GLORINDA
Ideas Beyond Imagination

GLORINDA Company

Water & Wastewater Solutions

Member of
German Water
Partnership

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About Us

Glorinda GmbH, an international holding company, delivers industrial services through its branches worldwide. With extensive expertise, we support businesses and industries in adopting innovative ideas, addressing challenges, and enhancing operational efficiency.

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Our Focus

Sustainability

Innovation

Efficiency

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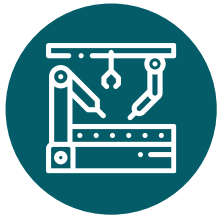
What We Do?

Create & develop new business models

Glorinda engages in various activities to provide services to its partners and affiliate companies across different aspects. Key activities include:



Manufacturing

Engineering

Industrial services

Integration

Acceleration of startups

Finance

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Markets
We Serve

By gathering specialists, innovation, and creativity in different fields, Glorinda is able to provide solutions across multiple industries. Our activities are centered in the following sectors:

- Power
- Environment
- Oil and gas
- Food and pharmaceutical

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Water & Wastewater Technologies

One of Glorinda's most specialized and core activities is the water and wastewater sector. In this field, our primary focus is on maximizing water recovery and minimizing environmental impact by avoiding outdated methods and utilizing advanced efficient systems.

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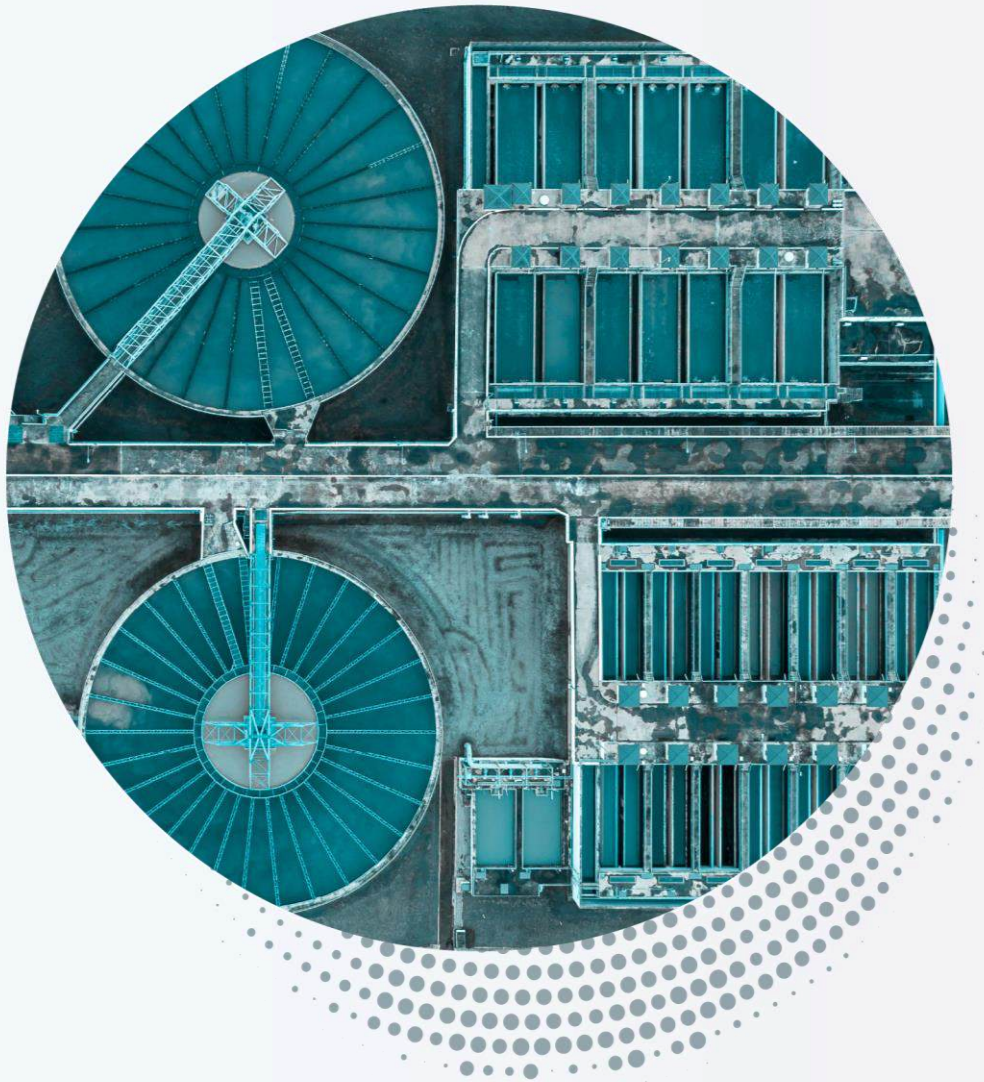
Areas of Our Activities

Glorinda provides solutions in four key areas of water and wastewater treatment, including:

