**Water Management**

* **Zero Liquid Discharge**

ZLD technology includes pre-treatment and evaporation of the industrial effluent until the dissolved solids precipitate as crystals. These crystals are removed and dewatered. The water vapor from evaporation is condensed and returned to the process. ZLD is an advanced wastewater treatment method that includes ultrafiltration, reverse osmosis, evaporation/crystallization, and fractional electrodeionization.f alling film evaporation is an energy efficient method of evaporation, typically to concentrate the water up to the initial crystallization point. The resultant brine then enters a forced-circulation crystallizer where the water concentrates beyond the solubility of the contaminants and crystals are formed. The crystal-laden brine is dewatered in a filter press or centrifuge and the filtrate or centrate (also called “mother liquor”) is returned to the crystallizer. The collected condensate from the membranes, falling film evaporator and forced-circulation crystallizer is returned to the process eliminating the discharge of liquids. If any organics are present, condensate polishing may be required for final cleanup prior to reuse.

**Effluent Treatment Plant**

Effluent Treatment Plant (ETP) is most cost Effective & technically proven system to remove the unwanted, hazardous chemicals from the wastewater to meets the statutory pollution control requirements, especially for chemicals, pharmaceuticals, phosphating and electroplating wastewaters.

**Effluent Treatment Plant:**

* These effluent treatment plants are used for purifying waste material that is an industrial waste
* These treatment plants help in solving environmental pollution issues without exposing same to open environment
* These effluent treatment plants are known for saving energy and removing pollution effluent with economical operations and also meet stringent pollution control norms
* These effluent treatment plants can treat effluent coming from different areas of planT

**Treatment of Different Effluent Varieties:**

* **Oil Water Effluent Treatment:**
* **Service Water Effluent Treatment:**
* **Coal Handling Plant & Coal Storage Effluent Treatment:**
* **Sludge Handling System:**

**Feature-**

The success achieved by us is attributed to our perfect understanding of the processes involved in waste treatment and in-house capability to conduct studies and thus selecting best combinations of unit operations as provided in the systems to the customers. Some of the standard features of the systems include:

* Operates on both aerobic and anaerobic process
* Reduces BOD, COD, TSS in industrial effluents
* Constructed in RCC as per design definitions

**Seawage Treatment Plant**

The goal of sewage treatment is to process sewage to the point that it will meet the Effluent Discharge Standards of the local authority, or be suitable for re-use, such as use for irrigation. To begin the discussion of the Sewage Treatment Process, it is necessary to know the composition of the sewage. Typical characteristics for domestic sewage are shown in the table below. A brief description of the terms, such as “BOD” and “TSS” is given at the end of this section, in the Glossary.

**The Sewage Treatment Process**

**Pretreatment** refers to all the treatment processes done prior to Primary Treatment. Some pretreatment is done right at the sewage source, prior to collection in the sewer system. This includes grease traps at restaurants, oil separators at mechanical shops, lint traps for commercial laundries, and various other types of industrial pretreatment depending on the type of industry.  
  
Pretreatment may also take place at the Sewage Treatment Plant (STP) itself. Depending on the characteristics of the sewage, pretreatment processes at the STP may include grease removal using a grease trap, and screening using a bar screen to remove larger solids such as rags. If there is a lot of sand or grit in the sewage, a grit chamber may also be installed.

## Primary treatment

Primary treatment includes:

* filtering out large objects like cotton buds, rags and other rubbish, using fine screens
* aerating the sewage to remove finer particles like grit and sand
* sedimentation, where heavy items sink to the bottom forming a layer called sludge – the settled sludge and floating debris is pumped to larger tanks, known as digesters, where it is broken down by bacteria

## Secondary treatment

In secondary treatment, different types of bacteria exist side by side in aerobic (with oxygen) and anoxic (without oxygen) environments, breaking down organic material and removing nutrients in the plant's aeration tanks. The water then passes through sedimentation tanks where more sludge settles to the bottom to finally produce clear treated water at the top, also known as secondary effluent.

The treated secondary effluent flows to large holding ponds before it enters the tertiary treatment stage of the plant.

## Tertiary treatment

* In 2012, the plant was upgraded to treat effluent to an advanced tertiary standard. This process adds several additional steps including:
* ozone and UV disinfection
* biological filtration to reduce ammonia, oil and grease, foam, litter and solids
* chlorination

## Reverse Osmosis Plant

## Reverse osmosis is the process of forcing a solvent from a region of high solute concentration through a membrane to a region of low solute concentration by applying a pressure in excess of the osmotic pressure. This is the reverse of the normal osmosis process, which is the natural movement of solvent from an area of low solute concentration, through a membrane, to an area of high solute concentration when no external pressure is applied. The membrane here is semipermeable, meaning it allows the passage of solvent but not of solute.

## Pretreatment –Reverse Osmosis Plants

## The feed water, depending on its source, may contain various concentrations of suspended solids and dissolved matter. Suspended solids may consist of inorganic particles, colloidal particles and biological impurities such as microorganisms and algae. Dissolved matter may consist of highly soluble salts, such as chlorides, and sparingly soluble salts, such as carbonates, sulfates, and silica.

