AMITEK

Water & Wastewater Purification

AMITEK

When Amitek was established in 1994, its objective was clear – to supply innovative solutions to the challenges faced by water and waste-water treatment industries. Following the success of its initial drive, Amitek has evolved into a network of fully-fledged regional branches and service providers, focused on the requirements of customers throughout sub-Saharan Africa and on Indian Ocean islands.

THE AMITEK APPROACH TO SERVICE

Among the goals set by Amitek is the supply of State-of-the-art water and effluent treatment solutions. This is achieved within a framework of best Corporate governance practice, especially with a view to sustain. Ability and integrity. Amitek is geared to meet customers' quality and service requirements, while ensuring a fair and equitable return for all stakeholders.

A TOTAL SOLUTION

In pursuit of its objectives, Amitek has developed a range of function specific products, including:

- **Ampac Modular Sewage Treatment Plants**
- **Ampure Water Treatment Plants**

In designing and managing systems for the purification of water, wastewater and effluent, Amitek is committed to providing world-class solutions to all challenges in this respect. The Amitek approach is to define customer requirements clearly, plan the most efficient solution and apply it in the most cost effective manner …always in co-operation with customers.

"As a provider of impeccable end products, Amitek maintains the highest quality standards throughout its operations..."

Over time, Amitek has established a combination of unique competencies within its organisation, in order to develop a thorough structural understanding of effluent problems and environment-related matters. The company is, therefore, well equipped to pursue an integrated approach in its search for –and provision of – solutions to diverse purification and effluent treatment challenges.

PARTNERSHIP IN TECHNOLOGY

Amitek constantly sources, accumulates, develops and applies innovative technologies in managing water and waste-water purification and has established firm alliances with reputable, like-minded companies who have related competencies. In this regard, Amitek has a long-term co-operation agreement with General Environmental Science Inc. (GES), based in Ohio, USA, a world leader in the field of biotechnology. The benefits derived from this association are substantial. GES has developed and patented a process that enables the suspension of the metabolism of microorganisms in a liquid live form for prolonged periods. Pre-selection of bacteria performing specific functions in the treatment of a large number of effluents and pollutants serves numerous purposes. Furthermore, Amitek has vast experience in micro-organism Application Technology and uses a number of unique techniques to deliver liquid live Micro-organisms..

THE AMITEK SERVICE OFFERING

Core technologies used by Amitek in solving its customers' effluent problems are:

- The provision of the totally South African Ampac Modular Sewage Treatment Plants and Ampure Water Treatment Plants.

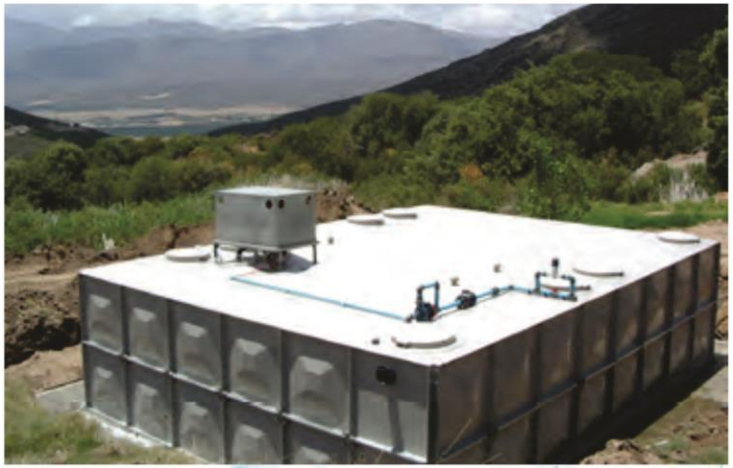
- Amitek designs, manufactures, installs, commissions and maintains modular sewage treatment plants – the AMPAC – for the treatment of domestic sewage. Compact, simple and robust Ampac plants use the high-efficiency combination of return-activated sludge plus submerged aeration media, as well as a unique configuration of anaerobic, aerobic and

anoxic reactors to purify effluent through various interlinked stages. This provides optimised purification and treated effluent quality to a standard that meets the requirements of the Department of Water Affairs (DWA) for the release of such treated effluent back into the environment – meeting either the General Limit Values or Special Limit Values, in terms of Section 39 of the National Water Act of 1998.

CREDENTIALS

• Amitek designs, manufactures, installs, commissions and maintains water treatment plants for the provision of drinking water or for the treatment of a variety of waste-water to drinkingwater quality. In the Ampure treatment system a combination of technologies selected according to the nature of the raw water is applied to achieve the desired standard of purification.

