

Circular Economy



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

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|---|
| Boundaries of the Material Topic [GRI 102-46] [GRI 103-1b] |
| Where the impacts occur: The impacts occur in the industrial units of MYTILINEOS. |
| By whom are the impacts caused: The impacts are primarily caused by the MYTILINEOS Metallurgy Business Unit and by potential indirect contributions from the Company's business partners. |
| The management of the topic by MYTILINEOS contributes to Sustainable Development: <ul style="list-style-type: none"> The reduction of waste through prevention, reduction, recycling and reuse. The reuse of materials, expanding the life cycle of products in order to reuse them, creating additional economic value. The reduction of wastewater that does not undergo treatment, and the substantial increase in the recycling and reuse of water at national level. |
| Topic of increased significance to: <ul style="list-style-type: none"> Employees Suppliers Customers Shareholders / Investors / Financial Analysts NGOs Press representatives Sustainable Development Organizations / Regulatory Bodies Academic community Local Communities in the context of their cooperation with MYTILINEOS. |

Management Approach

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

The purpose of this disclosure is to provide information and data to MYTILINEOS' Stakeholder groups, so that they can understand how the Company manages the waste resulting from its production process and the manner in which their proper management contributes to its efficient operation and to its compliance with the environmental legislation, while minimizing the environmental impacts for all recipients. [GRI 103-2b]

Key Challenges / Impacts

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

The collection, management and reduction of waste are key elements of MYTILINEOS' environmental policy. Bauxite residues resulting from the production process in the Metallurgy Business Unit account for the largest volume of the Company's solid waste. A key challenge for MYTILINEOS is to improve in this area, which depends to a large extent on the utilization of this waste either by itself, through its participation in European pilot programs or by making it available for the production of other industrial materials. This particular type of waste

is accumulated in a specific designated area which, for the purposes of measuring MYTILINEOS' environmental footprint, is considered as a Controlled Landfill for Non-Hazardous Waste operating in accordance with the licensing acts of the Sterea Regional Administration and the Viotia Regional Unit.

Additional permanent challenges for the Company this respect are (a) the management of all hazardous and non-hazardous waste, placing emphasis on reuse and recycling methods and on utilization methods particularly for bauxite residues, and (b) the reduction of the amount of waste to be landfilled, thus helping minimize the impact on the environment and on human health while also reducing operating costs.

Major risks

[GRI 102-15]

The gradual reduction of available bauxite disposal sites constitutes a key environmental risk for MYTILINEOS, with possible negative effects on the Company's financial performance.

Commitment

[GRI 103-2c]

Control, continuous reduction and proper management of solid and liquid waste using recovery, reuse and recycling techniques where feasible, in accordance with the main priority areas of MYTILINEOS' [Environmental policy](#), using as a reference the application of Best Available Techniques in the production process.

Risk Management / Control Practices

[GRI 103-2a] [GRI 306-1] [GRI 306-2]

- The management and reduction of waste are key elements of the Company's environmental policy. A **network for the collection of waste** for reuse and recycling has been designed and is in operation in every production facility.
- In cases where recycling cannot be completed onsite (i.e., in the Company's facilities), waste is disposed of through the Company's cooperation with **alternative waste management systems** which have the statutory approvals of the Hellenic Recycling Agency, as well as with licensed (per waste category) waste collection, transportation, management and recovery contractors in Greece and abroad.
- Regarding the **management of liquid waste discharges** resulting from MYTILINEOS' activity, this is fully controlled and takes place in accordance with the parameters determined by the environmental terms and regulations under which the facilities of the Company's Business Units have obtained their environmental licenses.

In the Metallurgy Business Unit, which accounts for 99% of the Company's total waste:

- The bulk of the waste produced results from the production process and the processing of raw materials (e.g., bauxite residues, low grade bauxite residue), from maintenance works (e.g., electrolysis basin waste) and from the processing of the metal for casting (e.g., drosses). The management of such waste includes collection, source separation, transport, and recovery / disposal of all waste streams, according to the type of each individual waste and the requirements of the applicable legislation. Approximately 150,000 t of waste are

recovered annually through licensed companies cooperating with MYTILINEOS. Of this total quantity, 70,000-100,000 t are bauxite residues, 30,000-45,000 t are low grade bauxite residue (utilized at 100%) and the rest includes waste such as drosses (utilized at 100%), packaging waste, waste lubricant oils (WLO), etc. In the case of bauxite residues, it is worth mentioning that in tandem with their recovery by companies cooperating with MYTILINEOS (cement industries), MYTILINEOS also participates in and co-funds 12 European research projects for the recovery of bauxite residues, while pilot facilities for the treatment of bauxite residues have been set up within the industrial facilities of Aluminium of Greece (AoG). MYTILINEOS also participates in 2 other European projects for the recycling of waste from the electrolysis basins. **ASI**

