"The Fully Automated Control Interfaced Flocculant Containment, Transfer, Wetting, Mixing, Hydration and Dosing System"

resources™ water technology

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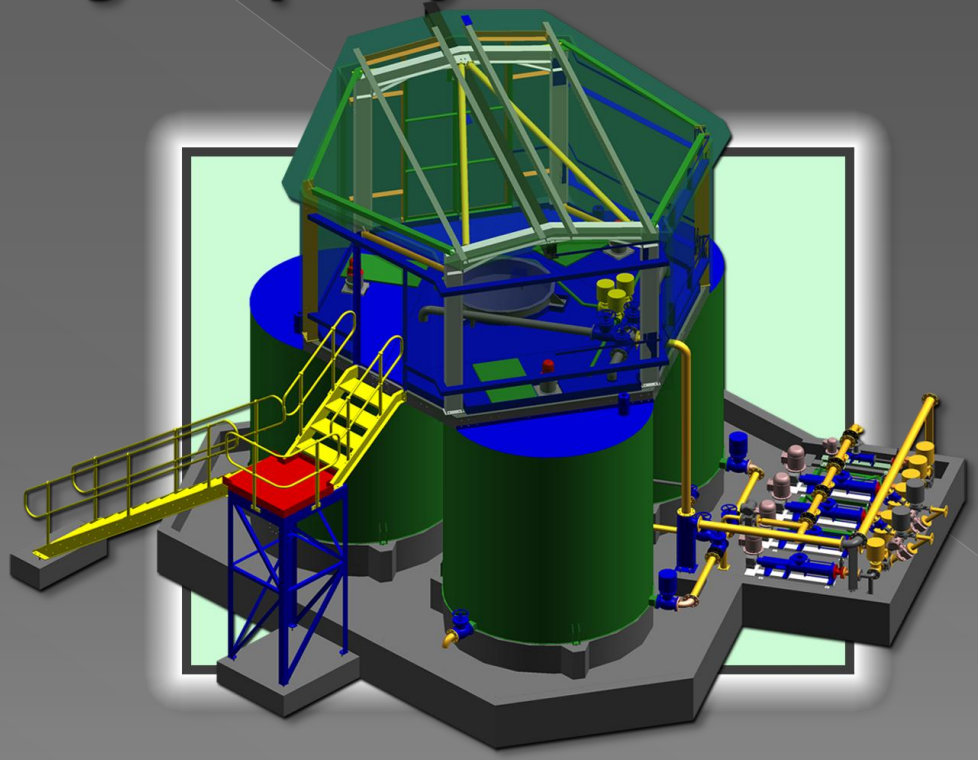
High Capacity Flocculant Plant



Industrial Duty **High Capacity Flocculant Plants**

Sizing and Selection of a RESOURCES™ Flocculant Plant

- The quantity of flocculant required for delivery to the process per hour is used to determine the size/model of a RESOURCES™ Reagent Plant
- The dosage rate requirement is determined by:
  - Settling tests
  - Test work results provided by the reagent supplier
  - The Process Engineer's previous experience with the application

Flocculant Concentration Considerations

- Flocculants are able to be prepared at a range of concentrations
- RESOURCES™ Flocculant Plants are concentration flexible, usually configured to produce a concentration of 0.10%, a value typically recommended by most flocculant suppliers
- Flocculant can not be effectively made up at high concentrations because the chemical "uncoiling" of the flocculant molecule is inhibited by the lack of water able to reach it in order for chemical bonding to occur (hindered reaction kinetics)

"The Fully Automated Control Interfaced Flocculant Containment, Transfer, Wetting, Mixing, Hydration and Dosing System"

