

# The Background And Significance Of Research And Development Of Flocculants

The Background And Significance Of Research And Development Of Flocculants by vcycletech , we provide latest information about the products regularly.

In recent years, our society has been undergoing rapid social economy, industry, and agriculture development. Environmental pollution has become increasingly severe. Three inevitable problems that are urgently waiting for us to think of a solution are energy conservation, emission reduction, and the treatment of the three wastes. According to statistics, the current water shortage in our country has exceeded 7 billion m<sup>3</sup>/a. The annual economic losses amounted up to 400 billion yuan. 60 to 70% of the water shortage is caused by water pollution. In our country, industrial and urban sewage treatment rate is relatively low, and water pollution is still severe. Protecting water sources and developing industrial and urban sewage treatment technologies has become one of our top priorities. You can click for more about [Coagulants And Flocculants](#)



With the improvement of our living standards, the requirements for water quality are getting higher and higher. However, the discharge of industrial wastewater and urban sewage is still increasing. According to our environmental statistics, the total amount of urban and domestic wastewater accounts for 70% of industrial wastewater. It can be seen that the amount of urban industrial wastewater was 23.2 billion tons in 1990, 25.6 billion tons in 1995, and 28.1 billion

tons in 2000. The statistic researches and evaluates the estimation of the amount of urban industrial wastewater and urban sewage. The total amount of urban wastewater in 1990, 1995, and 2000 was 34.8 billion tons, 39.2 billion tons, and 43.9 billion tons, respectively. When there are too many substances and exceed the self-purification capacity of the water body, the water body cannot maintain its original form and function. The grade and availability of water bodies will reduce. Gradually, a poor water environment is formed, polluting water sources, soil, crops, and aquatic organisms, affecting the quality of industrial products, and endangering physical and human health. Therefore, one of the most severe challenges facing mankind today is protecting and restoring a seriously degraded and increasingly degraded environment. A sign of environmental degradation is widespread air pollution, water pollution, and soil pollution. Human-induced large-scale disasters continue to occur, endangering the survival and development of mankind. Some have developed into global problems, such as the destruction of the ozone layer and the greenhouse effect. This paper focuses on the impact of industrial wastewater on the ecological environment.

Under the highly concentrated current industry situation, the wastewater discharged from industrial production pollutes the surrounding environment more and more seriously. According to the different environmental hazards caused by sewage, pollutants can be divided into solid contaminants, organic pollutants, oil pollutants, toxic pollutants, biological pollutants, acid-base pollutants, nutrient pollutants, and sensory pollutants.

Solid pollutants in water mainly refer to suspended solids. A large number of suspended solids discharged into the water body cause deterioration of appearance, an increase of turbidity, and a change in the color of the water. Suspended solids sinking to the bottom of rivers silt up the river, endanger the reproduction of benthic organisms in the water body, and affect fishery production. When deposited on irrigated farmland, they will block soil porosity, affect ventilation, and are not conducive to crop growth. Organic pollutants refer to natural organic substances in carbohydrates, proteins, amino acids, fats, and certain degradable synthetic organic substances. Suppose too many organic pollutants are discharged into the water body, which exceeds the self-purification capacity of the water body. In that case, the water body will be deprived of oxygen and affect the survival of plants in the water. In severe cases, it will cause many deaths of plants and animals in the water. Oil pollutants mainly come from oily wastewater. The oil content of the water body reaches 0.01mg/L, which can make the fish have a special smell and cannot be eaten. When the oil exceeds, an oil film is formed on the water surface, isolating the atmosphere, destroying the normal oxygenation conditions, and finally causing the water body to become hypoxic. The oil film can also attach to the fish's gills, making it difficult to breathe or suffocate. During the spawning period, most fry hatched in oily waters are deformed, have low vitality, and are prone to death. In addition, oily pollutants also impact plants, hindering light transmission and photosynthesis, reducing the yield of rice and vegetables, or even failing to harvest. The toxic pollutants in wastewater mainly include inorganic chemical poisons, organic chemical poisons, and radioactive substances. Inorganic chemical poisons mainly include metal and non-metal. Metal poisons mainly include mercury, chromium, cadmium, lead, zinc, nickel-copper, cobalt, manganese, titanium, vanadium, molybdenum, bismuth, and rare earth elements, especially the first few. This kind of harm is

even greater. These metal elements are not easily or completely incapable of biodegradation. Most metal element ions and their compounds are easily absorbed by suspended particles in water and residue in the sediment layer at the bottom of the water. So they will lead to the pollution of the water body for an even longer time. Certain metals and their compounds can accumulate and enrich fish and other aquatic organisms and crop tissues and cause harm. Through drinking water and the food chain, metal poisons accumulate in the human body and become poisoned and even cause death. Some important non-metallic substances will also cause harm, like, arsenic, selenium, cyanide, sulfur, nitrite, and so on. Take nitrite as an example. It can generate nitrosamines with secondary amines in the human body and is strongly carcinogenic.

Organic chemical poisons mainly refer to phenols, benzene, organic pesticides, polychlorinated biphenyls, polycyclic aromatic hydrocarbons, etc. These substances are highly toxic. For example, polychlorinated biphenyls are lipophilic, easily soluble in fats and oils, and may cause cancer. Polycyclic aromatic hydrocarbons are also carcinogens. Radioactive substances refer to substances that emit radiation when the nucleus decays. Such substances can emit  $\alpha$ ,  $\beta$ , and  $\gamma$  rays through their own decay. Radioactive substances enter the human body and continue to release rays, harm the body, and cause people to suffer from anemia, malignant tumors, and other diseases. Biological pollutants are carcinogenic microorganisms contained in wastewater. Wastewater and domestic sewage contain many microorganisms, mostly harmless. Still, they may contain pathogenic bacteria harmful to humans and livestock, such as *Bacillus anthracis* contained in sewage from leather factories. Acid-base pollutants refer to the acidic and alkaline pollutants contained in wastewater. Acid-base pollutants are highly corrosive and can corrode pipelines and buildings.

The discharge of acid-base pollutants into the water body will change the pH value of the water body. Thus destroying the natural buffering effect, inhibit the growth of microorganisms, hinder the self-purification of the water body, and cause the water body to deteriorate. The soil is acidified or alkalized. The N and P contained in wastewater are the main nutrients for plants and microorganisms. When the wastewater discharges into the water body, the concentration of N and P in the water becomes higher than 0.2mg/L and 0.02mg/L, respectively. The caused eutrophication of the water body will promote the activity of various aquatic organisms (mainly algae), stimulate their abnormal proliferation. As a series of harms occur, such as large numbers of deaths of fish and other organisms due to lack of oxygen. Sensory pollutants refer to pollutants in wastewater that can cause people to feel unpleasant. Such substances can cause water quality to produce turbidity, foul smell, peculiar smell, color, foam, etc. The harm caused by the high temperature of wastewater is called thermal pollution. Some wastewater with a high temperature is discharged into the water body. This thermal pollution reduces the dissolved oxygen, harming the growth of aquatic organisms, and even causing death.

**Industrial wastewater pollution destroys the ecological environment and even endangers human health.**

Water is not an inexhaustible natural resource. It is a limited resource, and water is even more precious to water-scarce areas. Therefore, the prevention and control of industrial water pollution and the protection of the ecological environment have become common concerns.

Water-soluble polymers, one of the most valued polymers today, are in a stage of rapid development in both production and application. Polyacrylamide and its copolymer derivatives are one of the most widely used varieties of water-soluble polymer compounds.