INFRALEUNA®

Water supply/disposal

Water supply/disposal

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Water supply/disposal

Modern water supply, as well as environmentally-friendly waste water and waste disposal

The Leuna site sees optimum water supply as one of its major priorities as witnessed by the fact that our treatment plant guarantees drinking water quality as per legislative drinking water requirements.

The fresh water used primarily for supplementary cooling tower water, other cooling purposes, as a raw material for chemical water treatment plant and extinguishing water comes from modern waterworks facilities. Twelve ventilator cooling towers in section II of the plant provide sufficient cooling water for the technical cooling processes involved in the running of chemical and energy plants. With these two new onsite water facilities we can meet all of your water requirements.

The way in which firms in the chemical sector dispose of and treat their waste water and industrial waste has a more profound effect on their public image than ever before. Together with you, we would like to set new standards in sensitive and responsible interaction with the environment. Our waste water disposal facilities therefore comply with international standards. Our channel separation system provides for the pre-selection of clean water. The CWP removes organic substances and nitrates. Only water of the required quality is directed into the river Saale. A newly installed prevention system prevents polluted water from reaching the Saale and organizes the waste water treatment in the CWP.

We can efficiently and effectively meet all your needs in the field of recycling and waste disposal.

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1. Water
1.1. Main activities
1.1.1. Drinking water

Drinking water is prepared in a modern drinking water plant in Daspig.

Wells in neighboring drinking water protection areas are used for the drinking water generation.

Preparation takes place in a modern plant that applies various steps, such as gravel filtration, reverse osmosis and active-carbon filtration. The disinfection is made via UV-irradiation.

Drinking water enters the network of the plant via the Daspig water works.

Sufficient drinking water is available to our customers throughout the site.

A safe water supply is ensured via simple ring structuring of the network.

In addition to its application in the field of sanitation, drinking water is also used in various technological processes.

In high-risk areas, drinking water is also used for emergency showering and eye rinsing.

The drinking water quality satisfies the legislative drinking water requirements (TrinkwV 2001 as per May 21, 2001).

Selected technical data in the network:

Network	Working pressure (g)			Working temperature		
	Min [bar]	Normal [bar]	Max [bar]	Min [° C]	Annual average [° C]	Max [° C]
Drinking water S I	2.5	4.0	6.0	8.0	10.0	15.0
Drinking water S II	1.8	3.5	6.0	8.0	10.0	15.0

1.1.2. Fresh water

A modern water-works, commissioned in December 1999, is available for the provision of fresh water. The customer at the Leuna site is offered high-quality water which is safeguarded by the use of modern technology such as coagulation, sedimentation and multiple-layer filtration.

Fresh water enters the network via the waterworks at Daspig.

Fresh water is available throughout the site.

New pipes made from modern materials are being laid in the main supply corridors in order to meet the demands of the network.

A safe water supply is ensured by simple ring structuring of the network.

Fresh water is used principally for cooling purposes although also for feed water and as a reserve for the fire services.

Customers have the possibility of connecting their internal fire-extinguishing system to the main water supply.

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Fire protection in the InfraLeuna corridors is provided by means of a systematic positioning and placement of fire hydrants.

Selected technical data in the network:

Network	Working pressure (g)			Working temperature		
	Min [bar]	Normal [bar]	Max [bar]	Min [° C]	Annual average [° C]	Max [° C]
Fresh water S I	3.0	3.5	6.0	2.0	15.0	25.0
Fresh water S II	2.0	2.5	6.0	2.0	15.0	25.0

1.1.3. Cooling water

Cooling water is circulating water used exclusively for technical cooling processes.

The central cooling water facility is restricted to section II of the chemical site.

„Cold water" is produced at the central cooling complex.

The provision of cooling water takes place via a pipeline „cold water flow" and „return flow of warm water".

Customers in section II of the site use this cooling water to extract the heat from their processes.

The heat produced by the customers' processes is extracted by means of the central ventilator cooling system.

Companies connected to our cooling water network are able to meet their cooling needs efficiently and economically in comparison with other cooling solutions.

Cooling water is treated with corrosion inhibitors and hardening stabilizers. Ozone is employed as a biocide.

Selected technical data in the network:

Network	Operating pressure (g)			Operating temperature		
	Min [bar]	Normal [bar]	Max [bar]	Min [° C]	Annual average [° C]	Max [° C]
cooling water feed	3.5	5.0	6.0	15.0	20 ± 1 summer 20 ± 2 winter	25 (27)[1)] 25

temperature-spread = 10 K
[1)] (27 °C) At outside temperatures > 35 °C and humidity > 80 %

1.1.4. Condensate/deionate

You can return the steam condensate that accumulates in your plants to InfraLeuna complying with defined quality parameters.

A myriad of industrial processes require high-grade water for dissolving or rinsing processes or as feed water for waste heat steam generation. Therefore InfraLeuna provides demineralized water (completely deionized water, also called deionate) respectively a high-grade turbine condensate.