- Industrial water and wastewater treatment plants
- Municipal wastewater treatment plants
- Sea water desalination plants
- Direct Lithium extraction (DLE)



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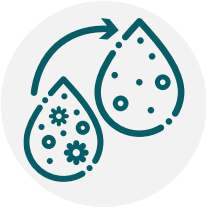
Areas of Our Activities

An integrated approach to water resources conservation

Glorinda designs processes based on individual requirements, which can be broadly categorized as follows:



Pre-treatment

ZLD

Post-treatment

Sludge management

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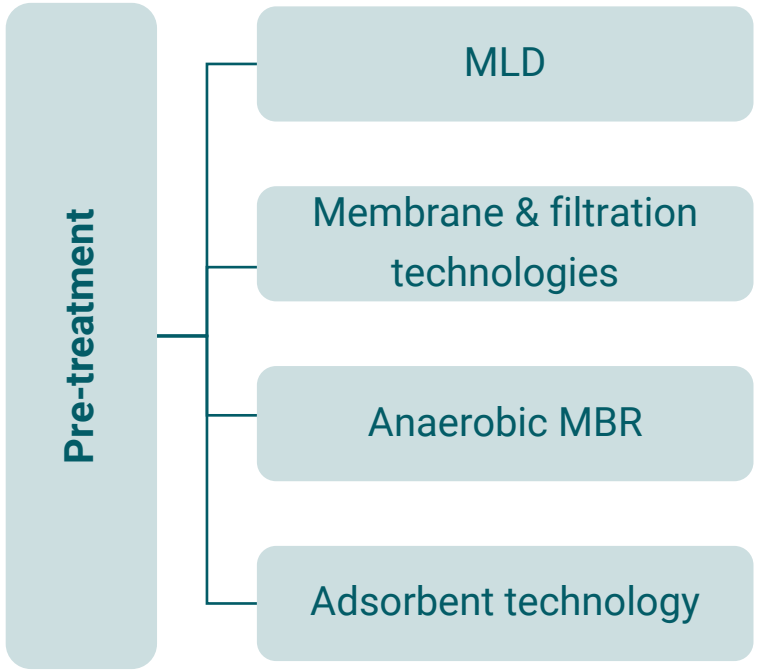
Pre-Treatment

A key to a successful water treatment

Effective pre-treatment can significantly reduce costs in the main treatment stages and enhance the overall process efficiency.

Among the many existing pre-treatment methods and equipment, Glorinda offers the most efficient solutions, as listed here.



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Pre-Treatment

Minimum Liquid Discharge (MLD)

- Around 85% water recovery from wastewater streams.
- A cost-effective alternative to expensive technologies like evaporation.

- Conventional reverse osmosis (RO)
- Closed circuit reverse osmosis (CCRO)
- High-efficiency reverse osmosis (HERO)

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Pre-Treatment

Membrane & Filtration Technologies

- Ultrafiltration (UF)
- Nano-filtration (NF)
- Ceramic membranes
- SiC membranes
- Hollow fiber membranes
- Tubular membranes
- Flat sheet membranes
- Membrane bioreactors (MBR)

cembrane CERTIFIED PARTNER PROGRAM

In this segment, Glorinda partners with Cembrane, the world's leading producer of Silicon Carbide (SiC) membranes for water and wastewater treatment, ensuring state-of-the-art solutions for our clients.

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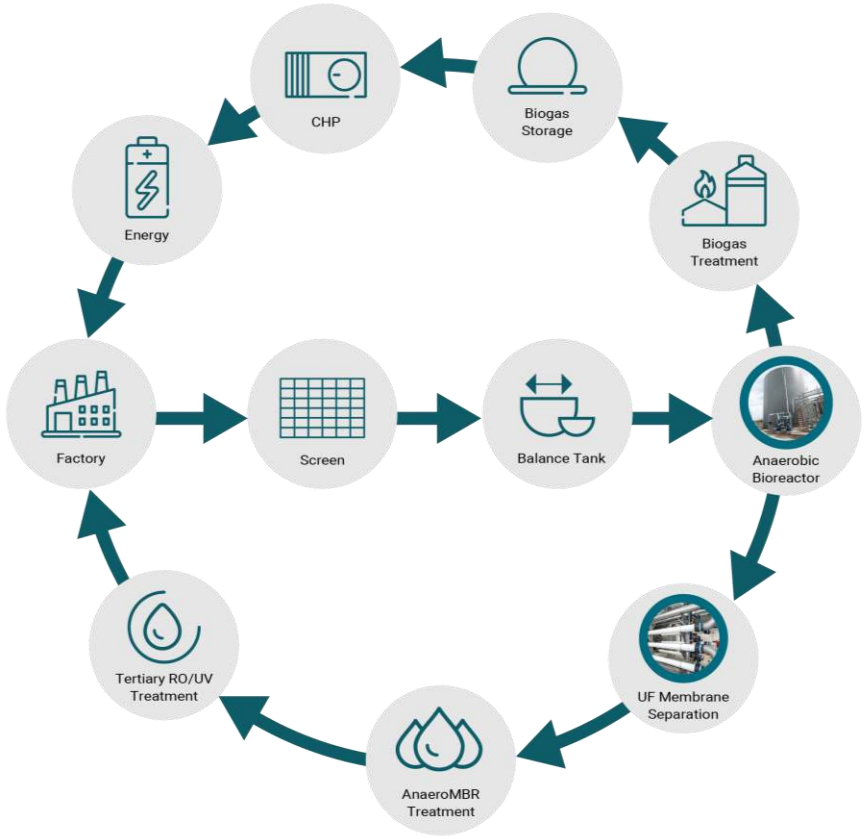
Pre-Treatment

