

# Water management



Materiality assessment process results  
Scale: [0-10], where 0 "Not significant" and 10 "Very significant"

<p><b>Boundaries of the Material Topic [GRI 102-46] [GRI 103-1b]</b></p> <p>The impacts occur in the areas (e.g., Corinthian Gulf) of the industrial plants, Business Units and subsidiaries of MYTILINEOS.</p> <p><b>By whom are the impacts caused:</b> The impacts are caused by MYTILINEOS' Metallurgy and Power &amp; Gas Business Units, while the Company's subsidiaries DELPHI-DISTOMON and EPALME, as well as the local settlements adjacent to the Aluminium plant, may also be indirectly involved.</p> <p><b>The management of the topic by MYTILINEOS contributes to Sustainable Development:</b></p> <ul style="list-style-type: none"> <li>Ensuring access to safe, accessible drinking water and sanitation facilities for workers and local settlements.</li> <li>Efficient use of water, ensuring its sustainable withdrawal in the context of the Company's industrial activity.</li> <li>Encouraging the participation of the local communities in improving water management.</li> </ul> <p><b>Topic of increased significance to:</b></p> <ul style="list-style-type: none"> <li>Employees</li> <li>Suppliers</li> <li>Customers</li> <li>Shareholders / Investors / Financial Analysts</li> <li>NGOs</li> <li>Academic community</li> <li>Local Communities</li> </ul> <p>in the context of their cooperation with MYTILINEOS.</p>
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## Management Approach

[GRI 102-11] [GRI 103-2c]

The purpose of this disclosure is to provide information and data to MYTILINEOS' Stakeholders, so that they can understand how the Company is managing water resources, seeking to maximize the overall social and environmental benefits of its business activity. Meeting the water supply needs of the industrial units of the Company's Metallurgy and Power & Gas Business Units, as well as the water supply needs of its local communities in the region of Viotia, require the extraction and use of significant quantities of water. Recognizing the importance of this natural resource, the Company takes initiatives to ensure the efficient use of water, the conservation of the water resources used and the controlled management of water discharges. [GRI 103-2b]

## Key Challenges / Impacts

[GRI 103-1a] [GRI 102-15]

MYTILINEOS uses significant quantities of water in specific sectors and areas of activity. Therefore, maintaining the rational withdrawal, use, consumption and discharge of water is a key challenge for the Company in the context of its contribution to the national and global efforts for responsible management of water resources.

## Major risks

[GRI 102-15]

- The potential reduction of aquifer reserves (ground water) which the Company uses for its production activities as well as for covering the water supply needs of its local communities' settlements. This potential risk may result in the reduction or suspension of production, in complaints from the local communities and in increased costs resulting from the use of water supplied by public utilities as an alternative source.
- An additional potential risk concerns possible future changes in the water withdrawal limits and water discharge parameters provided for in the Environmental Terms Approval Decisions of the Company's industrial plants, in particular in the Metallurgy and Power & Gas Business Units, which may result in increased capital costs and in operational maintenance costs associated with the development of alternative water reserves.

## Commitment

[GRI 103-2c]

Responsible management of the withdrawal, consumption and discharge of water, in line with the main priority areas of MYTILINEOS' [Environmental policy](#).

## Risk Management / Control Practices

[GRI 103-2a] [GRI 303-1] [SASB IF-EU-140a.3]

### In all of the Company's Business Units:

- Use of water takes place in strict compliance with the Environmental Terms Approval Decisions and the Water Use Licenses of all industrial plants.
- In order to identify and assess the future likelihood of regulatory changes affecting sustainability issues, including water, the Company communicates regularly with the competent authorities and with the regulatory bodies involved.
- The environmental officers in each Business Unit ensure that the progress made towards the targets set is monitored and that water resources are managed responsibly in the context of the activities of all industrial plants.
- Internal water consumption targets are set on an annual basis for each production Unit.
- As regards the management of the water discharges resulting from MYTILINEOS' activity, this is fully controlled and takes place by monitoring the parameters determined by the environmental terms and regulations under which the facilities of the company's Business Units have obtained their environmental licenses.
- Aiming to continuously improve and enrich its practices in this area, the Company participates voluntarily since 2016 in the CDP - Water Security global sustainable development initiative, by disclosing comprehensive data about its practices in the management of water resources and comparing its impact and performance to those of the largest companies globally.