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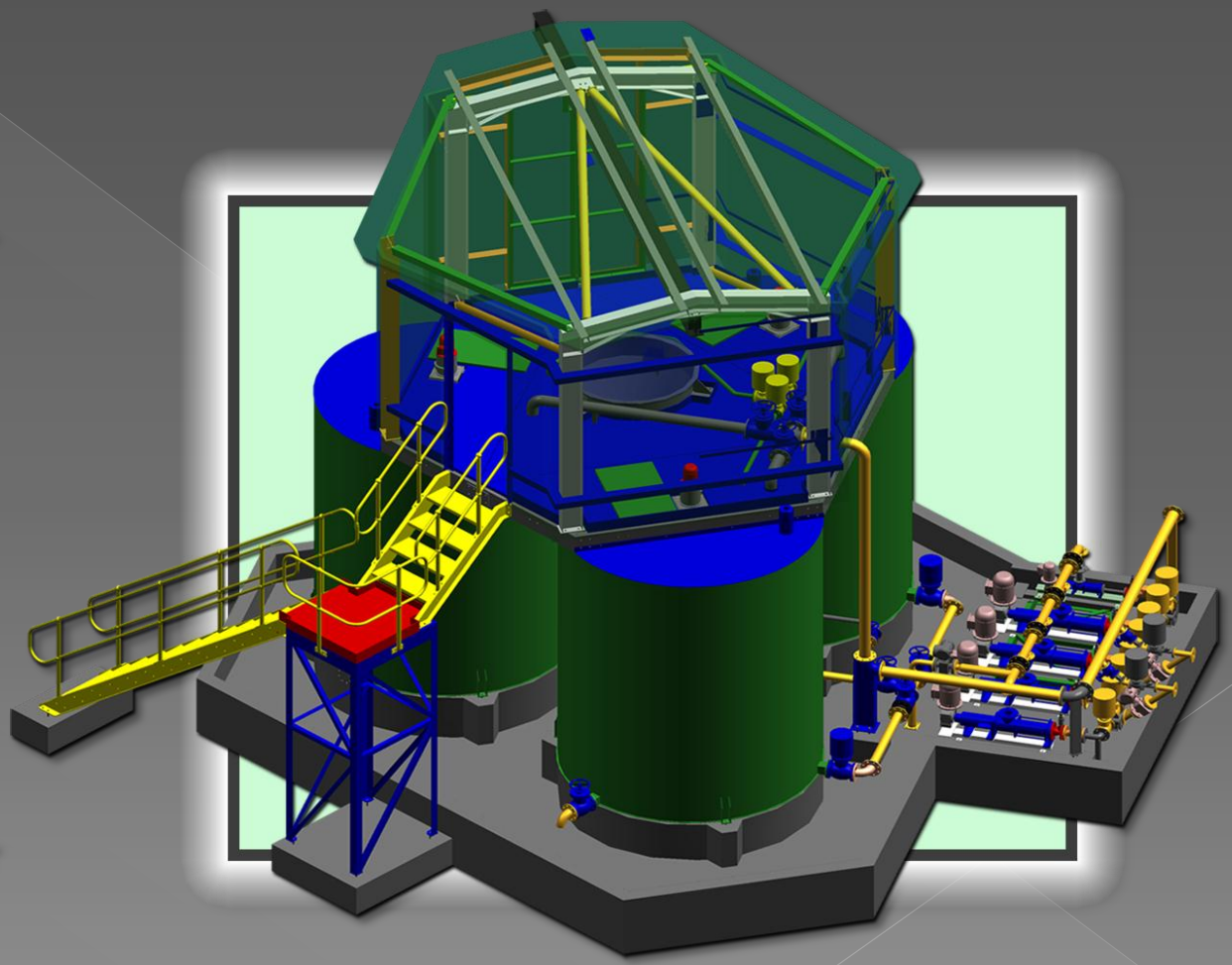
C-Series High Capacity Flocculant Plants

- **C-5 Model**
  - 3 to 8 kg per hour
- **C-10 Model**
  - 7 to 12.5 kg per hour
- **C-15 Model**
  - 12 to 18 kg per hour
- **C-25 Model**
  - 17 to 30 kg per hour
- **C-50 Model**
  - 29 to 60 kg per hour
- **C-100 Model**
  - 50 to 150 kg per hour
- **C-250 Model**
  - 140 to 300 kg per hour