AnaeroMBR

Combination of a low-rate completely mixed anaerobic reactor with Glorinda's proprietary low-energy UF membrane separation technology.

AnaeroMBR is ideal when:

- Treating high BOD and COD wastewater
- Lower operational costs (OPEX)
- Maximum conversions of organics into biogas
- Reducing sludge production



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Pre-Treatment

Adsorbent Systems

Key capabilities:

COD removal	Achieves up to 90% removal without electricity, reducing COD to 50-70 ppm through a simple flow-through process
TSS removal	Effectively eliminates total suspended solids
Heavy metal removal	Removes Zn, Cr, Fe, Cd, Cu, and up to 99.5% of Pb
Cyanide & pesticides removal	Ensures safe disposal of harmful compounds
Silica removal	Addresses silica contamination
Ammoniacal Nitrogen removal	Reduces nitrogen-related pollutants
Redox chemistry	Neutralizes pollutants via advanced oxidation and reduction
Color removal	Restores clarity by eliminating unwanted colors

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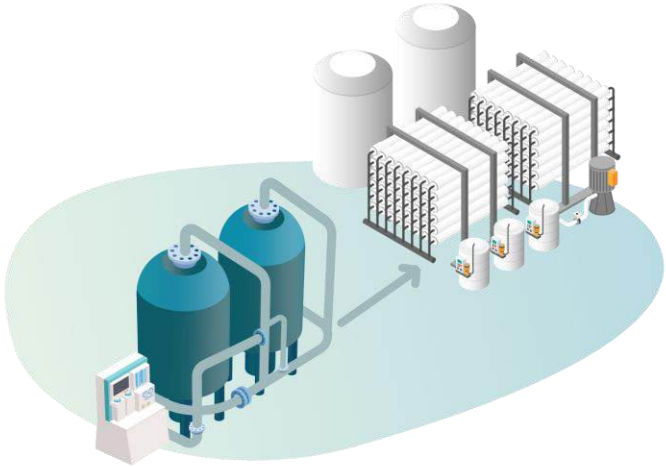
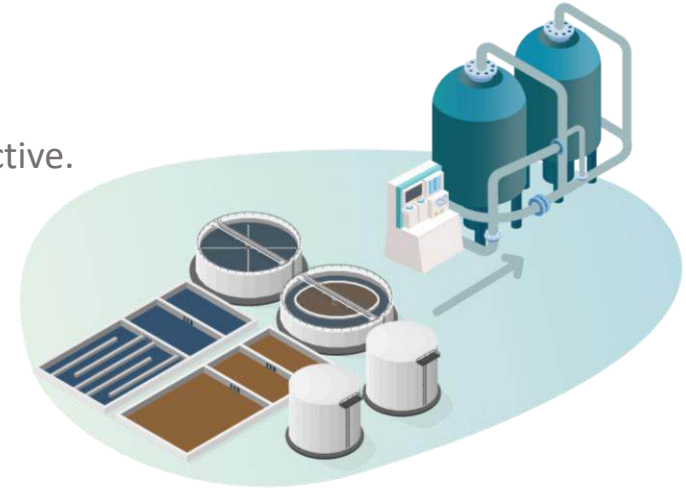
Pre-Treatment

Adsorbent system advantages:



Glorinda System Before RO

- **Durability:** Performs under extreme conditions of temperature, pH, and pressure.
- **Regenerable:** On-site regeneration allows for hundreds of cycles, making it reusable and cost-effective.
- **Low CAPEX:** Requires minimal upfront investment and no expensive chemicals.
- **Plug & play setup:** Easy installation and operation.
- **Resource recovery:** Recovers valuable contaminants for reuse.
- **Minimal waste:** Produces <1% waste, far better than RO systems' 30%.
- **No inlet quality limitation:** Handles a wide range of feedwater qualities effectively.



Glorinda System After Wastewater Plants

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ZLD Technology

Most effective method of wastewater treatment

- Producing clean, high-quality water with nearly 100% recovery.
- Depending on the type of incoming wastewater, the solid output can be used in various ways, such as organic compost, backup fuel in incinerators, organic fertilizer, or animal feed.
- The system operates 24/7.