### Particularly regarding the Metallurgy Business Unit:

- Water withdrawals from ground water are obtained from a controlled network of wells (boreholes) **which allows water to be replenished naturally after withdrawal (renewable sources)**. More specifically, a recent special study

carried out by the Company in 2021 regarding the management of water withdrawals from the network of wells in relation to the total capacity of the wider area's aquifer, showed that the average quantity of water entering the aquifer on an annual basis (rainfalls, snowfalls etc.) reaches 51.36 million m<sup>3</sup>. According to the Water Use License issued, the Company has the right to withdraw 10% of this total quantity, **however its actual withdrawal rate is even lower, thus ensuring the preservation of the water level in the aquifer and consequently in the boreholes, something that is also confirmed by the regular checks of the water level at all the wells**. Moreover, in 2020 the Metallurgy Business Unit commissioned a specialist firm to perform a Risk & Impact Assessment of the area's aquifer, as well as a series of hydro-geological studies, which have been completed and whose findings served as inputs to the establishment of an appropriate corrective and preventive action plan. **ASI**

- The needs in water of all facilities in the Aluminium plant, including the needs of the cogeneration (Combined Heat & Power - CHP) plant and the IPP Thermal plant, but also of the adjacent settlements, are covered by a network of 17 boreholes. The quantity of water withdrawn from this network is consumed in industrial use, power generation and for supplying water to the adjacent settlements. Brackish water is withdrawn from 2 boreholes belonging to this network and is used exclusively in the closed-circuit cooling systems of the smelter and the anodes, after which it is discharged to the sea. Seawater is withdrawn for the cooling needs of the CPH plant and the IPP Thermal plant and is discharged to the sea via a closed pipeline.
- Water recycling and reuse programs are implemented to the maximum extent possible in the production processes or in secondary uses of the Metallurgy Business Unit, together with rainwater collection and utilization practices. **ASI**
- The Metallurgy Business Unit produces the largest quantity of liquid waste, the largest part of which is recycled within the production process itself.
- The specifications and maximum water discharge limits for the water resulting from each activity are determined by the applicable Environmental Terms Approval Decision and the Water Use License. To control the quality of the disposal of the treated liquid industrial waste, quantity, pH and temperature measurements are taken on a continuous basis, while analyses are also made once a month, at the exit point of the treatment plant, of the effluent's temperature, suspended solids, total dissolved solids, COD, BOD<sub>5</sub>, pH, and content in sulphides and fluorides. Regarding the characteristics of the sea area to which the discharge takes place, its physical and chemical characteristics are monitored for compliance with the Environmental Quality Standards (EQS). [GRI 303-2]
- Regarding priority substances, their definition and the determination of the maximum discharge limits are specified by the Environmental Terms Approval Decision of each unit. During 2021 no incidents of non-compliance with the legislation, regarding priority substances occurred. [GRI 303-4d] **ASI**
- Finally, in 2021 a project for using the discharged brackish water as industrial use water replacing the quality water currently used was launched, with the goal of saving 120m<sup>3</sup> of water per hour. **ASI**

## Results

[GRI 103-3a-ii] [SASB EM-CM-140a.1] [SASB EM-MM-140a.2] [SASB IF-EU-140a.1]



- In 2021, MYTILINEOS was evaluated **for the 6<sup>th</sup> consecutive year** by the CDP international Sustainable Development organization, in the Water Security category, for its management of water resources in the context of its activity. According to the results of the evaluation, the Company maintained its B score (on a D-/A scale), which ranks it the top tier of the 2<sup>nd</sup> index category "Management Level". The official report issued for the Company and the relevant evaluation details are available at its corporate website ([mytilineos.gr/sustainability/esg-performance/esg-ratings/](https://mytilineos.gr/sustainability/esg-performance/esg-ratings/)).
- The Company's water withdrawal activities **do not limit or threaten the adequacy of the available water in the aquifer nor any water source that is of high biodiversity value or important for the local communities**. In 2021, the withdrawal of water from water stress areas was kept to the minimum possible and did not exceed 0.3 ML, representing a minimal percentage of the total quantity of water withdrawals.
- In total, 169 thousand ML of water were withdrawn for use, 1,247 ML less than in 2020, while the quantity of used water returned to the water recipients after quality treatment and in accordance with the approved environmental terms per Business Unit, stood at 162 thousand ML. As a result, **total water consumption stood at 6.95 thousand ML, increasing by almost 5.5%**, while the consumption of fresh water remained almost stable (increasing by just 1%) compared to 2020.
- Concerning the discharge of liquid waste, the efforts to manage them efficiently continued in 2021, to ensure the protection of the environment and human health. It should be noted that the figures presented regarding the quality of discharged water are lower, and in many cases much lower than the statutory ones. The total quantity of pollutants in the treated wastewater discharged to the water recipients stood at 16.1 t, broken down as follows: BOD: 5.6 t, COD: 9.0t, TSS: 1.5 t, TN: 0 and TP: 0.

