

## Statistics of Air Pollution GRI | 305-6-7

Regarding the emission of air pollutants, as PEC uses boilers in the manufacturing process, the main emission source is the nitrogen oxides from combustion of the boilers. PEC prudently treats our emissions, and does not use or emit ozone depleting substances (ODS), which are regulated by the Montreal Protocol, nor do we emit any Persistent Organic Pollutants (POPs). Additionally, we also regularly test and report fixed air pollution sources in line with the regulations from the Environmental Protection Administration, which is outsourced once a year to EPA-certified testing agency Ji Chuan Environmental Technology Co., Ltd. The testing results indicated that air pollutant emissions are lower than the statutory levels, and there were no incidents of violation of environmental laws and regulations, thereby fulfilling our responsibilities to environmental friendliness in all production processes.

### PharmaEssentia Headquarter - Information on major gas emissions affecting the environment for the past 3 years (Unit: kg)

Air pollutants	Nitrogen oxides (NO <sub>x</sub> )	Sulfur oxides (SO <sub>x</sub> )	Volatile Organic Compounds (VOCs)	Hazardous Air Pollutants (HAP)	Particulate Matter (PM)
2019	649.00	102.00	10.00	8.00	8.00
2020	415.70	29.60	13.30	Lack of Data	7.00
2021	352.41	0	734.31	168.54	14.77

Note: Panco Healthcare does not emit any air pollutant included in these items.

## 5-2 Waste Management

### Waste Management Approach Materiality Topic

In order to manage our waste effectively, we review the detailed processes of waste generation, removal, treatment and recycling from a life-cycle perspective. Through a systematic waste management policy, we avoid the risk of improper treatment that may lead to illegal concerns or pollution of the environment. We also actively assign our business executives to participate in external environmental seminars and regulatory presentations. In 2021, we sent our staff to eight external training sessions to keep abreast of various environmental regulations and the latest trends. By doing so, we can effectively follow the changes in regulations and keep up with the trends when we promote the actions to reduce emissions at source, adjust our process design, or improve the utilization of consumables. With that, we can reduce the waste of resources, minimize the environmental pollution, and achieve the specific practice of friendly environment. For our environmental protection expenditure, please see our [2021 Annual Report](#) for relevant disclosures.

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#### Policies

##### Internal Policy

Follow the "Environmental Safety and Health Policy" and "Waste Management Procedures."

##### External Guidelines

Regulations for the Review of Business Waste Cleaning Plans



#### Commitments

In addition to complying with environmental protection laws and regulations, the manufacturers are also required to implement waste flow control together to fulfill the commitment of being friendly to the environment.



### Responsibilities

- The environment friendly team is responsible for developing, planning and promoting waste management issues, and collaborating with R&D, environmental safety and production units to implement waste management responsibilities.
- Execution Center for Corporate Sustainability- Environmental Friendliness Taskforce



### Resources

In 2021, the cost of business waste removal and disposal amounted to approximately NT\$608,000, consisted of NT\$223,000 for non-hazardous waste and NT\$385,000 for hazardous waste, and have set up dedicated personnel to such tasks.

### Short-term Goals for 2022

- Following the efforts in 2021, we will continue to check the output of waste chemicals (including toxic substances) and follow-up treatment procedures; besides, we will submit the amendment of the "Industrial Waste Cleanup Plan" and apply the approval of the disposal of toxic substances to the environmental protection authority. And we will keep the treatment of waste chemicals (including toxic substances) legally to avoid violating environmental protection laws and regulations.

### Mid-term Goals for 2023~2025

- To reduce the burden and impact on the environment and implement environmental protection obligations, we will introduce the ISO14001 environmental management system through PDCA to strengthen the environmental management in the factory and incorporate the concept of life cycle assessment.
- Reinforce the waste management responsibilities of each unit.
- Seek alternative solutions for green products based on waste materials, increase the frequency of reuse, promote resource recycling, and reduce the total generated amount of waste.
- Strengthen the auditing of waste manufacturers and use compliance performance as the evaluation criterion for the selection of future manufacturers.

### Long-term Goals for 2026

- Implement the ISO14001 environmental management system, and follow the environmental assessment results and recommendations for improvement.