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Selected technical data (tu = ambient temperature):

Network	Operating pressure		Operating temperature	
	Min [barg]	Max [barg]	Min [° C]	Max [° C]
Collected condensate (return)	1.0	2.3	50	95
Turbine condensate / Deionate	3.0	6.0	5.0	50
Deionate (VE-water) [1)]	2.5	6.0	15	25

[1)] VE-water = fully desalinated water (for customers in the north of WT 1 and BF 12)

The design data to be kept for the technical plant design have to be coordinated between supplier and customer.

1.2. Services offered

InfraLeuna will gladly undertake the running and maintenance of your water supply systems as a chargeable service. This management includes the following services: Carrying out switching processes in the water network according to operating instructions:

Carrying out switching processes in the water network according to operating instructions;

Execution of check operations regarding the location of leaks and pipelines;

Servicing, controlling and exchanging water meters;

Flushing and disinfection of drinking water networks;

Upkeep and maintenance of instruments, ventilation, hydrants;

Support with the preparation and realization of investments;

Advice on the choice of cooling plants, material inventory, operation method as well as the conditioning of circulation water;

Labeling of instruments and hydrants according to the standardized determined rules of the site;

Drafting and provision of network documentations in form of switching plans

2. Waste water disposal

2.1. Main activities

InfraLeuna provides a drainage system and various pressure-piping systems for waste water and its discharge to the Saale River or to the CWP in section II of the site. An emergency basin is also available to prevent the run-off of polluted water into the Saale. A precondition for provision of the service is that customer has obtained a permit from the responsible administrative department to dispose of waste water:

- Into the CWP (section II of the site) according to the regulations regarding indirect discharger (does not apply to rain water, ground water and sanitary waste water; only with the permission of InfraLeuna);
- Into a drainage ditch for appropriately classified waste water (for section I of the site);
- Into the foreseen pressure-piping system for production and sanitary waste water.

2.2. Services offered

For customer-owned systems we can provide the following services as required:

Assistance with
- Construction of connecting shafts,
- Hydraulic laying of piping links,
- Choice of material for new connections,
- Choice of suitable equipment for sewer cleaning purposes;

Assuming the responsibility for the co-ordination of drain cleaning work and of the local control facility for work carried out for construction and cleaning.

3. Waste water treatment in the central biological waste water treatment plant (CWP)

3.1. Main activities

The main activity of InfraLeuna's CWP is the treatment of diverse forms of waste water including the discharge of treated waste water into the receiving waters.

Polluted water/muddy water:

Treatment of waste water from production, contaminated ground water and surface water as well as fecal and sanitary waste water via mechanical, chemical-physical and biological processes including final sludge treatment and disposal;

Treatment of communal waste water with mechanical and biological processes including final sludge treatment and disposal;

Provision of a storage facility in case of disruption of waste water pipelines;

Discharge of treated waste water into the receiving waters according to statutory regulations;

Declaration of origin, type, quantity and quality (physical-chemical parameters) of the waste water;

Investigation (biochemical testing) of decomposition process and possible influence or toxic effects on the purification process;

Stipulation of averaged and maximum inflow quantities and rate on the basis of declaration analyses and biochemical tests;

Determination of the inspection points for the waste water discharge;

Determination of the discharge point of the waste water into InfraLeuna's drainage system respectively pressure piping system;

Issue of an acceptance declaration by the CWP;

Development of a reporting system between customer and CWP

Rainwater/waste water for discharge into the receiving waters:

Treatment of non-contaminated surface water via mechanical cleaning processes including sludge treatment and disposal;

Pumping and accident limitation facility for waste water for discharge into the receiving waters;

Provision of a storage facility in case of disruption of waste water pipelines;

Discharge of waste water into the receiving waters in accordance with statutory regulations;

Declaration of origin, type, quantity and quality of the waste water;

Specifications on averaged and maximum quantities;

Issue of an acceptance declaration by the CWP;

Development of a reporting system between customer and CWP

3.2. Services offered

Management of customer's ground water purification plants and other waste water treatment plants.

4. Waste water network/analytic measurement technology

Skilled advice as to how customers can effectively monitor the waste water network;

Advice on online-analysis and on working with automated waste water analysis technology. This service complements the comprehensive analytical service of the InfraLeuna analytic department.

Advice on choice of equipment and measurement principles;

Evaluation of measurement values;

Routine maintenance and cyclical basic maintenance of equipment, including monitoring and calibration of measurement system and consequent replacement of worn parts;

Assuming responsibility for measuring and monitoring of, for example: Ammonium, nitrate, nitrite, total nitrogen, pH values, oxygen, conductivity;
Use of measurement equipment for the following substances: Calcium, carbonate, free chlorine, chrome VI, cobalt, total cyanide, free cyanide, ethanol, formaldehyde, urea, total hardness, hydrazine, methanol, total phosphate.