- Specially configured sites for the final disposal of waste (Controlled Landfill for Hazardous Waste and Inert Waste Disposal Site) are maintained and used, while bauxite residues (non-hazardous waste representing 95% of the Company's total waste) are deposited at the same gradient with that of the natural relief of the disposal site. **ASI**
- In line with its **voluntary commitment to continuously reduce the quantities of hazardous waste** generated by its production processes, the Metallurgy Business Unit has taken the following actions:
 - Participation in subsidized programs aimed at the treatment and subsequent recovery of hazardous waste resulting from the dismantling of the electrolysis basins at the end of their life (carbonaceous and refractory materials). AoG participated in the "SPL Cycle" research project, which focused on the pulverization of waste materials and their subsequent treatment with appropriate solvents, in order to obtain products that are useful as raw materials in industry. Moreover, the "REMOVAL" research project, in which AoG also participates, explores the recovery of the carbon part of the waste as a reducing agent in the metallurgical process.
 - Study on the "end-of-waste" status (declassification as waste) of soda-rich waste from the alumina production process, within the facilities of AoG. The study is carried out by Zeologic, a subsidiary of MYTILINEOS, and is currently at a final stage. The laboratory analyses performed have returned encouraging results.
 - Actions to further improve the processes for separation of waste at the source, with the aim of separating potential non-hazardous streams, something that is not possible today given the production and collection processes currently in place.
- In 2021 the **Life Cycle Assessment (LCA)** study on the assessment of the possible environmental impacts related to the extraction of bauxite and the production of alumina and aluminium by MYTILINEOS' Metallurgy Business Unit was completed. The LCA study is a process of assessing the impacts on the environment of a product throughout its life-cycle (cradle-to-grave), thus increasing the efficiency in the use of resources. The LCA study identifies the stages in the product's lifecycle that cause the greatest impacts on the environment and the prevailing type of impact. The study was carried out in accordance with the principles of the ISO 14040 and 14044 international standards, with the aim of obtaining all the data required for securing certification with the Performance Standard of the Aluminium Stewardship Initiative (ASI). **ASI**
- To reinforce the circular economy, increase the Company's

recycling rates and support the national efforts for increasing the recycling rate for aluminium, which is 100% recyclable, **ambitious targets have been set regarding the production of secondary aluminium** and the quantity of recycled (scrap) aluminium used. More specifically, for 2022 the targets for the use of recycled aluminium and the production of secondary aluminium are 28,5673 t and 27,049 t respectively, while for 2025 these targets rise to 68,600 t and 65,000 t respectively.

- Regarding the management of wastewater, the **Metallurgy Business Unit** produces the largest amount of this type of waste, most of which is recycled within the production process itself. More specifically, the alumina and aluminium production plant uses an underground system of water or effluents collection pipes, which leads to a liquid industrial waste treatment plant featuring settling basins, an oil separator and multi-layered activated carbon filters. The pH value, temperature and flow are constantly measured and monitored online. There is also a safety tank with a capacity of 1,330 m³, to which waste is fed, when necessary, by an automatic diversion system. **ASI**
- Moreover, **three Biological Treatment Facilities** are in operation, covering the aluminium production plant's and the local communities' needs in water: The Biological Treatment Facility in Aspra Spitia & Antikyra, with a capacity for 10,000 residents, the Biological Treatment Facility in Agios Nikolaos, with a capacity for 200 residents, serving the homonymous settlement, and the Plant's Biological Treatment Facility, with a capacity for 2,000 people, serving the population of the aluminium plant and of the power plants also located within the same industrial complex. The Biological Treatment Facility in Aspra Spitia & Antikyra was the first biological treatment facility for urban wastewater in Greece and was built together with the settlement, by the company Degremont-France. In accordance with the Environmental Terms Approval Decision, monthly analyses are carried out by a quality control laboratory, accredited by the Hellenic Accreditation System in accordance with the ELOT EN ISO 17025 standard. During the bathing season (May - September), seawater samples are taken at eight (8) locations in the Antikyra Bay, while seawater quality is also assessed annually by an independent external organization. These locations include the sea point exit of the treated water pipe from the Biological Treatment Station of Aspra Spitia & Antikyra. The results related to this location have demonstrated that the samples taken comply with the legally required limits for "exceptional quality" and "good quality" coastal waters. **ASI**

