



Catalogue

DENVIRO

WATER CHEMICAL & MEDIA

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Chlorine

Chlorine is a highly effective disinfectant commonly used to treat water, including wastewater. It is available in various forms, such as chlorine gas, sodium hypochlorite, or calcium hypochlorite. Chlorine works by breaking down the cell walls of bacteria and other pathogens, rendering them inactive. It is commonly used in municipal water treatment plants, industrial facilities, and wastewater treatment plants to ensure that water meets safety standards.



Function & Application

Disinfection: Chlorine is widely used to disinfect wastewater, killing bacteria, viruses, and other pathogens.

Oxidation: It helps to oxidize organic compounds in the water, improving water quality.

Application: Used in final treatment stages to ensure effluent meets health standards.



PAC 12%

Poly Aluminium Chloride

Poly Aluminium Chloride (PAC) is a widely used coagulant in water treatment. It is a high-performance chemical that aids in removing suspended solids and organic matter from water by causing particles to aggregate into larger clumps, known as flocs. PAC is more efficient than traditional aluminum sulfate in certain conditions and is often preferred due to its lower dosage requirements and better performance in a range of pH levels.



Function & Application

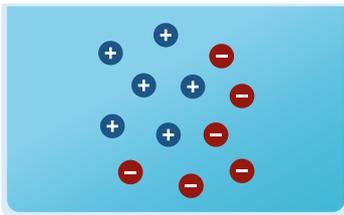
Coagulation and Flocculation: PAC is used to remove suspended solids by forming flocs that can easily be removed in sedimentation tanks.

Application: Effective in treating wastewater with high turbidity, such as in municipal or industrial wastewater treatment plants.



Anionic & Cationic Polymers

Anionic and cationic polymers are synthetic water-soluble chemicals that function as flocculants or coagulants. Anionic polymers carry a negative charge, while cationic polymers carry a positive charge. These polymers are designed to attract and bind to particles in wastewater, facilitating their aggregation into larger clumps (flocs), which can be removed through sedimentation or filtration.



Function & Application

Coagulants/Flocculants: These polymers assist in coagulating and flocculating particles in wastewater.

Application: Used in primary and secondary treatment stages for sedimentation or filtration to remove suspended particles and colloidal materials.



Kaporit

Kaporit, also known as calcium hypochlorite ($\text{Ca}(\text{OCl})_2$), is a chemical compound commonly used as a disinfectant, bleaching agent, or sanitizer. It appears as a white or grayish powder, granules, or tablets and is highly effective in killing bacteria, viruses, and fungi in water. Kaporit is widely utilized due to its ability to release chlorine upon dissolution, which acts as a potent oxidizing agent.



Function & Application

Disinfection: Kills pathogens, including bacteria and viruses, ensuring treated water is safe for discharge or reuse. Commonly used in municipal wastewater systems and industrial effluent treatment.

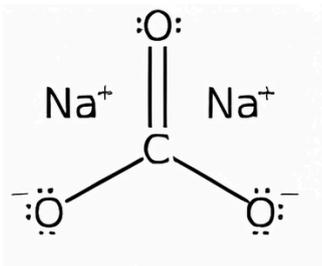
Oxidation of Contaminants: Removes harmful organic compounds and neutralizes hydrogen sulfide (H_2S), which causes foul odors in wastewater.

Pre-Treatment of Water: Used in raw water treatment to reduce microbial contamination before entering filtration systems.



Soda Ash

Soda ash, also known as sodium carbonate (Na_2CO_3), is an alkaline, water-soluble compound commonly used in industrial processes. It typically appears as a white, granular, or powdery substance and is available in two main grades: light soda ash and dense soda ash. It is derived from natural sources, such as trona ore, or manufactured synthetically using the Solvay process.



Function & Application

pH Adjustment: Used to raise the pH of acidic wastewater, ensuring the water is neutralized for safe discharge or further treatment.

