM-Sales)

Mr. Asok Gupta (QC & QA Manager)

BIO TOILETS

APPLICATIONS

Anaerobic digestion technology is the process of treating wastewater without using oxygen. Many countries in Europe and Latin America utilize this technology, which treats wastewater in an environmentally friendly manner, facilitation its use for irrigation or its return to water bodies without polluting them. The process also generates organic and bio gas (a form of fuel) by allowing naturally occurring bacteria to break down solid waste. The Bio Digester System operates on the principles of anaerobic technology, and is used to treat organic farm waste.

BIO CHEMICAL PROCESS

Large polymers are converted into simple monomers

Simple monomers are converted into volatile fatty acids.

Volatile fatty acids are converted into acetic acid,CO2 & H2

Acetate & H2 are converted into Ch4 & Co2

Hydrolysis

Acidogenesis

SOLID

Hydrolysis

Acidogenesis

SENSITIVE

Carbohydrates → Sugars

Fats → Fatty Acids

Proteins → Amino Acids

HYDROGEN

Carbonic Acids And Alcohols

Carbonic Acids And Alcohols

ACIDOGENESIS

Hydrogen
Acetic Acid
Carbon Dioxide

ACETOGENESIS

Mathane
Carbon Dioxide

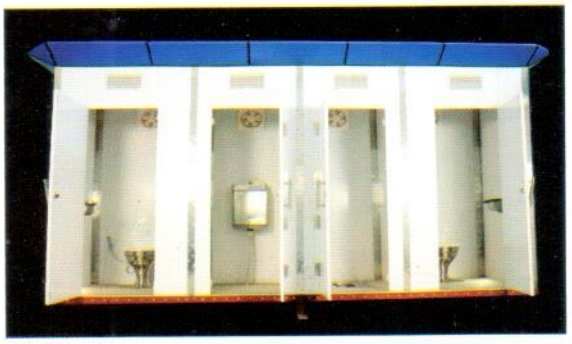
METHANOGENESIS

BIODEGRADATION

AEROBIC	ANAEROBIC
Forced aeration/ agitation is essential and is energy intensive	No aeration is required
Incomplete aeration (partial aerobic condition) leads to foul smell	Complete anaerobic conditions
Not effective in pathogen inactivation	More than 99% Pathogens inactivation
Can not tolerate detergents / phenyl	Anaerobes can even degrade detergents / phenyl
Generates large amount of sludge	Sludge generation is very less
Repeated addition of bacteria / enzyme is required for the process	One time bacterial inoculation is enough
Maintenance & recurring cost is high	Minimal maintenance & no recurring cost

NORMAL VS BIO TOILETS

FEATURES	NORMAL TOILET	BIO-TOPILET
COMPOSITION	Toilet Structure & Septic Tank	Toilet Structure & Bio-Digester Tank
SPACE	3X Space occupied by Bio-Toilet	1/3rd apace occupied by the septic Tank
MAINTENANCE	Quarterly	No maintenance cost for minimum 20 years
PUMPING INFRASTRUCTURE	Electricity required	No Electricity
WASTE DISCHARGE	Has odor, sludge properties & is hazardous to the environment	Odorless & colorless & hazard-free
BACTERIAL REQUIREMENT	Aerobic Bacterial which requires repeat dosing	Anaerobic Bacteria which dose not require repeat dosing-is capable of procreating in the Bio-Digester Tank
TOLERANCE FOR CLEANING AGENTS	Cannot tolerate toilet cleaning agents	Conditioned to remain unaffected by cleaning agents
WASTE DECOMPOSITION	30% decomposition of excretory waste	90% decomposition of waste



GLOBAL SURVEY

ACCORDING TO UNICEF / WHO ESTIMATES:

- About 1/7th of world population still Openly defecate in the absence of any toilet/ latrine.
- Global impact of poor sanitation on human health and infant/child death is profound
- Estimated 10 million children under 5-die globally every year.

CONVENTIONAL SYSTEMS

CONVENTIONAL SYSTEMS OF WASTE DEGRADATION REQUIRE

- Sewer Line : For waste disposal in an urban set up, where infrastructure is readily available
- Soak Pit : For waste disposal in a rural set up where infrastructure is scarce

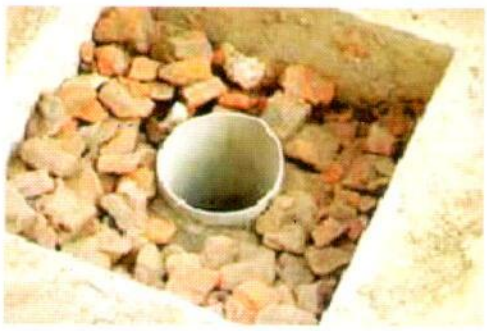
SOAK PITS

- Usually used in rural areas, out of bounds from city with infrastructure.
- Defecation in open areas with waste disposal in ditches drafted into the grounds.
- Results in non decomposition of waste.
- Major cause of health and safety issues.
- Final results in unhygienic disposal of waste.