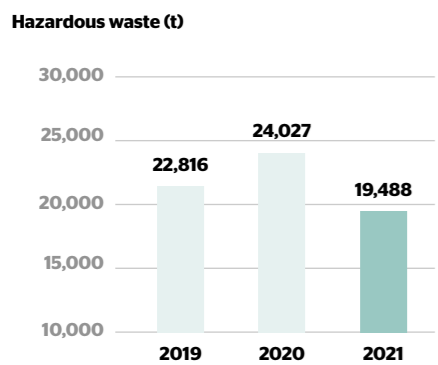
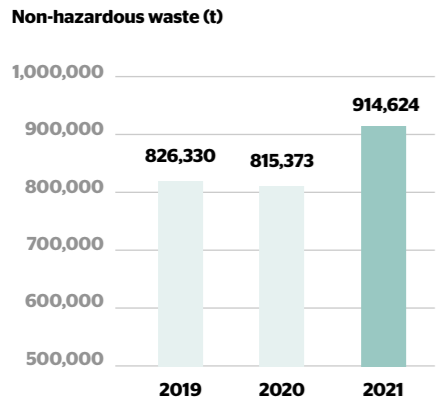
Results

[GRI 103-3a-ii] [GRI 306-3] [GRI 306-4] [GRI 306-5] [SASB EM-CM-150a.1]

- In 2021, the total quantity of the Company's solid waste **amounted to 934.1 thousand tons, increased by 11.3% from 2020** (839.4 thousand tons), which came mainly from the increase in the production of ECDW (Excavation, Construction and Demolition Waste) as a result of the increased construction activity during 2021. It should be noted that the entire quantity of this waste category was recycled.
- Out of the total quantity of generated waste, 84% concerned bauxite and low grade bauxite residues, while the remaining 16% included aluminium, industrial and urban waste and materials that are collected and include various types of



metal scrap (e.g., iron and steel), batteries of vehicles, tires, used lubricants, electrical and electronic equipment, paper, plastic, wood, glass, lamps and photocopier consumables. **ASI**



- The percentage of solid waste directed to controlled landfills, as a percentage of the total non-hazardous solid waste produced (excluding bauxite residues, which undergo special treatment), **was further reduced in 2021 and stood at 2.0%** (2020: 2.4%).
- Concerning **hazardous waste, their quantity was significantly reduced (by 18.9%)**, because the number of electrolysis basins that had reached their end of life and required reconstruction was reduced. Such a reconstruction process, when taking place, results in the generation of hazardous waste.
- The percentage of the total solid waste that was **reused, recycled and recovered** in various ways, either by the Company itself or through third parties, increased by 6 percentage units and **reached 25%** (2020: 18.6%) of the total waste produced (including bauxite residues). Of this quantity, **115,000 tons of bauxite residues and low grade bauxite residues** were made available to the cement industry and to other industrial uses. **ASI**

| Non-Hazardous Waste (t) [GRI 306-4] [GRI 306-5] | Onsite | Offsite | 2021 |
|--|------------------|------------------|------------------|
| Recycling | 9094 | 97,774.2 | 98,683.6 |
| Reuse | 0 | 26,395.2 | 26,395.2 |
| Recovery by third parties | 0 | 102,814.0 | 102,814.0 |
| Controlled Landfill (Accumulation site for Bauxite Residues) | 669,683.9 | 0 | 669,683.9 |
| Controlled Landfills for Non-Hazardous Waste | 3,154.5 | 1,629.2 | 4,783.7 |
| Storage for recovery | 12,165.2 | 0 | 12,165.2 |
| Storage in third-party facilities | 0 | 86.3 | 86.3 |
| Recovery / Exchange | 0 | 12.3 | 12.3 |
| Incineration | 0 | 0 | 0 |
| Total | 685,913.0 | 228,711.2 | 914,624.3 |

| Hazardous Waste (t) [GRI 306-4] [GRI 306-5] | Onsite | Offsite | 2021 |
|--|-----------------|----------------|-----------------|
| Recycling | 0 | 382.7 | 382.7 |
| Reuse | 0 | 24.9 | 24.9 |
| Recovery by third parties | 0 | 4,784.5 | 4,784.5 |
| Controlled Landfills for Hazardous Waste | 13,887.2 | 0 | 13,887.2 |
| Storage for recovery | 347.6 | 0 | 347.6 |
| Storage in third-party facilities | 0 | 1.1 | 1.1 |
| Recovery / Exchange | 0 | 45.5 | 45.5 |
| Incineration | 0 | 14.9 | 14.9 |
| Total | 14,234.8 | 5,253.6 | 19,488.4 |