## During the Reverse Osmosis process, the volume of feed water decreases, and the concentration of suspended particles and dissolved ions increases. Suspended particles may settle on the membrane surface, thus blocking feed channels and increasing pressure drop across the system. Sparingly soluble salts may precipitate from the concentrate stream, create scale on the membrane surface, and result in lower water permeability through the RO membranes. This process of formation of a deposited layer on a membrane surface is called membrane fouling and results in performance decline of the RO system. The objective of the feed water pretreatment process is to improve the quality of the feed water to the level which would result in reliable operation of the RO membranes. Based on the raw water quality, the pretreatment process for RO Plants may consist of all or some of the following treatment steps:

## Clarification followed by Sand Filtration for Turbidity removal

## Water disinfection with chlorine

## Hardness reduction by Softening

## Addition of scale inhibitor

## Reduction of free chlorine using sodium bisulfite/ Activated carbon filters

## Final removal of suspended particles using cartridge filters

## RO Plants - Post Treatment

* Ozonation
* Ultra-violet
* Chlorination systems

**Ultrafilteration Plant**

Our company is manufacturer of world class Ultra Filtration Plant This system provides tangential flow pressure driven filtration process that helps in efficiently separating particles on basis of their molecular sizes. We are providing ultra filtration plants that are reusable and cleanable with standard chemicals and are manufactured using advanced process technology with the purpose of removing micro bacterial counts. The system performs as advanced industrial filtration system and finds application as pretreatment step to the next in step reverse osmosis process. It is is highly economical and effective method of removing dissolved solids. Further, the plant is easy to start up & use and has compact units with robust mild steel powder coated frames.

## Water Ultra Filtration Plant

The system is widely demanded in clarification of wastewater, ash/scrubber waste treatment, river water clarification, filter backwash water recovery, food and dairy processing and waste water plants

**Features**

* Simple to operate & easy to maintain
* Automatic operation
* Compact structure
* Adequate safety interlocks
* Automatic forward flush and back flush

### Ultrafiltration Process

Ultrafiltration is another type of membrane filtration, which is pressure driven water filtration process. In ultrafiltration process membrane pore size plays important role; feed water is pressed into modules through pump, depending upon the pore size of membranes contaminants are rejected and filtered water is taken out in storage tank or further sent as ro feed water.

In water treatment, ultrafiltration is utilized in two different operational modes such as Dead-End and Cross-Flow. In Dead-End ultrafiltration process, without circulation overall quantity of feed water is pressed through the membrane module; whereas, in Cross-Flow process the feed water passes parallel to the membrane face, one part is passed through membrane and other part is re-circulated to create turbulences over the membrane.

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**Maltodesxtrin**

We are engage in designing, manufacturing, supplying and exporting technically advanced array of Maltodextrin plant. As per industry defined standards and norms, these Maltodextrin plants are manufactured with utmost precision by our professionals. Maltodextrin is quite simply a food starch.

Owing to the use of excellent quality raw materials and advanced techniques, these Maltodextrin plants feature distinctive characteristics such a higher performance, energy efficiency, sturdy construction, longer operational life and many more. Further our range of Maltodextrin plant is stringently checked to ensure that it is manufactured in strict compliance with set industry standards. Easy to operate and highly efficient our range of Maltodextrin plants are highly demanded amidst international clients.

Food Processing Industries

## Food processing is the transformation of raw ingredients, by physical or chemical means into food, or of food into other forms. Food processing combines raw food ingredients to produce marketable food products that can be easily prepared and served by the consumer. Food processing typically involves activities such as mincing and macerating, liquefaction, emulsification, and cooking (such as boiling, broiling, frying, or grilling); pickling, pasteurization, and many other kinds of preservation; and canning or other packaging.

**Instant Tea Plant**

Tea Extraction Plant provide a fine quality of tea. The process in **tea processing plant**includes extraction, separation of waste, evaporation and spray drying.   
  
Plant size can vary from a minimum of 5 kg/hr of instant tea to a very large capacity like 1000 kg/hr.   
  
The plant is made complete in Stainless Steel wherever product is in touch. The space required for a plant of this size is 500 sq.yard.   
  
Fresh Green leaves of the plant Camellia Sinensis is one of the main raw materials for this instant tea production. This type of plant is available throughout the year in abundance.

Our Instant tea, available both in Hot Water Soluble and Cold Water Soluble form, is playing an increasingly important role in the world beverage scene and is a source of supply to leading manufacturers of ready to drink products world wide. There is now also an emerging trend for the usage of tea products in the food, confectionery and personal care industries as well

**THE PROCESS**

* Instant tea is manufactured from black tea by extracting the brew from processed leaves, tea wastes or undried fermented leaves
* The extract is concentrated under low pressure, and dried to a powder by any of the processes including freezing, drying, spray-drying and vacuum-drying.
* Low temperatures is used to minimize the loss of flavor and aroma.