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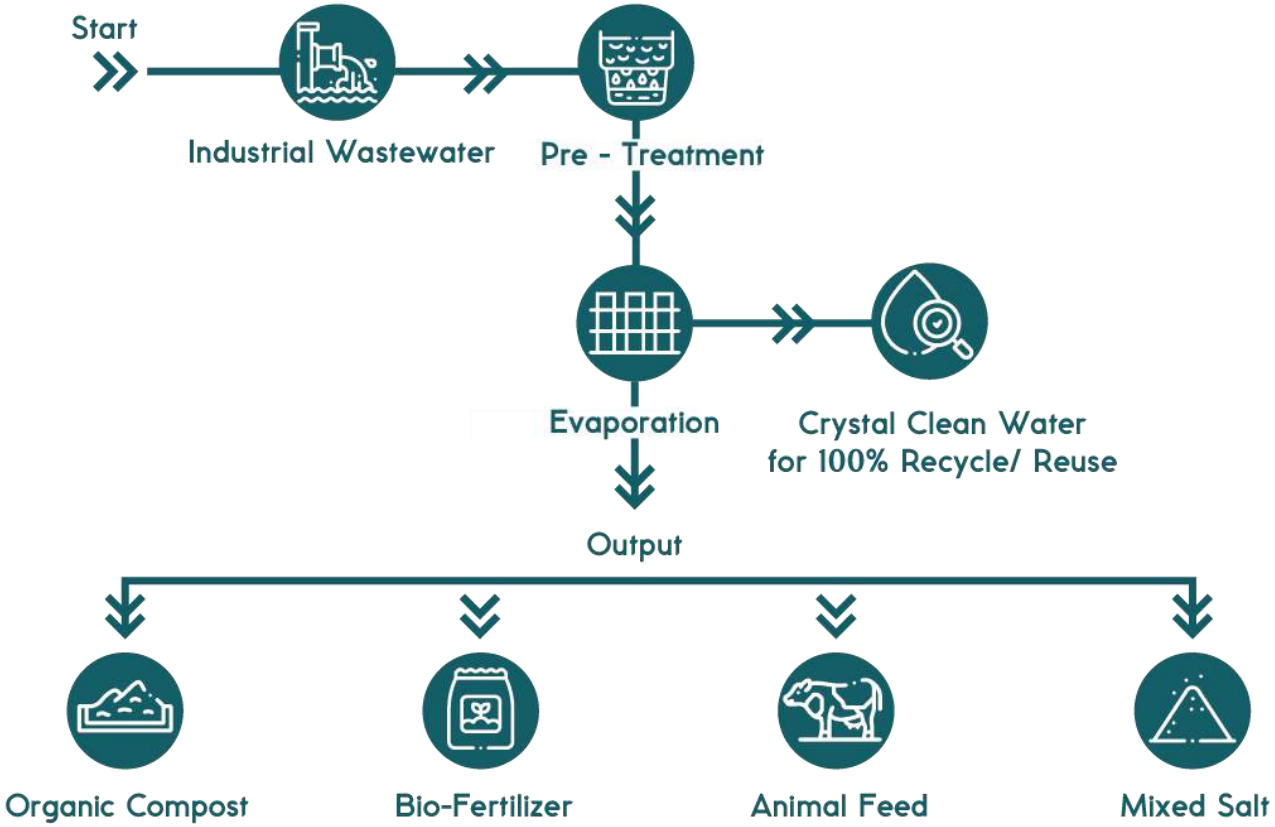
ZLD Technology

Based on wastewater specifications, volume, waste types, and customer treatment goals, the process consists of a combination of the following stages:

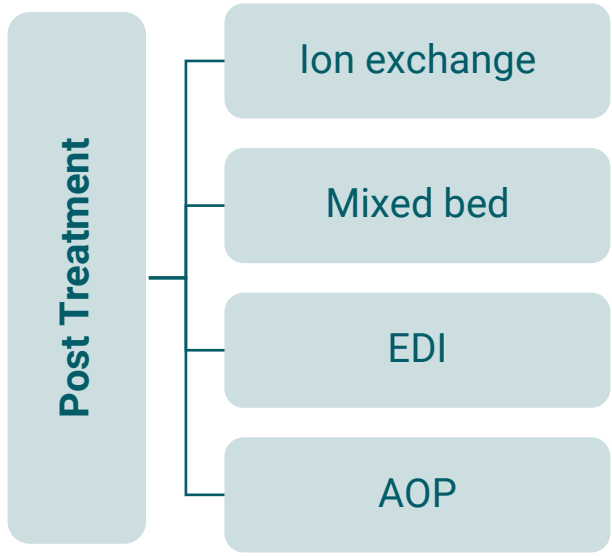
- Pre-treatment
- Evaporation
- Crystallization
- Drying
- Output management



Post Treatment

High-quality water production for specific needs

Glorinda Resins, a subsidiary of Glorinda, specializes in resins and offers over 200 types for various industries, including water and wastewater treatment.