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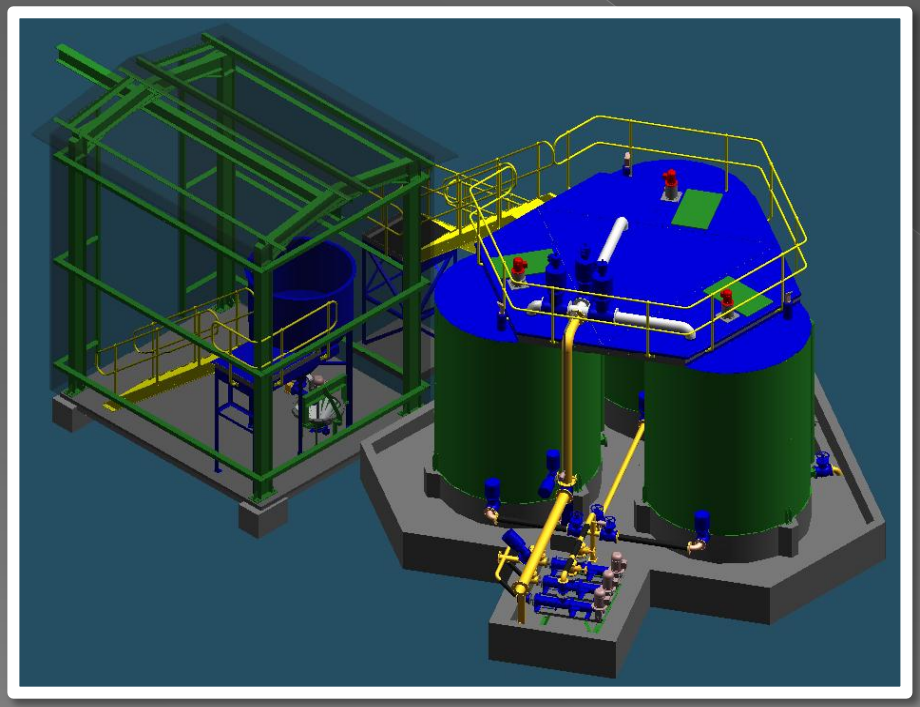
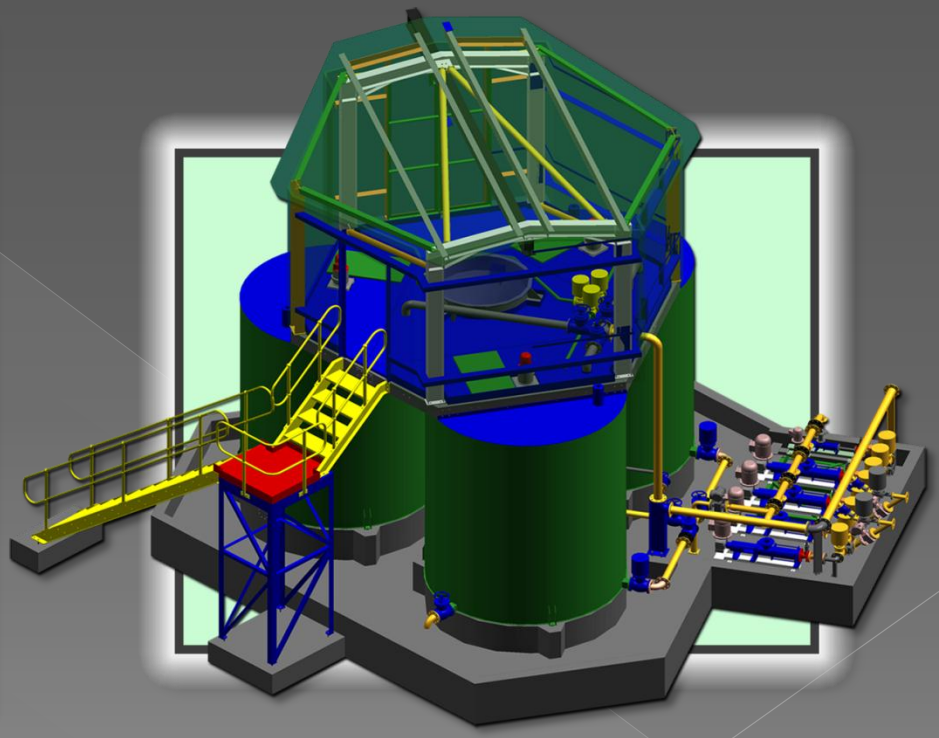
C-Series High Capacity Flocculant Plants