Water withdrawal sources and quantities 2021 [GRI 303-3]	All areas <sup>1</sup>	Environmentally sensitive areas (water stress areas)
<b>1.Sea (ML)</b>		
Volume of seawater used in the cooling systems of the CHP plant of the Metallurgy Business Unit. The limit to the volume of water withdrawn annually has been determined by the Water Resources Management Directorate of the Sterea Regional Administration. The needs of work sites are also included.	<b>Subtotal</b>	<b>159,824.5</b>
	Fresh water <sup>2</sup>	0.0
	Other water types <sup>3</sup>	159,824.5
<b>2. Ground water (ML)</b>		
Volume of industrial-use, brackish and drinking water used primarily to meet the manufacturing / processing, energy and water supply needs of the Company's industrial facilities. This quantity is obtained primarily from a network of 17 wells (boreholes), owned by the Metallurgy Business Unit, which the company operates in the wider region of its plant, in strict compliance with the provisions of the Water Resources Management Directorate of the Sterea Regional Administration. The needs of work sites are also included.	<b>Subtotal</b>	<b>8,599.2</b>
	Fresh water	5,178.3
	Other water types	3,421.3
<b>3. Surface water (ML)</b>		
Volume of water withdrawn from a stream in the vicinity of DELPHI-DISTOMON, and of rainwater which is collected. The needs of work sites are also included.	<b>Subtotal</b>	<b>13.9</b>
	Fresh water	10.0
	Other water types	3.9
<b>4. Water produced (ML)</b>		
Volume of ground water resulting from the bauxite mining process of DELPHI-DISTOMON, a subsidiary of MYTILINEOS, which is collected using pumps and transferred for treatment prior to its final discharge.	<b>Subtotal</b>	<b>216.0</b>
	Fresh water	216.0
	Other water types	0.0
<b>5. Third parties (ML)</b>		
Volume of water from municipal reserves and public water supply services that meets the needs of the buildings and especially of industrial facilities of MYTILINEOS, as well as seawater returned by Motor Oil and used in the desalination process for the production of industrial use water in a thermal power plant of the Power & Gas Business Unit.	<b>Subtotal</b>	<b>426.8</b>
	Fresh water	194.7
	Other water types	232.1
<b>Total water withdrawals (Subtotals 1+2+3+4+5)</b>	<b>169,080.5</b>	<b>0.3</b>
	<b>Fresh water</b>	<b>5,599.0</b>
	<b>Other water types</b>	<b>163,481.5</b>

Water discharge by destination 2021 [GRI 303-4]	All areas	Environmentally sensitive areas (water stress areas)
<b>1.Sea (ML)</b>		
<b>• Metallurgy Business Unit</b> Volume of seawater and brackish water from the cooling process of the CHP plant, of brackish water from wells which is used for cooling the heat exchangers of the smelter in AOG's aluminium production plant, and of wastewater, including rainwater, measured at the point of exit from the primary treatment facilities.	<b>Subtotal</b>	<b>161,795.6</b>
	Fresh water	0.0
<b>• Power &amp; Gas Business Unit</b> Volume of water discharged from the desalination process.	Other water types	161,795.6
<b>2. Ground water (ML)</b>		
Volume of water used in drilling during the bauxite mining process of DELPHI-DISTOMON.	<b>Subtotal</b>	<b>23.0</b>
	Fresh water	15.9
	Other water types	7.1
<b>3. Surface water (ML)</b>		
Discharge of the wastewater produced by the bauxite mining plant, water used for wetting the roads and for watering the surrounding restored area, and waste water from the secondary aluminium processing plant, after primary treatment.	<b>Subtotal</b>	<b>267.8</b>
	Fresh water	267.8
	Other water types	0.0
<b>4. Third parties (ML)</b>		
Household liquid waste discharged to public water supply and sewerage companies, as well as industrial-use water used in the electricity production process, disposed of to a waste treatment plan of Motor Oil, after first having its pH and temperature regulated.	<b>Subtotal</b>	<b>43.7</b>
	Fresh water	13.9
	Other water types	29.7
<b>Total water discharges (Subtotals 1+2+3+4)</b>	<b>162,130.0</b>	<b>0.0</b>
	<b>Fresh water</b>	<b>297.6</b>
	<b>Other water types</b>	<b>161,832.4</b>