Coagulation Aid: Enhances the efficiency of coagulants (e.g., PAC or alum) in removing suspended solids and impurities.

Softening Water: Removes calcium and magnesium ions in wastewater, reducing water hardness and preventing scale buildup.

Coconut Based Activated Carbon

Coconut-based activated carbon is produced from coconut shells through high-temperature carbonization and activation. It is known for its microporous structure and exceptionally high surface area, making it highly effective for adsorbing small molecules, such as volatile organic compounds (VOCs) and chlorine.



Coconut Shell



Coconut Shell charcoal



Coconut Based Carbon



Function & Application

Chlorine Removal: Coconut-based carbon effectively removes residual chlorine, improving the safety and taste of water.

Organic Contaminant Removal: It adsorbs organic pollutants like pesticides, herbicides, and pharmaceutical residues, making it ideal for polishing treated water.

Air Stripping: Commonly used for air purification systems to treat odors and volatile compounds released during wastewater treatment.

Coal Based Activated Carbon

Coal-based activated carbon is manufactured from bituminous coal, anthracite, or lignite through activation processes. It has a larger distribution of mesopores and macropores, which makes it effective for adsorbing larger organic molecules, heavy metals, and other industrial contaminants.



Coal



Carbonization



Coal Based carbon



Function & Application

Industrial Effluent Treatment: Removes large organic molecules and heavy metals, particularly in petrochemical, textile, and mining industries.

Odor and Color Control: Effectively removes odors, colorants, and hydrocarbons from industrial wastewater streams.

Metal Recovery: Utilized in processes like gold recovery from mining wastewater due to its adsorption properties.

Coconut or Coal?

what the differences?

Aspect	Coconut-Based Activated Carbon	Coal-Based Activated Carbon
Primary Use	Removal of low molecular weight contaminants like VOCs and chlorine.	Removal of large organic molecules, heavy metals, and hydrocarbons.
Pore Structure	Microporous structure, ideal for small contaminants.	Mesoporous and macroporous structure, suitable for larger contaminants.
Applications in Wastewater	<ul style="list-style-type: none"> - Chlorine removal. - Removal of pesticides and pharmaceutical residues. - Polishing treated water for reuse. 	<ul style="list-style-type: none"> - Industrial effluent treatment (textile, mining). - Odor and color control. - Heavy metal removal and recovery.
Efficiency	High efficiency for small organic molecules and residual disinfectants.	Effective for removing large, complex contaminants.
Durability	Moderate mechanical strength; ideal for low-pressure systems.	High mechanical strength; performs well in high-pressure systems.
Cost	Relatively higher cost due to sustainable and renewable sourcing.	More cost-effective for large-scale applications.
Environmental Impact	Low ecological footprint; renewable raw material (coconut shells).	Moderate ecological impact; derived from non-renewable resources (coal).
Best Suited For	Municipal wastewater treatment, drinking water polishing.	Industrial wastewater treatment, particularly in petrochemical and mining industries.
Regeneration	Can be regenerated but has slightly lower lifespan compared to coal-based carbon.	More durable during regeneration cycles, making it ideal for long-term use.

Iodine Carbon

Iodine carbon refers to activated carbon characterized by its iodine number, which indicates the adsorption capacity of the carbon for microporous structures (pores smaller than 2 nanometers). The iodine number is a critical parameter for measuring the performance of activated carbon, particularly in applications requiring the removal of low-molecular-weight organic compounds.



Function & Application

Water Treatment: Removal of organic contaminants, chlorine, and other dissolved impurities from drinking water.



Air Filtration: Adsorption of volatile organic compounds (VOCs) and odors in air purification systems.

Industrial Uses: Effective in processes requiring precise removal of small organic molecules, such as pharmaceutical manufacturing and food processing.