Extended configuration with flocculant handling separate from tanks



Standard configuration with flocculant handling above tanks

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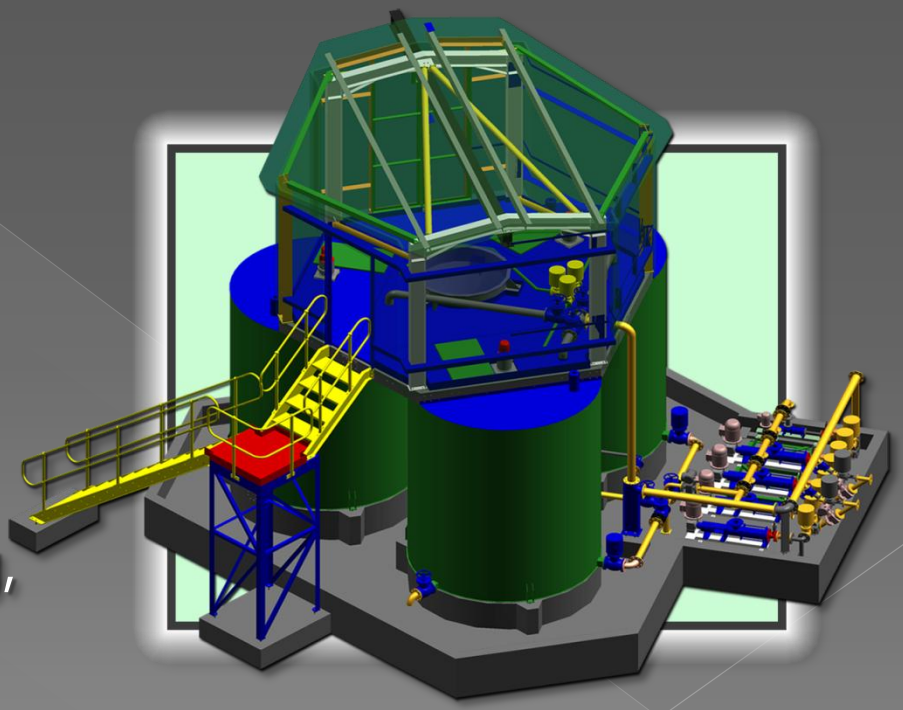
High Capacity Flocculant Plant Features

Unique Design

- The design utilizes three or more tanks which have sequential rotational functionality
- Identical tank capacities with common mechanical characteristics to act as mixing, hydration and dosing tanks



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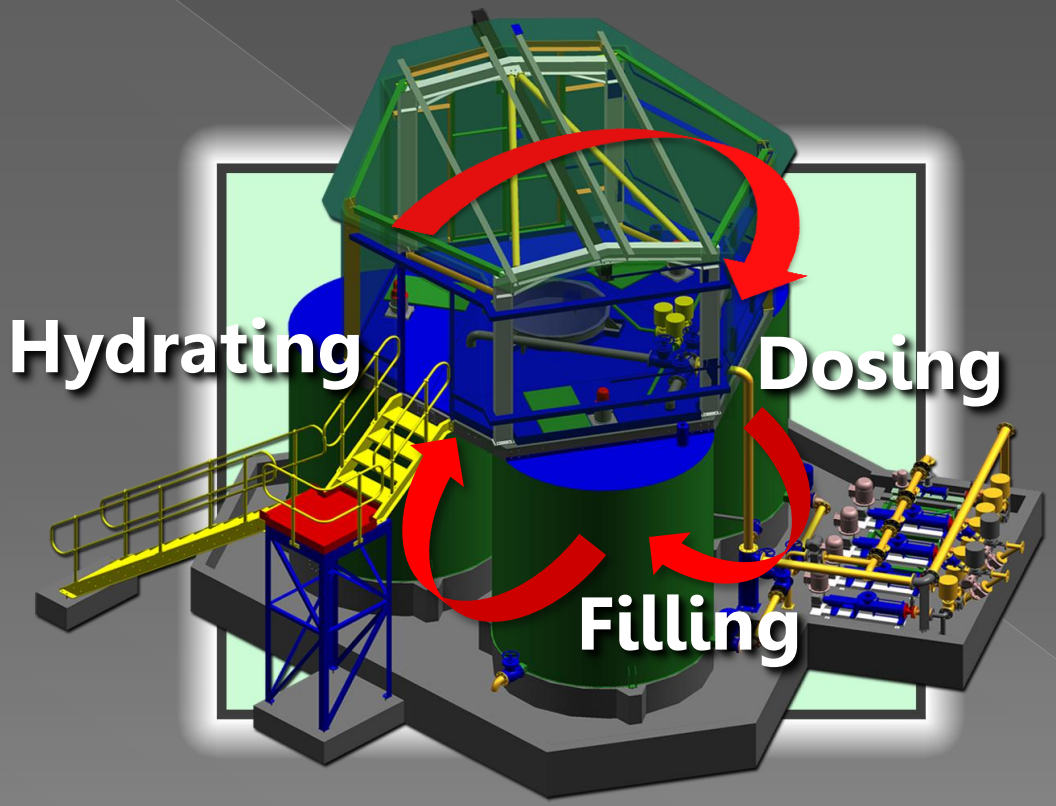
High Capacity Flocculant Plant Features

Sequential Control Operation



Sequencing Control Strategy: Each of the tanks sequentially rotate in their function. At any given time, one tank will be dosing correctly hydrated polymer to the process, while the other tanks will be performing hydrating and filling functions respectively.