| Waste generation by waste category (t) ¹ [GRI 306-3] [GRI 306-4] [GRI 306-5] | Quantity diverted from disposal | Quantity directed to disposal | 2021 |
|--|---------------------------------|-------------------------------|------------------|
| Waste resulting from exploration, mining, quarrying and physical and chemical processing of minerals | 115,005.3 | 674,091.7 | 789,097.0 |
| Waste from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), sealants and printing inks | 0.3 | - | 0.3 |
| Waste from thermal processes | 7,171.9 | 1,830.6 | 9,002.5 |
| Waste from shaping and from chemical and mechanical surface treatment of metals and plastics | 157.8 | - | 157.8 |
| Oil waste and liquid fuels waste (except edible oils) | 237.8 | - | 237.8 |
| Waste packaging: absorbents, wiping cloths, filter materials and protective clothing not otherwise specified | 2,470.0 | - | 2,470.0 |
| Waste not otherwise specified in the list | 347.9 | 10,426.2 | 10,774.1 |
| Construction and demolition waste (including excavation soil from contaminated sites) | 118,851.0 | - | 118,851.0 |
| Waste from waste treatment facilities, off-site wastewater treatment plants and water industry facilities for the preparation of water intended for human consumption and water for industrial use | 1,189.2 | 377.1 | 1,566.3 |
| Municipal waste (household waste and similar commercial, industrial and institutional waste), including separately collected fractions | 326.5 | 1,629.2 | 1,955.7 |
| Total | 245,757.8 | 688,354.8 | 934,112.6 |

1. Waste types have been classified according to the categories of the European Waste Catalogue (EWC).

Pollution prevention



Boundaries of the Material Topic [GRI 102-46] [GRI 103-1b]

Where the impacts occur:
The impacts occur in the areas of operation of MYTILINEOS' industrial plants, Business Units, subsidiaries and main suppliers.

By whom are the impacts caused:
Directly involved in these impacts are the Metallurgy and Power & Gas Business Units of MYTILINEOS and its subsidiaries DELPHI-DISTOMON and KORINTHOS Power, while key suppliers of the Company may be indirectly involved.

The management of the topic by MYTILINEOS contributes to Sustainable Development:

- The prevention of all land and marine pollution.
- The environmentally sound management of all waste in accordance with internationally agreed frameworks and to the reduction of their emissions into the air, the water and the soil, in order to reduce its impact on human health and the environment.
- The reduction of waste production through prevention, recycling and reuse.

Topic of increased significance to:

- Employees
- Suppliers
- Customers
- Shareholders / Investors / Financial Analysts
- NGOs
- Press representatives
- Academic community
- Local Communities

in the context of their cooperation with MYTILINEOS.

Major risks

[GRI 102-15]

- The possible deterioration of the air quality, of surface and ground waters and of the marine environment, as well as pollution of the soil from industrial accidents are permanent potential risks.
- Key production and transport activities of the Company involve the risk of spills, following unforeseen malfunctions or accidents, into the marine environment, since they are adjacent to it.
- Failure to prevent and manage the above risks could have a significant impact on the Company's economic and industrial capital, limiting its ability to create value either by increasing the financial costs for dealing with these incidents, or through possible administrative sanctions that may be imposed or the Company's potential inability to continue to smoothly conduct its activities.

Commitment

[GRI 103-2c]

Prevention of all identified risks of pollution from the Company's activities, in accordance with the main priority areas of MYTILINEOS' [Environmental Policy](#).

Risk Management / Control Practices

[GRI 103-2a]

Pollution risk management is directly linked to the safe, socially and environmentally responsible operation of all the Company facilities. The Company's annual target is to avoid any incidents and industrial accidents that could cause pollution to the natural environment, across all its business activities.

To address this risk, preventive and suppressive response measures are implemented in all MYTILINEOS Business Units. In particular:

In the **Metallurgy Business Unit**, a dedicated **Major Accident Prevention Policy** is in place for preventing and responding to large-scale industrial accidents. The policy addresses risks associated with the use of hazardous substances in the Business Unit's activities and, through a set of concrete measures, ensures their prevention and the avoidance of any incident involving a deterioration of the environment. **ASI**

The main pollution risk prevention measures implemented in the Business Unit consist in the following:

- Strict compliance with the approved Environmental Terms of the activity of Metallurgy.
- Continuous measurement and monitoring of air emissions and suspended particulates.
- Measurement and monitoring of water discharges from point sources.
- Compliance with the measures provided for in the Safety Study (SEVESO III - implementation of Joint Ministerial Decision 172058/2016).
- Conduct of industrial accident response exercises provided for in the Safety Study (SEVESO III - implementation of JMD 172058/2016), which in some cases are carried out in cooperation with external bodies (Fire Service, Civil Protection, etc.)
- Final disposal of non-hazardous waste in insulated areas with the construction of a geological barrier of low water

Management Approach

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

The purpose of this disclosure is to provide information and data to MYTILINEOS' Stakeholder groups, so that they can understand how the Company is managing the risks of pollution and spills directly associated with its safe and socially and environmentally responsible operation. **[GRI 103-2b]**

Key Challenges / Impacts

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

The key challenge for the Company is to effectively prevent any form of pollution of the natural environment from its production activity (air emissions, solid and liquid waste, use of chemicals) and from any major industrial accidents.