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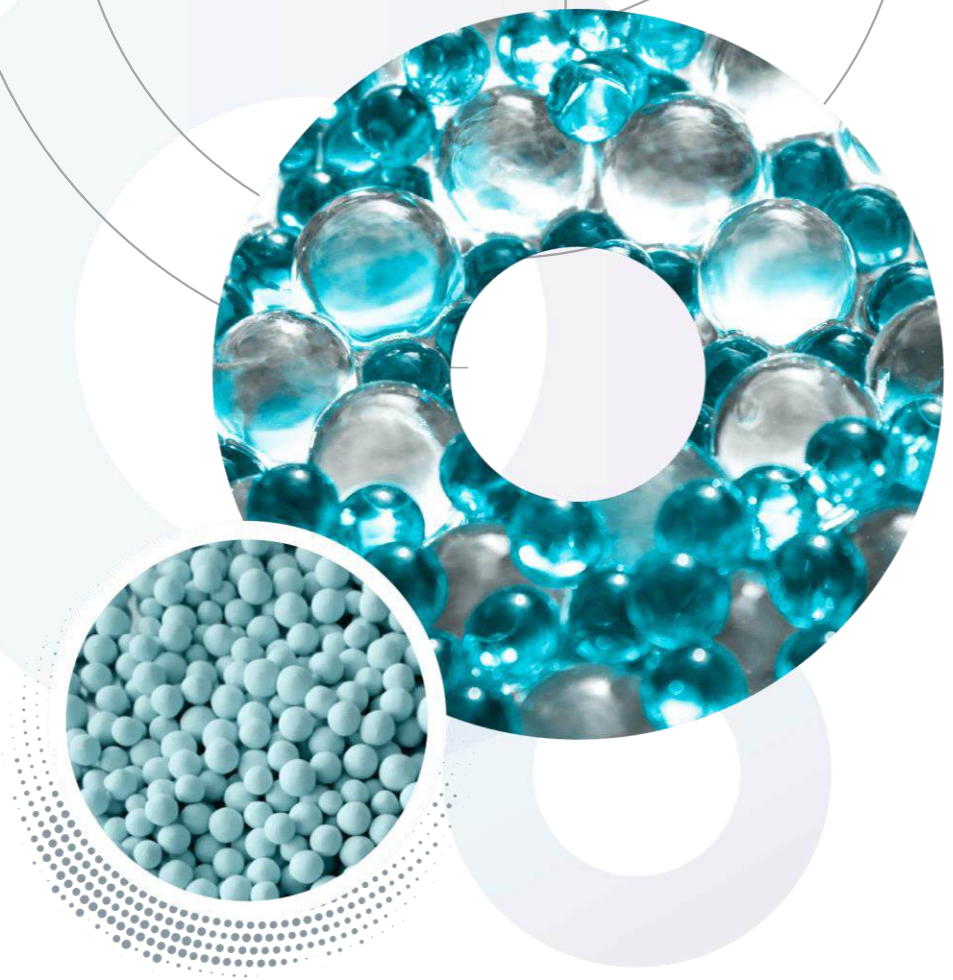
Post Treatment

Ion-exchange Resin & Mixed Bed

Glorinda Resin's ion-exchange and mixed bed systems are suitable for the following applications:

- Oil, gas, and petrochemical processes.
- Power plant processes.
- Environmental processes, recycling, and separation.
- Food processing and pharmaceutical industries.



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Post Treatment

Electrodeionization (EDI)

- Producing ultrapure water by removing dissolved ions, minerals, and impurities
- Chemical-free process (environmentally friendly)
- Continuous operation

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Post Treatment

EDI vs. Mixed-bed

Category	EDI (Electrodeionization)	Mixed Bed
Regeneration	No regeneration required	Requires frequent regeneration with acids and alkalis
Environmental impact	Environmentally friendly	Generates hazardous waste liquids during acid-base regeneration
Initial investment	About 20% higher than mixed bed systems	Lower initial investment
Operating costs	Lower than mixed bed	12.5% higher than EDI
Maintenance	Minimal maintenance	Complex maintenance
Space requirements	Compact design with a smaller footprint	Requires larger space due to additional facilities for acid/alkali storage

Post Treatment

Hydrogen Peroxide Generation & Advanced Oxidation Process (AOP)

Glorinda, in partnership with HPNow, provides sustainable hydrogen peroxide-based solutions for clean water and sanitation in municipal and industrial applications.
This solution can be integrated into our processes, offering several benefits, including:

- Reduced chemical usage
- Lower logistical and handling costs
- Improved supply reliability and occupational safety