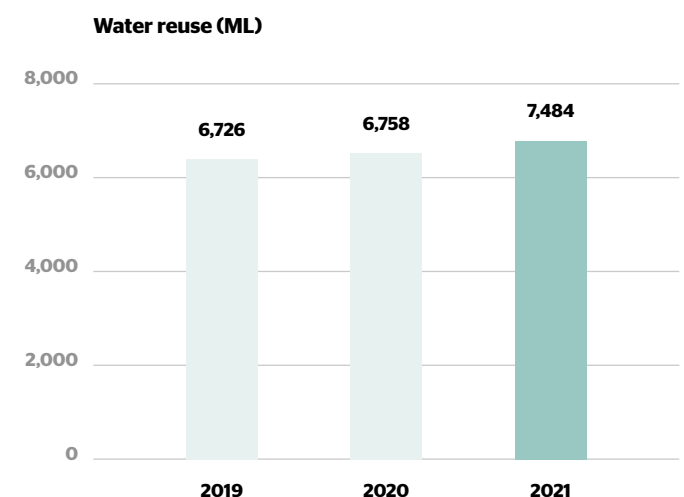
1. Including environmentally sensitive areas (water stress areas).  
 2. Water with a concentration of total dissolved solids equal to or less than 1,000 mg/L.  
 3. Water types with a concentration of total dissolved solids higher than 1,000 mg/L.

Total water consumption (all activities)	2019	2020	2021
<b>Total water withdrawals (ML)</b>	170,788.2	170,327.5	<b>169,080.5</b>
<b>Total water discharges (ML)</b>	164,254.7	163,724.1	<b>162,130.0</b>
<b>Total water consumption (ML)</b>	6,533.6	6,603.4	<b>6,950.5</b>

Consumption by water type 2021 [GRI 303-5]	All areas	Sources / Areas sensitive in terms of water resources
<b>Total water consumption (ML)</b>	<b>6,950.5</b>	<b>0.3</b>
Fresh water (ML)	5,301.4	0.0
Other water types (ML)	1,649.1	0.3

- Only **2.9%** of total consumption concerned water supplied by the **public water supply company**. At the same time, **1,219.6 ML**, representing **17.5% of total consumption**, concerned the supply of drinking water to the settlements of Aspra Spitia, Antikyra and Agios Nikolaos in Viotia, to meet their needs. The increase in the consumption of drinking water in these settlements by 5.3% compared to 2020 is due to the rise in their population (visitors, contractors for works performed at the plant), as well as to significant leaks of drinking water in the settlements' water supply networks, due to infrastructure issues.
- Regarding the Company's efforts for the effective management of water in the production process and especially in the Metallurgy Business Unit, which handles 99.8% of the total quantity of withdrawn water, **the specific water consumptions showed significant decreases**, both per ton of both hydrated alumina produced (-6.6%) and per ton of primary aluminium produced (-5.8%).

Metallurgy Business Unit - Specific water consumptions <sup>4</sup> ASI	2019	2020	2021
Water consumption / ton of hydrate alumina production (m <sup>3</sup> )	3.24	3.61	<b>3.37</b>
Water consumption / ton of primary aluminium production (m <sup>3</sup> )	1.23	1.37	<b>1.29</b>



- The amount of water reused in other Company plants, **thus preventing an equivalent volume of water withdrawals, amounted to 7,484.3 ML** (2020: 6,757.5 ML), corresponding to **4.4%** of total water withdrawals, **showing an increase by 10.8% from 2020**. Of this total quantity, 99.9% concerns the Power & Gas Business Unit and, in particular: **(a) the reuse of 7,448.1 ML of discharged seawater** from the cooling network of the CHP plant, for cooling the thermal power plant in the area of Ag. Nikolaos, Viotia, and **(b) the recycling of 29.2 ML** of liquid waste from the Heat Recovery Boiler of the combined-cycle thermal power plant in Agioi Theodoroi, Korinthia. The remaining quantity concerns the use of **7 ML of rainwater**, collected as a good practice in the bauxite mining activity.

4. A more accurate procedure for calculating specific water consumptions was applied and therefore the data for 2019 and 2020 have been updated. [GRI 102-48]