Multi-Pore Carbon

Multipore carbon refers to activated carbon with a broad distribution of pore sizes, including micropores (<2 nm), mesopores (2-50 nm), and macropores (>50 nm). This type of carbon is engineered to provide optimal adsorption performance for a diverse range of contaminants, making it versatile for various filtration and purification processes.

**4X10**

Function & Application

Industrial Wastewater Treatment:

Removes a broad spectrum of contaminants, including dyes, oils, and organic chemicals.

**8X16**

Effective for both low-molecular-weight substances and larger, more complex compounds.

**8X30**

Air Purification:

Captures volatile organic compounds (VOCs) and odors across a range of molecular sizes.

Terusi

Terusi, scientifically known as copper(II) sulfate (CuSO_4), is an inorganic compound typically found in its pentahydrate form, appearing as bright blue crystals. It is a versatile chemical used in various applications, including agriculture, industry, and water treatment. Its properties as a fungicide, algacide, and antimicrobial agent make it a valuable tool in controlling biological growth.



Function & Application

Algae Control: Used to prevent and eliminate algae growth in wastewater treatment systems, ponds, and reservoirs.



Biological Growth Suppression: Prevents the proliferation of bacteria, fungi, and other microorganisms that may hinder wastewater processes.

Heavy Metal Precipitation: Reacts with certain contaminants to form precipitates, aiding in their removal from wastewater.

Silica Mesh

Silica mesh refers to granular silica particles of specific sizes, used as a filtration medium in water and wastewater treatment systems. Manufactured from natural quartz sand, silica mesh is durable, chemically inert, and highly effective in removing impurities. The mesh size, indicated by numbers like 1220, 830, or 4*8, refers to the particle size range, which determines its filtration efficiency and application.



Function & Application

Filtration Media: Acts as a primary medium in sand filters, effectively trapping suspended solids and particulates.



Turbidity Reduction: Removes fine particles from wastewater, significantly improving water clarity.

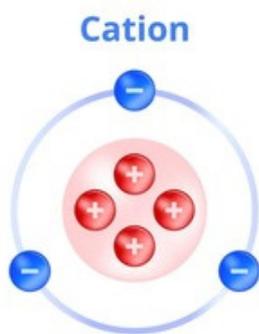


Pre-Treatment Systems: Used in pre-filtration processes to reduce the load on advanced filtration systems like reverse osmosis (RO).

Resin :

Cation (Softener)

Cation exchange resins are small, porous beads made of a polymer matrix that contain acidic functional groups, such as sulfonic acid ($-SO_3H$). These resins are designed to attract and exchange positively charged ions (cations) like calcium (Ca^{2+}), magnesium (Mg^{2+}), and iron (Fe^{2+}), which are common contributors to water hardness.



Function & Application

Water Softening: Removes calcium (Ca^{2+}) and magnesium (Mg^{2+}) ions to prevent scale formation in pipelines and equipment.

Heavy Metal Removal: Extracts metals like iron (Fe^{2+}) and copper (Cu^{2+}) from industrial wastewater.

Boiler Feed Water Treatment: Ensures water quality to avoid corrosion and scaling in boiler.

Metal Recovery: Recovers valuable metals from effluents, such as nickel or cobalt, in plating or mining industries

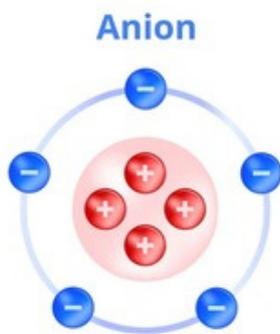


Resin :

Anion

Anion exchange resins are similarly structured but contain basic functional groups, such as quaternary ammonium ($-NR_4^+$). They target negatively charged ions (anions) like chloride (Cl^-), sulfate (SO_4^{2-}), and nitrate (NO_3^-).

Contaminant Removal: These resins remove undesirable anions, particularly in industrial wastewater where high levels of sulfates or nitrates are problematic.