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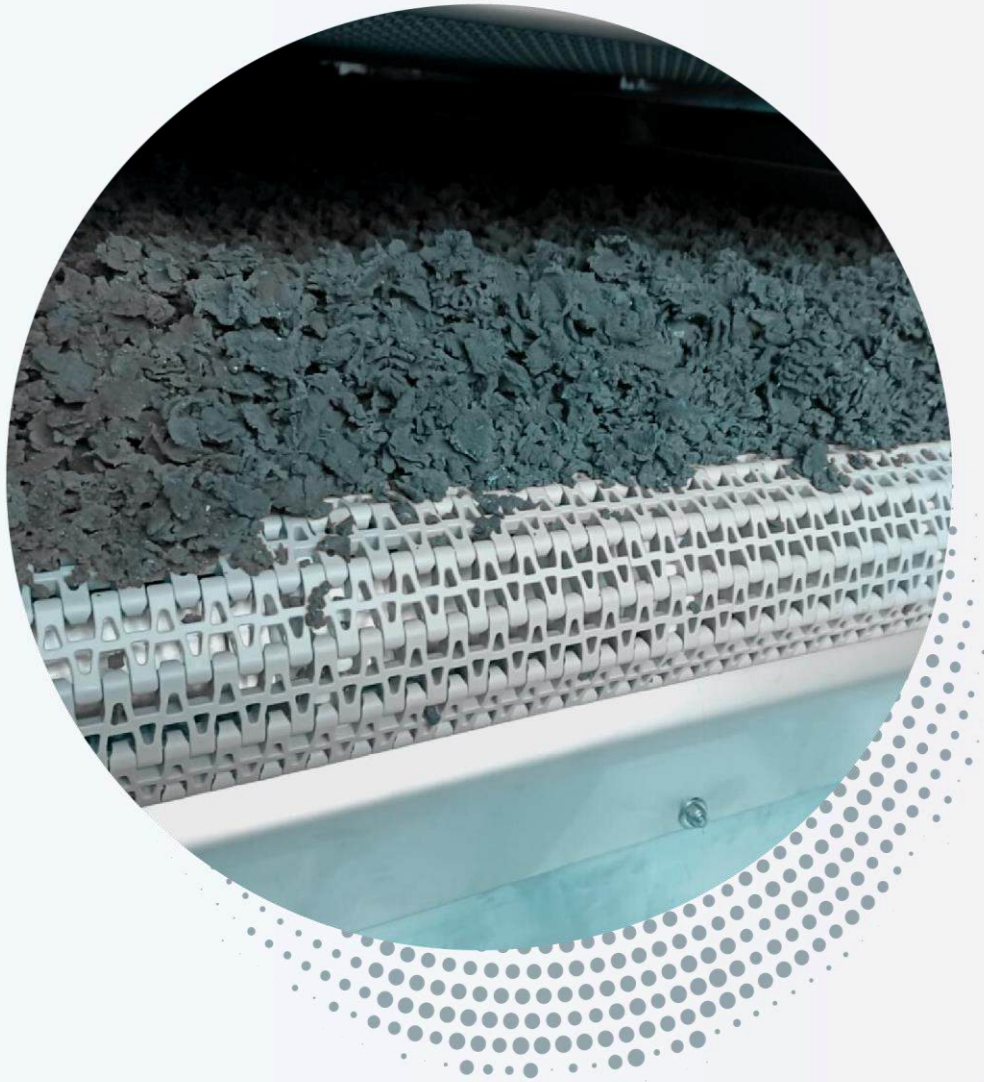
Sludge Management



To address sludge management issues, Glorinda provides effective solutions including:

Sludge Dewatering

Sludge Drying

Incineration

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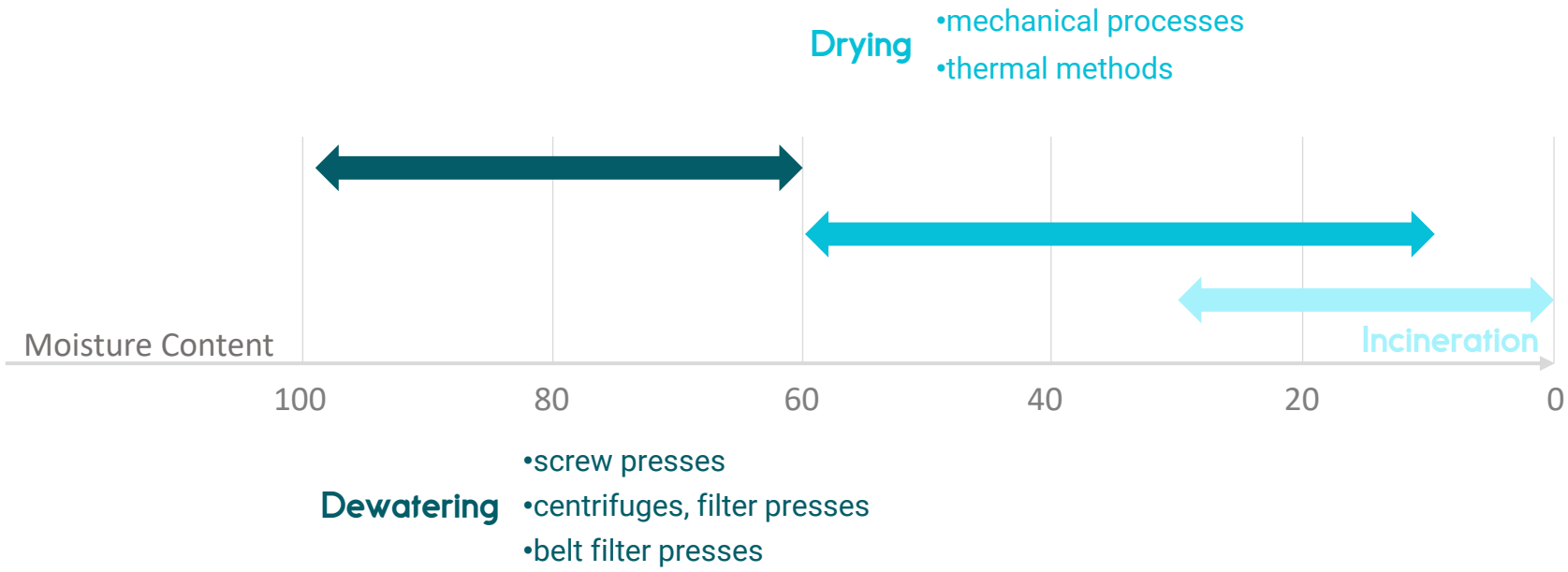
Sludge Management



