


# Status of Water Usage and Wastewater Recycling

Given its essential role in our manufacturing process, TSRC recognizes the paramount importance of water quality and quantity. We are committed to continually optimizing our use of this precious resource. TSRC incorporated water-related risks into our overall risk management system, with particular attention to the risk resulting from and resulting in climate change. We conduct annual assessments of water-related risk at each site and review our response measures accordingly. TSRC has set up three major focuses for water resource management: efficient water use, circulation and recycling, and clean emissions.

TSRC continues to increase the recycling rate of process wastewater, increase the proportion of recycled water used, reduce water withdrawal from surrounding areas of locations. We also try to reduce the amount of process wastewater that enters wastewater treatment plants of industrial parks as much as possible. TSRC has set a wastewater recycling target of 36% of the Group's total wastewater recycled by 2025, and a recycling rate of 40% by 2030. In 2023, the recycling rate was 25%, achieving the established goal. In addition to condensed water and process wastewater recycling, TSRC has planned to build reclaimed water facilities or increase the purchase of reclaimed water at a number of production locations to enhance water resource stability. We expect Group-wide recycled water use to reach 34% of its total water consumption in 2025 and 40% in 2030. In 2023, the reclaimed water utilization rate was 22%, exceeding the target of 15%. TSRC publicly discloses its water resources management data and strategies every year and conducts a stakeholder survey to understand the views and feedback on TSRC's actions.

 Goals and Achievement	2023 Achievement	2023 Goals	2025 Goals	2030 Goals
	<ul style="list-style-type: none"> <li>Wastewater recycling accounted for 25% of total wastewater volume</li> <li>Reclaimed water accounted for 22% of total water use</li> </ul>	<ul style="list-style-type: none"> <li>Wastewater recycling accounts for 25% of total wastewater volume</li> <li>Reclaimed water accounts for 15% of total water use</li> </ul>	<ul style="list-style-type: none"> <li>Wastewater recycling accounts for 36% of total wastewater volume</li> <li>Reclaimed water accounts for 34% of total water use</li> </ul>	<ul style="list-style-type: none"> <li>Wastewater recycling accounts for 40% of total wastewater volume</li> <li>Reclaimed water accounts for 40% of total water use</li> </ul>

## 1. Water Resource Risks and Management

According to the Aqueduct Water Risk Atlas of the World Resources Institute (WRI), on a county or city basis, regardless of the dry and abundant water period, TSRC's Kaohsiung Factory is in a high risk area for drought in the past and in the future (2015-2039), while the water resource risk of China's Shen Hua Chemical, Nantong Industries, and TSRC-UBE located in Nantong in Jiangsu Province, the U.S. TSRC Specialty Materials LLC factory located in Louisiana State, and Polybus, a trading-oriented subsidiary in Singapore, are at low risk (<10%). TSRC (Vietnam) Co., Ltd.'s in Vietnam is at low to medium risk (10%-20%) of water stress. TSRC (Lux.) in Luxembourg, the holding company for the trading business, and TSRC Specialty Materials LLC in Texas, USA, where the office is located, are subject to medium to high water stress (20%-40%). Shanghai Industries, located in the Shanghai area of China, has an extremely high risk of water stress (>80%).

Drought is identified as TSRC climate-related risk. Accordingly, TSRC has set four major response actions, including the implementation of water conservation measures, the enhancement of process wastewater recycling and water resource efficiency, the increased use of reclaimed water, and the increase of water supply sources. The ESG Task Force reports quarterly to the management team on the implementation of water resource management and the achievement of water management goals to ELT, and discusses from time to time the improvement of water resources management, the increase of wastewater recycling, and other programs and implementation status. In 2023, the TSRC Board of Directors met in July and November for climate change-related issues and also reviewed water-related targets. TSRC will continue to improve the utilization of water resources to ensure stable operations during future droughts or water restrictions.