SEWER LINE SET UP

- Mostly available in urban city developed area.
- High usage of water.
- Water results in further pollution into water bodies.
- Further chemical decomposition is not available.
- Final results in pollution.

REVOLUTION IN WASTE SANITATION



SUPERIOR SANITATION

BIO-TOILET OFFERS

- 100% sludge-free waste disposal
- Eco-friendly waste solution
- 100% maintenance free

BIO-TOILET PREVENTS

- Open defecation
- Environment hazards
- Manual scavenging

BENEFITS OF BIO TOILETS

HYGIENE & HEALTH
Prevents Water Borne Ailments like
Prevents Mosquito Borne Ailments
Eliminates Foul Smell

MAINTENANCE
Bio Tanks are
maintenance free !

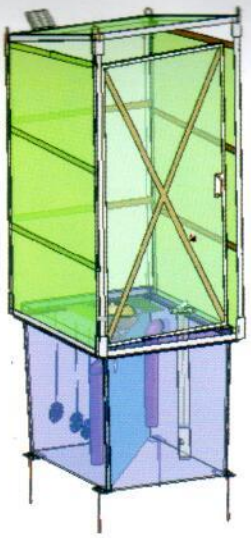
SPACE
Area occupied by
1 Septic Tank = 3 Bio Tanks

DURABILITY
Has a life of
Minimum 10 Years

ENVIRONMENT FRIENDLY
No Air & Land Pollution

ENERGY
Bio Gas generated
by 50 users = 100 ml kerosene

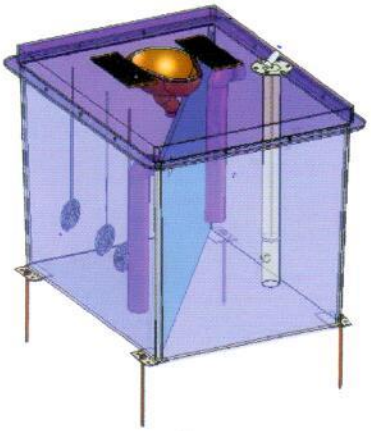
UNDER COMMISSIONING

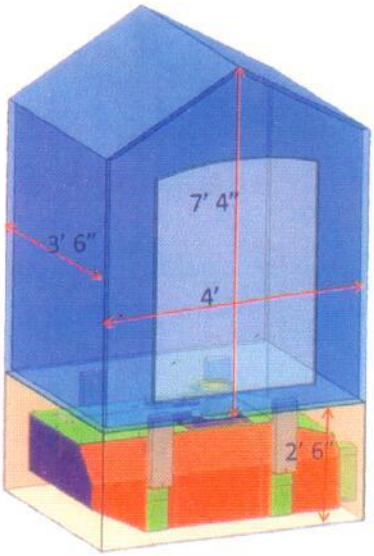


- PIPL has Obtained the Transfer of Technology license from the DRDO authority in India.
- This license allows PIPL to manufacture and sell the Bio Digester technology to domestic as well as International Market.
- Export market sales require prior approval from Ministry of Defense and Ministry of External Affairs, which is in the scope of PIPL.
- PIPL has been working with PIPL scientist and members to develop and manufacture the Portable Bio Toilets (which include Total Shelter. Bio Digester and Inoculum Bacteria).

PORTABLE BIO TOILET

COMPLETELY DEVELOPED AT PIPL





Portable Toilet

Bio Digester

Certificate Number:

51710

ACS REGISTRARS

This is to certify that the Quality Management System of:

PRESTAR INFRASTRUCTURE PROJECTS LTD.

of

Registered Off.: 11, Dr. Rajendra Prasad Sarani (11, Clive Row), 3rd Floor, Room No. 1, Kolkata 700001, W.B., India
Factory 1: Junglepur, Banaria, Jalan Industrial Complex, Gate Number - 3, Right Lane - 4, P.O: - Begri, (Near Swastik Kanta), Howrah 711411, W.B., India
Factory 2: P-23, Transport Depot Road, (Near Glaxo Factory), Taratala, Kolkata-700088, W.B. India

has been assessed and registered by ACS Registrars Ltd against the following Quality Management System Requirements:

ISO 9001:2008

The scope of registration is:

"Manufacture, Marketing and Supply of Steel Fabricated Items Such as Metal Beam Crash Barrier, Transmission Tower, Colour Coated Roof Sheet, Pre-Fab Shelter, Pre- Engineered Steel Building & Other Steel Structural Jobs as Per Customer Specification."

Signed by:

Date of initial assessment:	**02/04/2007**
Date of registration:	**08/04/2007**
Date reissued:	**N/A**
Date of expiry:	**01/04/2016**

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UKAS QUALITY MANAGEMENT

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