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Direct Lithium Extraction (DLE)

- Advanced lithium extraction solutions with EPC services.
- Covers design, supply, installation, and training for operational plants.
- Impurity removal systems for alternative lithium sources.

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Direct Lithium Extraction (DLE)

Key Features of Glorinda's Lithium Solutions:

- Integrated and efficient plant process design
- High-efficiency sorbents with minimal losses
- Environmentally sustainable operations
- Large-scale sorbent production capabilities
- Efficient simulated moving bed (SMB) systems
- Advanced calcium removal technologies
- Optimized SMB for boron removal
- Exclusive Li/Na separation resin units

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Our Services

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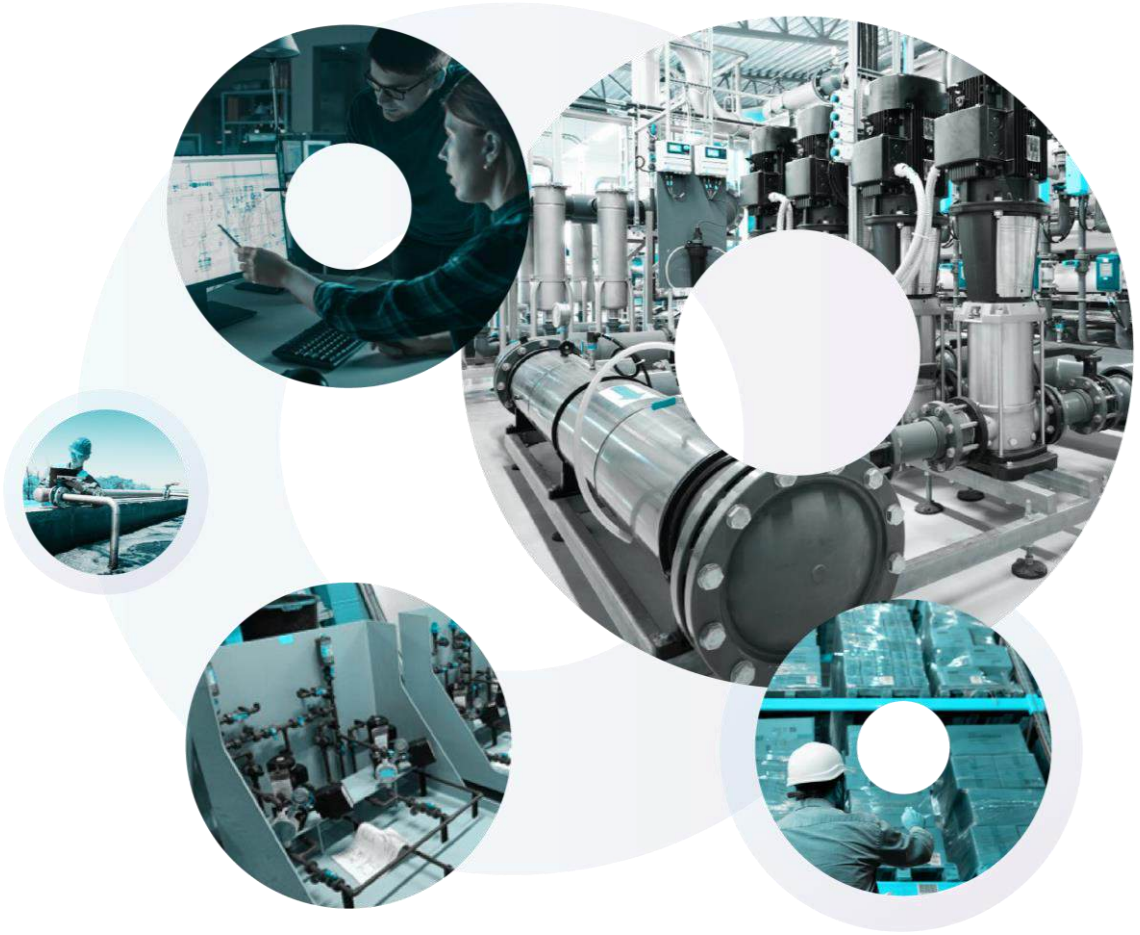
Comprehensive Services for Water & Wastewater Treatment