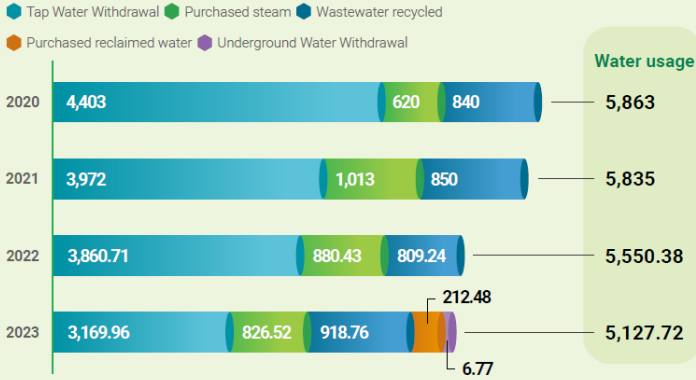
## 2. Water Resource Usage(Water Withdrawal, Discharge and Usage Volume)

TSRC' s total water withdrawal (includes tap water and underground water) in 2023 was 3,169.96 thousand cubic meters, a decrease of 17.89% compared to 2022. TSRC Group' s total water consumption in 2023 was 2,334.26 cubic meters, a decrease of 8.05% compared to 2022. TSRC' s total water usage in 2023 was 5,127.72 thousand cubic meters, a decrease of 7.61% compared to 2022. TSRC's water consumption data has obtained ISO 14001 Environmental Policy Certification and Accountant's Limited Assurance of SASB Indicators (ISAE 3000).

In 2023, the Kaohsiung Factory, Nantong Industries, and TSRC-UBE all optimized their facilities to reduce their reliance on fresh water. The Kaohsiung Factory optimized its utility systems and sanitary water use, while Nantong Industries and TSRC-UBE reduced their reliance on fresh water by increasing their wastewater recycling rates, reducing their total fresh water consumption by approximately 137,000 metric tons.

## Tap Water Withdrawal and Use Volume

Unit: 1,000 m<sup>3</sup> = million liters

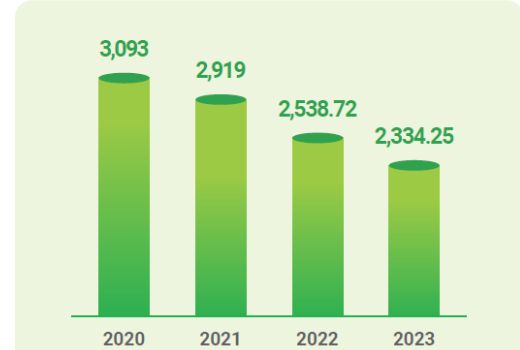


Note:

1. Tap water withdrawal is freshwater supplied by the local water company ( $\leq 1,000$  mg/L TDS). TSRC Kaohsiung Factory also draws groundwater.
2. Water usage = Tap water withdrawal + Groundwater withdrawal + Purchased steam + Wastewater recycled + Purchased reclaimed water.
3. Water consumption = Water usage - Water discharge.
4. Purchased steam is also used as one of the process water sources after the heat exchange purpose is achieved in the relevant process, and the evaporation amount is not considered in the data.
5. Data are rounded to the second decimal place starting in 2022.

## Water Usage

(Unit: 1,000 m<sup>3</sup> = million liters)



Note:

1. Water usage = Tap water withdrawal + Groundwater withdrawal + Purchased steam + Wastewater recycled + Purchased reclaimed water - Water discharge. Data are rounded to the second decimal place starting in 2022.
2. TSRC does not have a permanent water storage facility but makes risk response preparations during water restriction periods according to the conditions of each facility.