Function & Application

Nitrate and Sulfate Removal: Reduces nitrate (NO_3^-) levels in agricultural runoff and municipal water supplies. Eliminates sulfate (SO_4^{2-}) to prevent scaling and contamination in industrial systems.

Chromate and Arsenate Removal: Used to mitigate toxic anions, such as chromate (CrO_4^{2-}) and arsenate (AsO_4^{3-}), from wastewater.

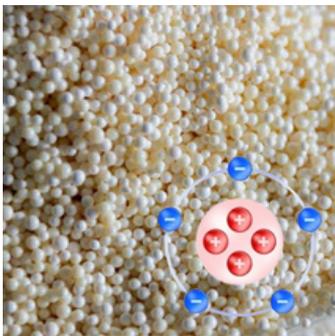
Deionization: Works in tandem with cation resins to remove all ionic impurities, producing ultrapure water for sensitive industrial processes.



Resin :

Anion Marcopore

Anion marcopore resin is a type of ion-exchange resin designed with a macroporous structure, offering high surface area and enhanced accessibility to ionic contaminants. The macroporous design enables effective adsorption and exchange of anions, including large, complex organic molecules, that may not be efficiently captured by gel-type resins.



Function & Application

Water Treatment:

Removes anionic impurities such as nitrates, fluorides, and sulfates from drinking water.



Used in the demineralization of industrial process water.

Wastewater Treatment:

Captures large organic anions in industrial effluent, ensuring compliance with discharge regulations.

Effective in tertiary treatment processes for reducing water hardness and salinity.

Manganese Greensand

Manganese Greensand is a filtration media used primarily for the removal of dissolved iron (Fe), manganese (Mn), and hydrogen sulfide (H₂S) from water. It is made by coating a natural glauconite substrate with manganese dioxide, creating an active layer capable of catalyzing oxidation-reduction reactions. This media can be regenerated with a potassium permanganate solution, which restores the manganese dioxide coating, ensuring long-term use and efficiency.



Function & Application



Industrial Water Treatment: Treats water for industrial processes, particularly to reduce scaling caused by iron and manganese and prepares water for use in sensitive applications, such as cooling towers or boiler systems.

Municipal Wastewater Treatment: Polishes effluent water by reducing iron and manganese concentrations before discharge and contributes to meeting environmental discharge standards.

Manganese Greensand Plus

Manganese Greensand Plus is a filtration media designed specifically for the removal of iron (Fe), manganese (Mn), hydrogen sulfide (H₂S), arsenic (As), and radium (Ra) from water. It is an enhanced version of traditional manganese greensand and is made by coating silica sand with a manganese dioxide layer. This coating provides an active surface that catalyzes oxidation-reduction reactions, converting dissolved iron and manganese into insoluble particles that are then filtered out.



Function & Application



Industrial Water Treatment: Treats boiler feed water by reducing manganese and iron, which can cause scaling and be used in industrial process water systems to maintain equipment efficiency.

Municipal Wastewater Treatment: Removes iron and manganese during tertiary filtration processes to meet discharge standards and helps reduce heavy metal content in effluent water.

Zeolite

Zeolite is a naturally occurring aluminosilicate with high cation-exchange capacity. It effectively removes ammonia, heavy metals, and other dissolved contaminants from water. Zeolite is commonly used in biological treatment systems and ion-exchange processes. It removes ammonium ions and reduces nitrogen loads, making it valuable in aquaculture and municipal wastewater.



Function & Application

Ion Exchange and Ammonia Removal: Zeolite media exchanges cations and removes ammonia and heavy metals from wastewater.

Application: Common in biological treatment systems, aquaculture, and wastewater treatment plants to reduce nitrogen levels.





CONTACT US

Email: admin@ditant.com

Call: +62 896-5501-4464

Website: www.ditant.com

Komplek P&K Jl. Cempaka Gg.

Palem No.56, Serang, Banten 42118