Our services include:

• Engineering	• Procurement	• Integration
• Process packages	• Maintenance	• Upgrading



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Industries

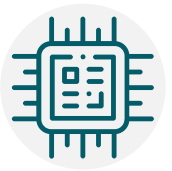
Glorinda's water and wastewater treatment packages and processes can benefit many industries, based on each industry's specific water demand or wastewater characteristics. Industries like:

Oil & Gas

Fertilizer Production

Chemical & Petrochemical

Drinking Water


Electronics

Metallurgy & Mining

Textile

Power Plants & Energy

Agroindustry

Pharmaceutical and Medical

Paper Making

Food & Beverages

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Our Locations

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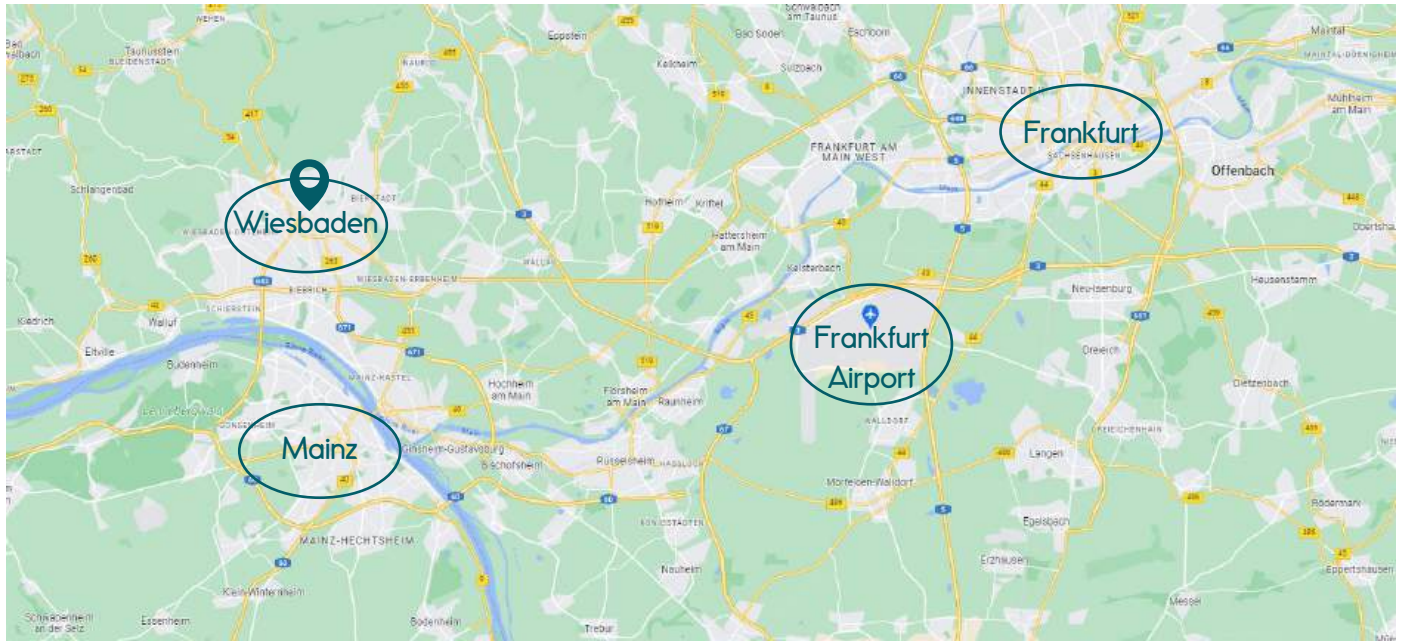
Our Locations

Glorinda's corporate headquarters is strategically situated in the city of Wiesbaden, Germany.



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Our Locations

Glorinda has successfully built a comprehensive global business network, allowing for a diversified presence and the provision of prompt, top-notch services tailored to local requirements. In addition to our prominent headquarters in Germany, we have established branches in a range of countries, through Europe, Middle East, North Africa, and CIS. This expanding network exemplifies our commitment to broadening our reach and enhancing our international operations.

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Contact Us

We are open to collaborating with companies and individuals around the world. For further information, please contact us.

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