## 2023 Water Withdrawal, Discharge, and Consumption (by Water-stressed Areas)

In Provincial And County-Level	Regions with Extreme-High Water Stress	Regions with High Water Stress		Regions with Moderate to High Water Stress			Regions With Low Water Stress						TSRC Group Total
		TSRC		TSRC (Lux.)	TSRC Specialty Materials LLC (office)	TSRC (Vietnam) Company Limited	TSRC Global Business Headquarters	Shen Hua Chemical	Nantong Industries	TSRC-UBE	TSRC Specialty Materials LLC (factory)	Polybus	
(Unit: thousand cubic meters = million liter = thousand tons)	Shanghai Industries	Kaohsiung Factory	Gangshan Factory										
Fresh water withdrawal	9.44	1,557.53	2.79	0.04	1.34	6.05	2.24	908.00	327.15	264.73	83.86	0.02	3,163.19
Groundwater withdrawal	0.00	6.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.77
Consumption of purchased steam	0.00	0.22	0.00	0.00	0.00	0.00	0.00	183.65	261.59	225.97	125.09	0.00	826.52
Wastewater recycled	0.00	505.89	0.00	0.00	0.00	0.00	0.00	89.71	165.59	157.57	0.00	0.00	918.76
Purchased reclaimed water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	212.48	0.00	212.48
Water usage	9.44	2,070.41	2.79	0.04	1.34	6.05	2.24	1,181.36	784.33	648.27	421.43	0.02	5,127.72
Water discharge	9.44	1,032.41	1.88	0.04	1.34	1.19	2.24	876.44	265.86	244.97	357.63	0.02	2,793.46
Water consumption	0.00	1,038.00	0.91	0.00	0.00	4.86	0.00	304.92	518.47	403.30	63.80	0.00	2,334.26

Note:

1. The fresh water withdrawal comes from fresh water ( $\leq 1,000$  mg/L total dissolved solids) supplied by the local water company. TSRC Kaohsiung Factory also used groundwater.
2. Water usage = Fresh water withdrawal + Groundwater withdrawal + Consumption of purchased steam + Wastewater recycled + Purchased reclaimed water.
3. Water consumption = Water usage - Water discharge.
4. TSRC (LUX) is using 2022 data as 2023 water use data is not yet available.
5. The purchased steam is also used as one of the sources of process water after the purpose of heat exchange. The evaporation of purchased steam is not considered.
6. The data in this table is rounded to two decimal places.
7. Regarding water resource risk:
  - The water resource risk assessment results in this table are from the World Resource Institute (WRI) Aqueeduct county-level data. Based on county- and city-level, the water resource risks at Shen Hua Chemical and TSRC-UBE and Nantong Industries (Jiangsu Province, China), the TSRC Specialty Materials LLC factory (Louisiana State, the United States) and Polybus (Singapore) has a low water stress risk (<10%), while the TSRC (Vietnam) Co., Ltd. (Pingyang Province in Vietnam) is low to medium risk (10-20%). The holding subsidiary, TSRC (Lux.), located in Luxembourg, mainly engaged in trading, and TSRC Specialty Materials LLC office (Texas, the United States) has a moderate to high water resource risk (20-40%). Shanghai Industries (Shanghai city, China) has the extreme-high water stress (>80%). For the Taiwan factories, the relevant information is not available on Aqueeduct.
  - Regardless of dry or abundant season, TSRC's Kaohsiung Factory and Gangshan Factory are at high-risk for drought in the past and the future (2015-2039), according to the report published by the National Science and Technology Center for Disaster Reduction.
8. In 2023, fresh water and groundwater water withdrawal in areas with high water stress and extremely high risk (according to local analysis) accounted for 49.73% of the group's total water withdrawal, and water consumption in areas with high water stress and extremely high risk accounted for 44.51% of the group's total water consumption.

### 3. Treatment of Wastewater and Discharge

TSRC's main production sites are all located in local industrial parks and are subject to management and supervision by the competent authority of the industrial parks. For wastewater from manufacturing processes and operations, TSRC takes recycling within the plant as the main consideration to reduce wastewater discharge. Wastewater that cannot be recycled and reused is pre-treated by factories until it meets local effluent monitoring standards and priority-controlled substance emission limits, and is then discharged into the industrial park's wastewater treatment system. TSRC's wastewater discharge has not caused any direct ecological impacts to the surrounding areas. In 2023, TSRC did not violate any wastewater regulations or exceed priority-controlled substance emission limits. TSRC factories have installed online COD analyzers, ammonia nitrogen analyzers, pH meters, and flow meters. In addition, interception facilities for torrential rain and online COD monitors have been implemented to timely monitor the quality of discharged water.

In 2023, Nantong Industries invested in two new wastewater treatment systems. One for industrial wastewater treatment and the other for domestic wastewater. The industrial wastewater treatment system collects wastewater from the plastic trap and uses the treated water in the cooling loop water tower to maximize the use of water resources, with an estimated reduction of 140,000 tons of wastewater discharge per year. The domestic wastewater treatment system can reduce the ammonia nitrogen, total phosphorus, and chemical oxygen demand (CODcr) at the end of the pipe to reduce the impact on the environment.