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High Capacity Flocculant Plant Features

Unique Design Features

- Process oriented design philosophy focuses on maximizing availability
- Efficient compact layout minimizes the total footprint
- Delivers high quality performance with emergency redundancy capability
- High capacity size range delivering from 3kg to 300 kg or more of hydrated flocculant per hour

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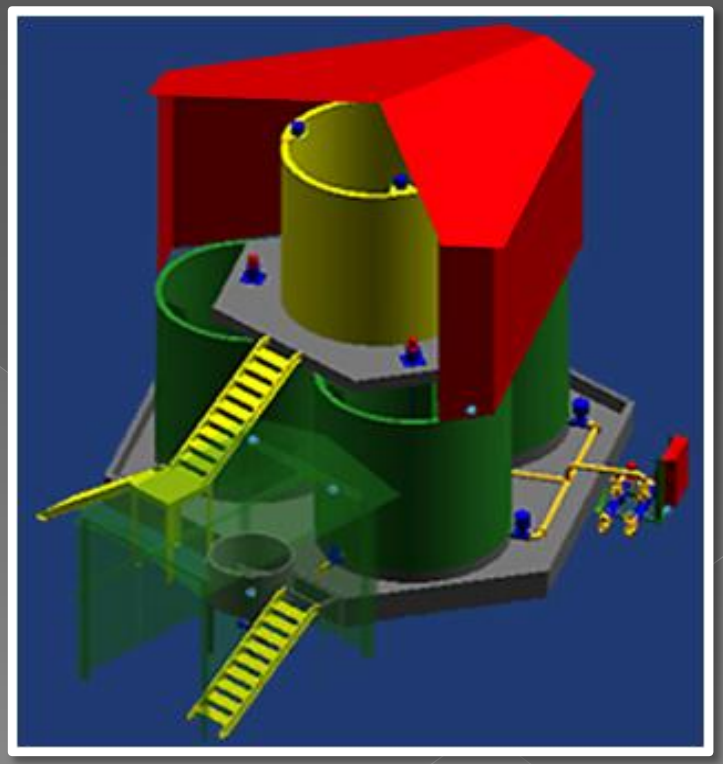
High Capacity Flocculant Plant Features

Unique Design Components

- Equal volume, baffled tanks with mechanical agitation with optional Trickle Fed Water Header Tank
- Stainless steel proprietary High Energy Hydrator and Delivery System for initial flocculant wetting and transport
- Individual pump volumetric monitoring and dilution control
- Electrical control panel with integral PLC for stand alone control
- High safety factor – explosion couplings and non-return valves supplied as standard



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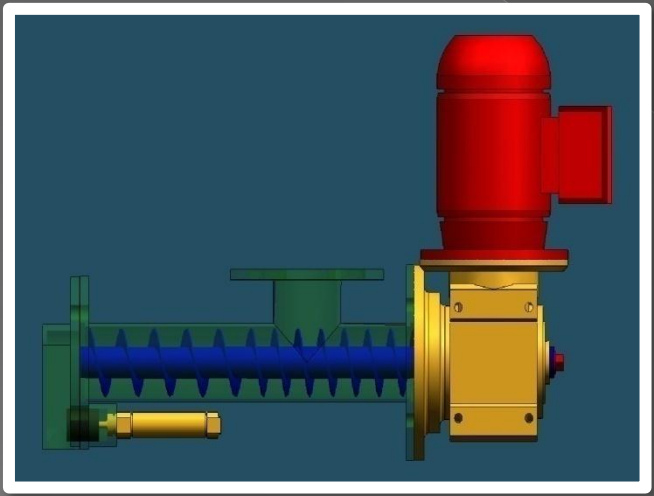
High Capacity Flocculant Plant Features

Proprietary Screw Feeder



Proprietary Triple Pitch Stainless Steel Screw Feeder, including pneumatically actuated shut off gate for prevention of moisture ingress into screw feeder.

