



## DIOTIN Uses:

DIOTIN is the most evolved way to treat water. Powered by a totally unique IP in a world of commodity chemicals, in a sector that has had no meaningful innovation since the 1960s.

DIOTIN delivers a step change in water treatment, outperforming chlorine and all traditional biocides in terms of water quality and safety, but also delivering measurable improvement in all other key areas including cost to treat, ESG, safety, reduced gas emissions, simplicity, and more.

DIOTIN was developed by a pioneering biochemist in Germany and is now being applied to major areas of water stress and importance, with immediate positive impact in areas including:

- 1. Human and Municipal Water Treatment:**  
DIOTIN delivers safer, more consistent water to towns and cities, with less chemical present in the water, reduced CAPEX and OPEX, and reduced hazardous byproducts in line with the new WHO guidelines, which are proving to be impossible to meet with conventional biocides (see attached).
- 2. Heavy Industry:**  
DIOTIN delivers significantly improved water quality using less product, and drives ESG and cost benefits throughout the entire supply chain including: fewer deliveries, reduced manpower requirements, little or no installation and maintenance costs, improved productivity for greater revenue, and reductions to previously accepted levels of costly system damage and shutdown time.
- 3. Desalination:**  
DIOTIN is the only chemical that remains effective over long distances and at higher temperatures—delivering constant, safe, reliable water supplies in areas of high water demand. It maintains clean and safe systems, driving huge cost savings in system maintenance with major additional ESG and health benefits.
- 4. Hot Water Systems:**  
The unique stability of the evolved formula in DIOTIN results in market-leading performance in any hot water systems where Legionella has historically been a daily challenge. Key areas of immediate positive performance and safety impact include hotels, hospitals, schools, retail and leisure complexes, water parks, and holiday camps.
- 5. Animal Drinking Water:**  
The unique stability mechanism within DIOTIN means that while keeping systems cleaner and safer, DIOTIN does not affect the taste of the water—resulting in water with no chlorine taste or odor. This encourages animals to drink more, cleaner water, leading to better animal health, increased weight and size, and faster achievement of target weight—ultimately resulting in massive increases in profitability and production volumes.
- 6. Cooling:**  
Cooling is one of the major uses of chemicals in most aspects of heavy industry. DIOTIN's ultimate power and stability at lower doses deliver increased productivity, with total system safety, resulting in improved performance without disruptions due to toxic system growth.
- 7. Airports, Trains, Boats:**  
DIOTIN is used in many aspects of travel—including delivering high-quality water supply to key airports in the Gulf, water systems on high-speed trains where passenger safety and quick turnaround between journeys are vital, and on cruise ships and transport vessels where constant, high-quality disease prevention in water systems is essential. The long lifespan of DIOTIN, along with easy storage and simple, safe dosing, results in a constant supply of safe, clean water.



# Disinfection By-Products: Chlorates and Trihalomethanes (THMs)

## What are Disinfection By-Products (DBPs)?

DBPs, such as Chlorates and THMs, are unwanted chemicals formed when disinfectant react with naturally occurring organic matter in water during the disinfection process.

## Health effects caused by DBPs

DBPs can pose serious health risks with long-term exposure through ingestion or skin contact.



### Carcinogenic Effects

Long-term exposure to DBPs in drinking water has been linked to an increased risk of bladder cancer and possibly colorectal cancer.



### Respiratory Problems

Exposure to volatile DBPs during activities like showering and swimming may cause airway irritation and exacerbate asthma.



### Reproductive Effects

DBP exposure during pregnancy has been associated with adverse outcomes, including low birth weight and pre-term birth.



### Cardiovascular Disease

Chronic ingestion of DBPs has been suggested to contribute to cardiovascular issues such as hypertension and increased risk of stroke.



### Liver and Kidney Damage

Some DBPs have been shown to cause liver and kidney toxicity, potentially leading to functional impairments with prolonged exposure.



## How the World Health Organisation is Tackling This in Europe

- WHO recommends 700 µg/L for Chlorates, having previously had no specific guidelines, based on improved toxicological and exposure data.
- The WHO guidelines for the four most common THMs (Chloroform, Bromoform, Dibromochloromethane, Bromodichloromethane) range from 60 - 300 µg/L.

## Coca-Cola Recall

In January 2025, Coca-Cola Europacific Partners issued a recall of several products after tests revealed elevated chlorate levels. The contamination was traced back to the water treatment process used during manufacturing at a Belgian facility.

## Sodium Hypochlorite in Saudi Arabia

Sodium Hypochlorite is widely utilised as a disinfectant in both municipal and private water treatment facilities across Saudi Arabia.

In the Al-Ahsa region, for example, all 45 private water purification plants employ sodium hypochlorite for disinfection. Additionally, chlorination is a standard practice in desalination plants.