#### Water Discharge

(Unit: 1,000 m<sup>3</sup> = million liters)



### 4. Water Reuse and Recycling

To reduce the water resource risk associated with climate change and increase operational stability, TSRC is increasing capital expenditures to strengthen the Group's wastewater recycling rate. In 2023, wastewater recycling equipment was installed in Nantong Industries and TSRC-UBE to increase the wastewater recycling rate to 38% and 39%, respectively. In 2023, the Kaohsiung Factory increased its daily recycling capacity by 51 metric tons through the optimization of the wastewater

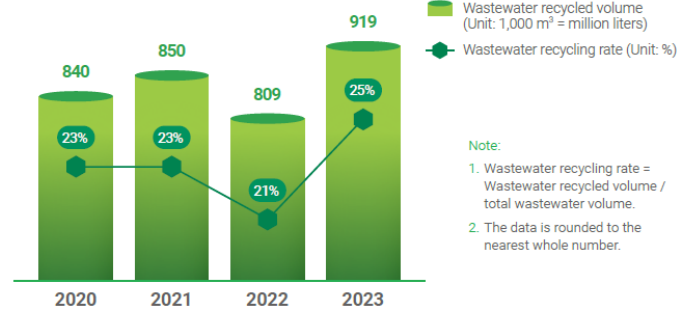
recycling system. In response to the water restrictions in Kaohsiung, measures are taken in advance, such as installing additional water pipelines and inquiring about the availability of recycled water.

### Wastewater Recycling and Recycling Rate

**Wastewater recycling**

TSRC promotes the recycling and reuse of water resources within its factories to enhance the utilization rate of every drop and reduce the water footprint.

- TSRC Kaohsiung Factory optimizes operation of wastewater recycling system and increases daily recycling volume by 51 metric tons.
- Both Nantong Industries and TSRC-UBE optimized their wastewater recycling facilities to increase their wastewater recovery rates from 19% to 38% and 35% to 39%, respectively.

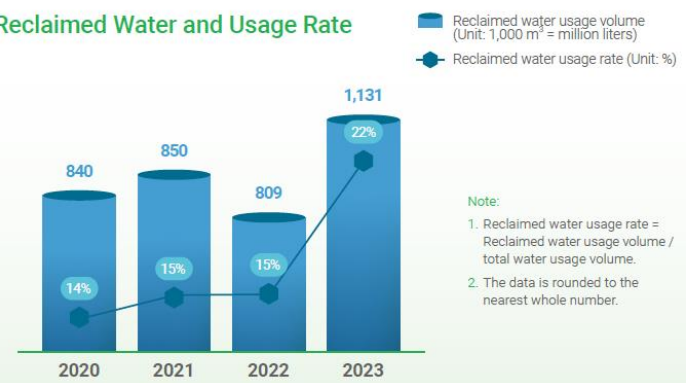


**Reclaimed water usage**

TSRC strives to increase the proportion of reclaimed water use and reduce the amount of water withdrawn from tap water by recycling discharge water.

- TSRC continues to introduce fiber filtration equipment into the process to increase the amount of reclaimed water.

### Reclaimed Water and Usage Rate



## 5. Water Resource Sharing and Third-party Certification of Water Recycling

In response to water risks at the Kaohsiung Factory and in consideration of the common interests of other local industrial water users, TSRC's Kaohsiung Factory is actively engaged in water resource sharing initiatives with neighboring Dashe industrial park. TSRC also cooperates with major suppliers (such as CPC), which, in addition to maintaining its own water demand in times of poor water conditions, has set up water pipelines with TSRC and provided part of the TSRC's water resources to combat droughts and tide over water restrictions together.

In response to Taiwan's policy of imposing water consumption fees on large water users, TSRC obtained third-party certification of its water recycling rate in December 2023. The water recycling rate of the Kaohsiung Factory (excluding the amount of water recycled in the cooling water towers) was 68.26%, while the applicable recycling rates ranged from 24 to 40% depending on the company, which was significantly higher than those of similar companies.