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High Capacity Flocculant Plant Features

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High Energy Pump Hydrator

The RESOURCES™ proprietary High Energy Pump Hydrator ensures an even and complete water coating of the individual reagent particles, eliminating clotting. The water pressurized annular ring creates an even water curtain over the entire hydrator surface with no dry areas. A high energy pump then transfers the initially wetted reagent to the hydration tanks.

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High Capacity Flocculant Plant Features

Pneumatic Main Water Distribution Valve Assembly

The Pneumatic Main Water Distribution Valve Assembly is used for filling of the primary sequence tanks. The larger main water distribution valves are used to achieve rapid filling of the tanks. The smaller wetted flocculant distribution valves are used to introduce the wetted flocculant from the hydrator to the appropriate sequence tank. The compact single point location of the valves allows easy inspection and maintenance.

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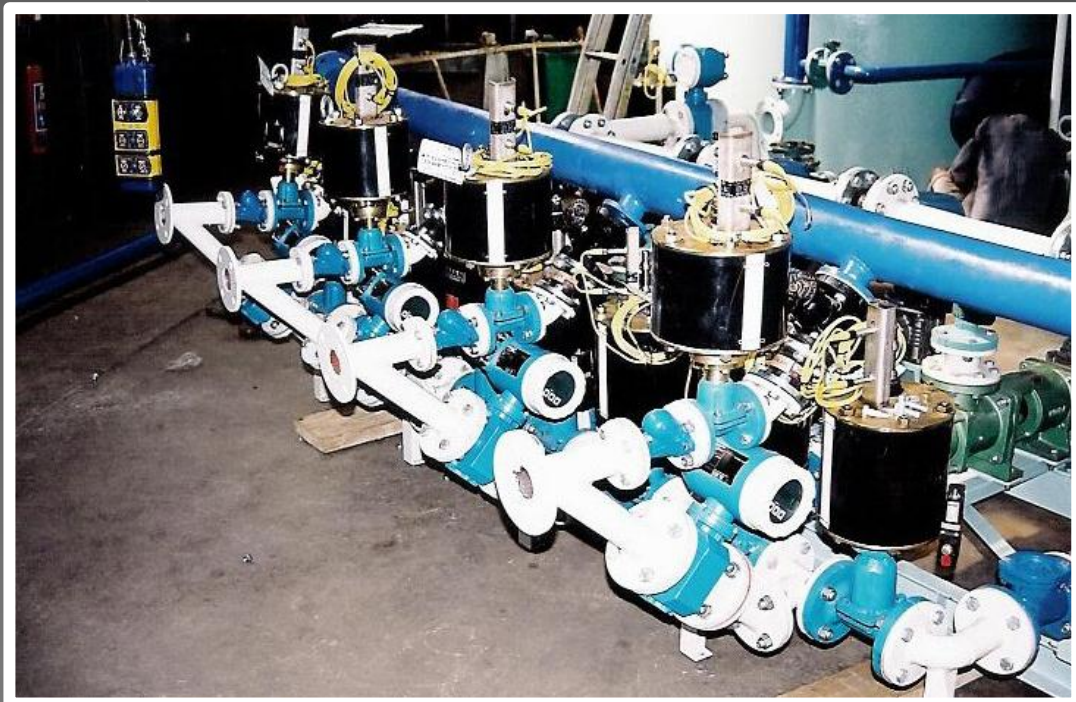
High Capacity Flocculant Plant Features

Dilution Assembly



The Dilution Assembly is for dilution to process concentration. Delivery lines are equipped with flow measurement to ensure continuous accurate dilution ratios under all operating conditions. This automation allows multiple pumps to independently operate at whatever delivery rate is required for correct concentration to numerous delivery points.

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High Capacity Flocculant Plant Features

Explosion Safety Coupling

Dangerous pressures can occur within delivery lines. Rubber Explosion Safety Couplings protect against catastrophic failure and dangerous pipe bursts in the event of unexpected damage or blockage of remote delivery piping.

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High Capacity Flocculant Plant Features

Non-Return Valve

Mechanical fail safe Non-Return Valve for protection against delivery line run-back during process shutdown or emergency stoppage.