Amitek is a member of the Water Institute of SA (WISA) and a founder member of SEWPACKSA, a self-regulatory body of suppliers of small wastewater treatment works under the auspices of the WISA



The Operating and Maintenance Division manages both the Ampac Modular Sewage Treatment Plants and Ampure Water Treatment Plants, once installed and commissioned.

SERVICE WHERE AND WHEN YOU NEED IT

The Amitek operation is spread across sub-Saharan Africa and as far as Indian Ocean islands. Amitek has supplied, installed and commissioned water treatment and waste-water treatment plants in South Africa, Namibia, Lesotho, Botswana, Angola, Zambia, Kenya, Senegal, as well as on the Seychelles.

THE AMITEK AMPAC SOLUTION

Ampac Modular Sewage Treatment Plants are compact, configurable, Modular waste-water treatment units.

As a product development by Amitek, a company specialising internationally in water, waste-water and effluent purifying systems, the Ampac has been designed specifically for sewage treatment. Backed by its network and design and management know-how, Amitek is geared to supply world-class, innovative solutions to customers throughout sub-Saharan Africa and on Indian Ocean Islands.

Effective

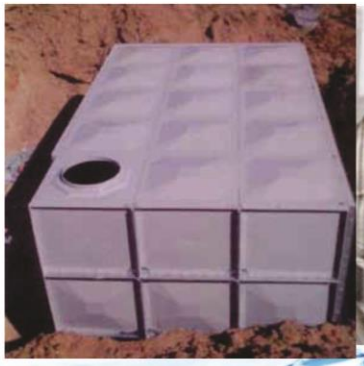
Because of their modular design and treatment process, Ampac plants can effectively treat, on an ongoing basis, effluent generated by between 10 and 500 people.

Versatile

Although modular, each Ampac design and installation is site specific in accordance with individual customer requirements. Its modular and configurable design allows it to be integrated into the most sensitive and trying locations.

Simple

Plants are assembled on-site, installed below or above ground level and commissioned quickly and easily. Ampac eliminates the need for large civil construction works and on-site labour. The Ampac Compac – a smaller model – does not require on-site assembly at all. It is constructed off-site and delivered as a built-up unit for quick and easy installation and commissioning.



AMPAC IN ACTION

Ampac units are ideal as plants for the treatment of domestic sewage in the event of projects that do not have a formal municipal sewer connection. Compact, simple and robust, Ampac plants use the highly efficient submerged aeration media method to purify effluent through various interlinked stages. This provides optimised nitrification and a treated effluent quality that meets the requirements of the Department of Water Affairs (DWA) for the release of such treated effluent back into the environment under the General Limit Values, in terms of Section 39 of the National Water Act.

Designed and constructed to provide the most practical solution:

- The design is based on sound, tried and tested technologies.
- Ampac plants are single compact units with no tanks and gaps to gather dirt or rubbish.
- Plants are easy to pack into shipping containers for assembly anywhere, even at remote sites.
- An easy-to-clean solids strainer allows easy removal of plastic bags, cloths, etc.
- Proper aeration is provided by robust nopon fine-bubble spargers and side-channel blowers.
- A duty and standby blower ensures continuous safe operation by ensuring adequate oxygen and returning sludge.
- There are no pumps between chambers that can cause blockages and stoppages.
- The ingenious design makes plant overflows impossible.
- Irregular flows into the plant will not upset its functioning.
- Ampac is easy to de-sludge and maintain.
- Flow meters constantly measure flow-through.

AMPAC IN ACTION

Ampac uses the tried and tested "Submerged Aeration Media" (SAM) method for treatment. This method comprises seven sequential treatment steps and involves:

(i) solids removal by either a solids collection basket or a screening grid, depending on the model

(ii) an anaerobic settler, followed by

(iii) an anoxic settler and

(iv) an aeration chamber into which air is blown to supply the required volume of oxygen. Special media sheets are suspended above the air spargers for the growth and retention of aerobic bacteria to continue the digestion of organic material in the effluent

(v) the settler, in which micro-organisms and any remaining inorganic material is settled out and returned to the primary anaerobic settler by a unique efficient venturi method

(vi) an extended anoxic chamber after the settler that assists in the removal of nitrates

(vii) a disinfection chamber that uses either chlorine, ozone or ultra-violet light to destroy any remaining micro- organisms or pathogens.