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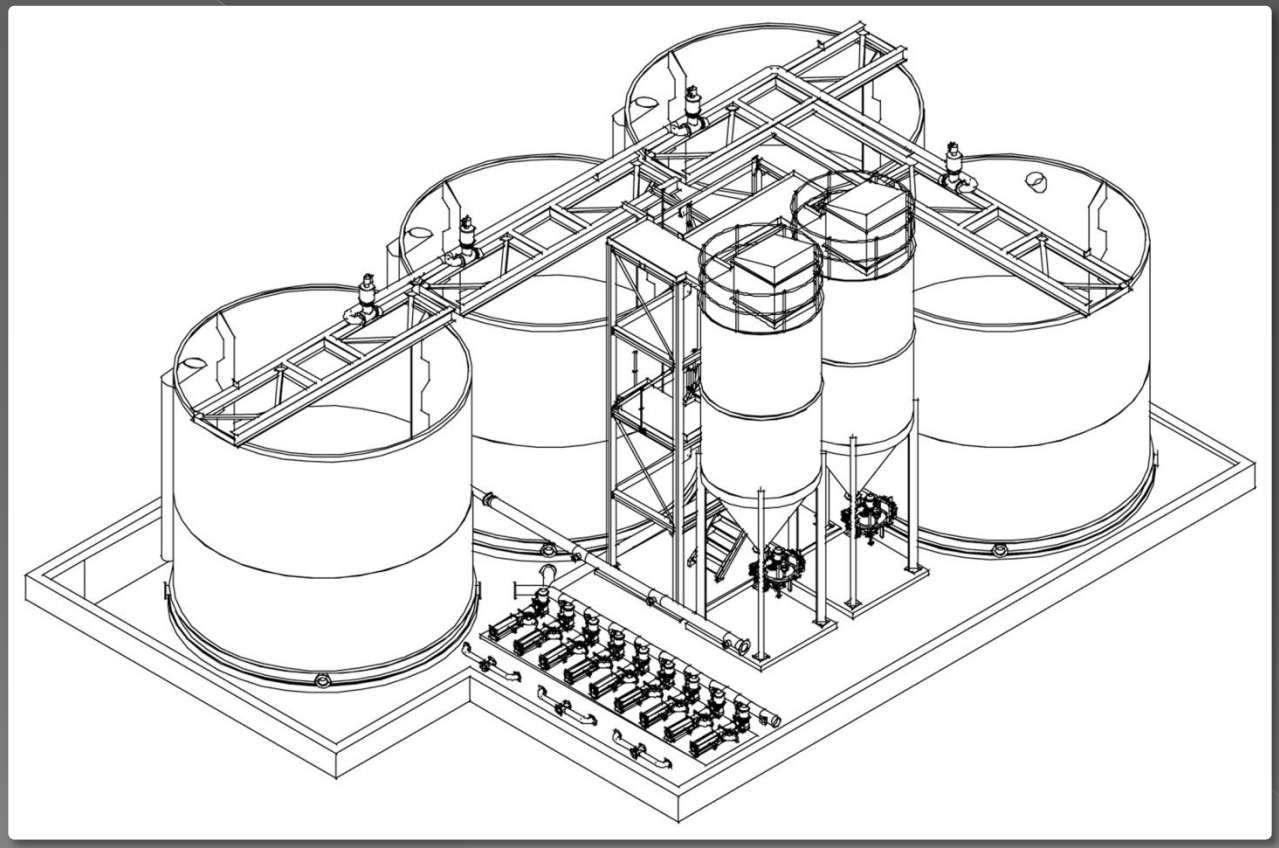
High Capacity Flocculant Plant Features

Resources C-250 Reagent Plant



High Capacity C-250 Flocculant Plant with twin 20 ton storage silos and duel high energy hydrators. Plant is shown with 4 X 175 cubic meter tanks.

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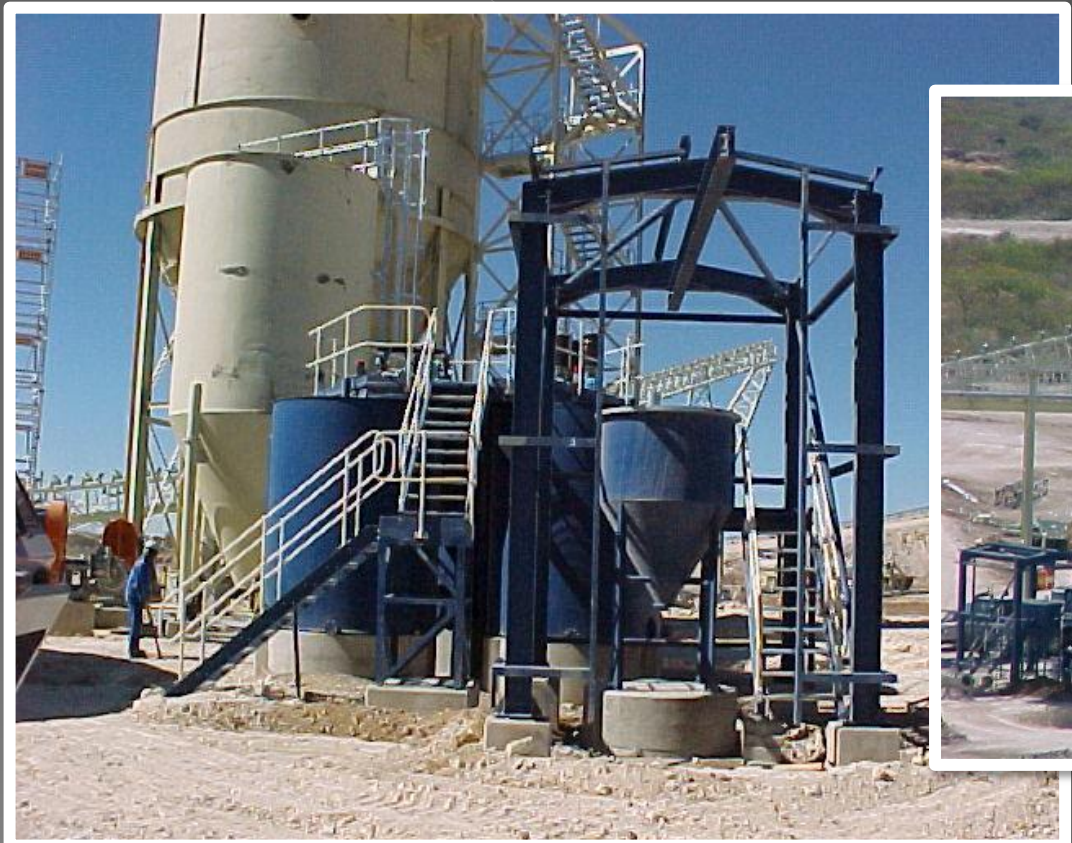
High Capacity Flocculant Plant Features

C-15 On-site Construction



C-15 with the flocculant loading and storage facility located next to the sequence tanks.

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High Capacity Flocculant Plant Features

C-15 Construction Completed Prior to Start-up

C-15 with the an enclosed flocculant loading and storage facility located above the sequence tanks.

Multiple pump manifold assembly to allow for delivery of flocculant to multiple thickeners at various dosage rates.

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Industrial Duty Flocculant Plants

BENEFITS OF A RESOURCES™ FLOCCULANT PLANT

- **Very high process availability = No loss of production = <u>Money saved</u>**

  A RESOURCES™ Flocculant Plant is designed for maximum operational availability. Emergency operational capability integral to the high capacity C-Series models ensure no production loss even if a sequence tank has to be taken offline for maintenance

- **Optimal thickener performance = <u>Money saved</u>**

  A RESOURCES™ Flocculant Plant ensures the thickener/s always receive properly hydrated flocculant at maximum activity levels. This guarantees that the thickener control philosophy implemented will not be compromised by poorly prepared flocculant. Our unique and proprietary design and integral components were created by top RESOURCES™ Process Engineers *for Process Engineers* who understand what it takes to keep a processing plant functioning smoothly and efficiently

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Industrial Duty Flocculant Plants

BENEFITS OF A RESOURCES™ FLOCCULANT PLANT

- **Minimal flocculant loss or wastage = <u>Money Saved</u>**
  Water recovery operations using thickeners often tend to lose or waste costly flocculant due to the use of inefficient, ill-equipped or make-shift flocculant plants. This loss over time can amount to hundreds of thousands of dollars. Typically this loss is several times the capital cost of the reagent plant. A RESOURCES™ Flocculant Plant can pay for itself many times over in the first year of operation

- **Flocculant type versatility = <u>Money Saved</u>**
  A RESOURCES™ Flocculant Plant can accommodate any type of flocculant as well as any practical flocculant concentration.

Resources Flocculant Plants

"A RESOURCES™ Flocculant Plant is critical to every water recovery operation. RESOURCES™ is setting a new quality and efficiency standard in the mineral processing industry."

THE COMPLETE SOLUTION

WEBSITE & PRODUCT CATALOGS

- The RESOURCES™ Water Technology Website can be viewed at: www.resourceswatertechnology.com
- The RESOURCES™ High Capacity Flocculant Plant Brochure can be downloaded from our website