CIVIL CONSTRUCTION AND HOUSING OF AMPAC UNITS

All the inter-leading chambers of Ampac units are housed in an Amtank that is constructed in UV- and moisture-resistant GRP glass-fibre panel that are hot-press moulded and comply with BS 7491 part 3. Units are manufactured off-site and assembled on-site, using approved hot-dip galvanised steel parts on the outside and stainless steel fasteners on the inside, and sealed internally with a Plexus epoxy specifically designed for use in sewage treatment plants.

The structure is supported and stabilised internally by means of chamber partitions, a series of connecting tensile stainless steel rods and attachments and PVC vertical support columns. Furthermore, Ampac units are assembled on a smooth, level concrete slab, making it easy and quick to install them on site.

	General Limit Standard (GLS)	**Special Limit Standard (SLS)**
Suspended solids of	< 25ppm	< 10ppm
COD	< 75ppm	< 30ppm

THE AMPAC UNIT RANGE

This table shows the standard range of Ampac units outside of the standard range can be supplied on request.

Ampac model	Treatment volume	Organic equivalent	Population equivalent	Lenght	Width	Depth	Power Required
	M3 per day	G per day	200lts/pax/day	mm	mm	mm	
10	10	3 000	50	4 000	4 000	2 000	2.2
15	15	4 500	75	8 000	3 000	2 000	2.2
20	20	6 000	100	8 000	4 000	2 000	2.2
25	25	7 500	125	8 000	5 000	2 000	2.2
30	30	9 000	150	8 000	6 000	2 000	4.0
40	40	12 000	200	8 000	8 000	2 000	4.0
50	50	15 000	250	12 000	7 000	2 000	4.0
60	60	18 000	300	12 000	8 000	2 000	4.0
70	70	21 000	350	12 000	9 000	2 000	4.0
80	80	24 000	400	16 000	8 000	2 000	5.5
90	90	27 000	450	16 000	9 000	2 000	5.5
100	100	30 000	500	16 000	10 000	2 000	5.5

THE AMITEK AMPURE SOLUTION

As a product development by Amitek, a company specialising internationally in water, waste-water and effluent purifying systems, the Ampure has been designed specifically for sewage treatment. Backed by its network and design and management know-how, Amitek is geared to supply world-class, innovative solutions to customers throughout sub-Saharan Africa and on Indian Ocean Islands.

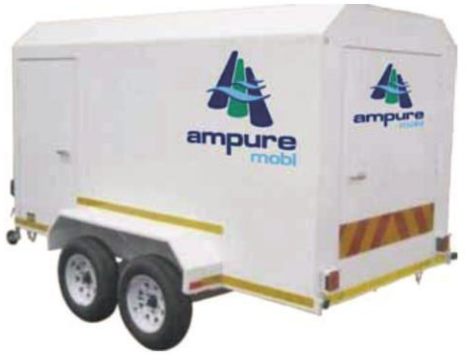
Ampure Water Treatment Plants involve a front-line water purification system that is designed, built and scaled in accordance with a community's requirements regarding potable water. The Ampure range is designed to treat water from various sources to drinking quality (or better if required). Each Ampure plant is specified to accommodate the source water quality, deliver the required treated water quality and volume, as well as to observe the conditions of the environment where it is to be Installed.

THE AMPURE TREATMENT PROCESS

During the design phase, technologies selected from a vast source are combined, to ensure that the most efficient process is devised to achieve the required results in the most cost-effective way. These technologies include – but are not limited to – flocculation, settling, pH adjustment, and filtration, activated carbon filtration, ultra-filtration and reverse osmosis, various methods of water-"softening", sterilisation by chemicals, ultra-violet light and ozone treatment. Design and installation involve the following:

- The required treated water quality and volume are determined.
- The raw water quality is evaluated.
- An Ampure system fitting the exact specifications is designed.
- The location and housing requirements of the plant are determined
- The Ampure plant is designed and manufactured off-site, delivered, installed and commissioned.
- Backup is provided through a comprehensive operating and maintenance service to ensure optimal performance at minimal costs.

FEATURES	BENEFITS
Designed and built to site-specific Requirements	Not an off-the-shelf solution
Wide range of technologies to ensure an optimally cost-effective solution	Not punting any single technology
Robust, durable design	Long-life, continuous supply, reliable System
Energy-saving and environment friendly Solutions	Economical to use
Built off-site and transported to site for installation and commissioning – reducing on-site Contractor time	No long civil works programme Minimal labour requirements
Modular design allows future additions as requirements change	Enables capex management as a project grows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