### Goals & Targets



### Evaluation of Management Approach

#### Mechanism of Evaluation

- Internal audits: Audit the waste management companies from time to time in each year and review our internal waste classification and storage management process, as well as evaluate the waste intensity per unit output routinely. The calculation method is based on an evaluation standard of "Waste output (unit: ton)/production output (unit: per gram)".
- External verifications: Competent authorities including the Central Taiwan Science Park Administration and Environmental Protection Bureau of Taichung City Government will conduct routine legal compliance audits on the "Business Waste Cleanup Plan," waste removal and disposal procedures, and waste storage sites.

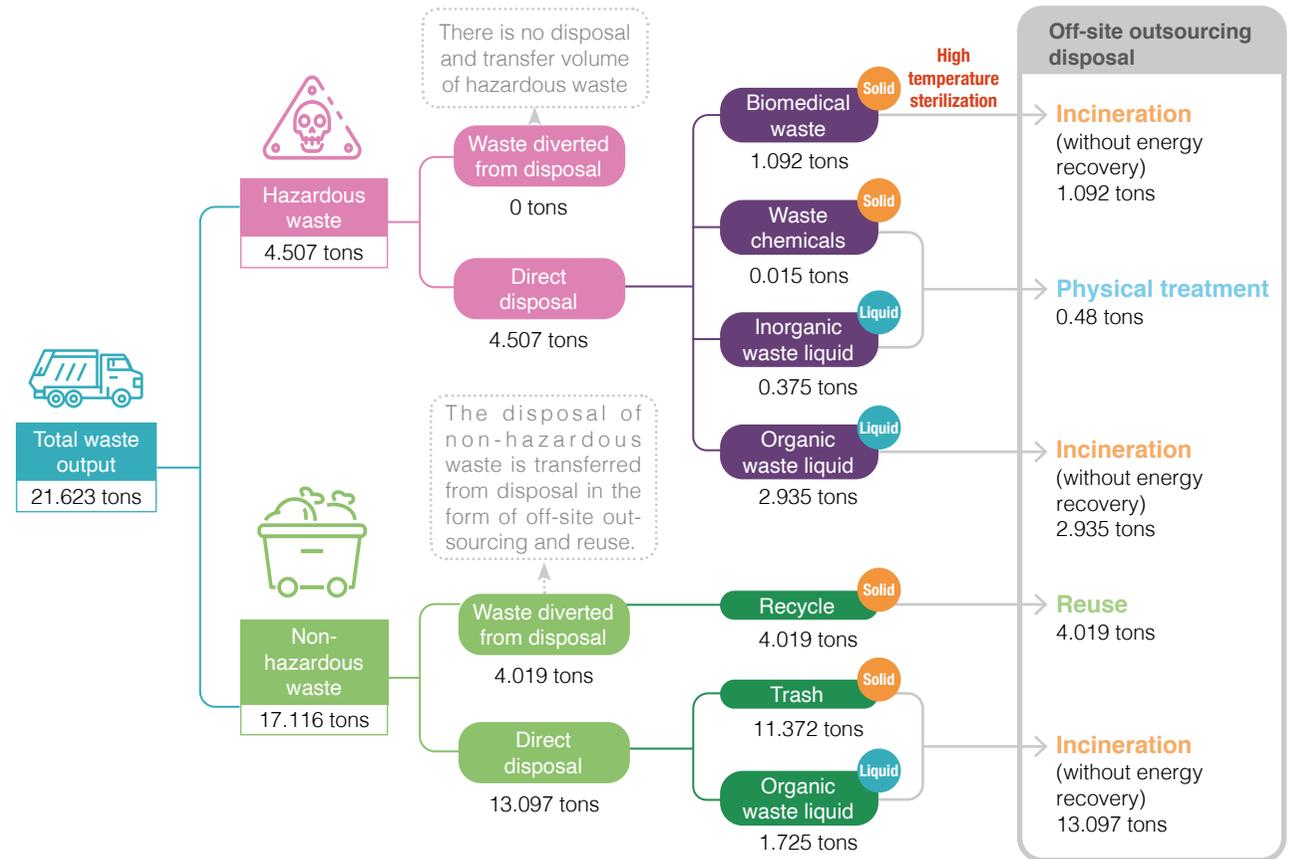
#### 2021 Assessment Result

- In 2021, every 1 gram of product produced generates 0.3397 tons of waste, showing a 21.3% decrease from 2020.
- Auditing results: We audited 2 waste disposal vendors and conducted 4 audits over temporary waste storage areas, all complied with regulations.
- Improvements: We continue to implement the existing SOP and to review and amend the "Best Waste Cleanup Plan" on a timely basis to meet regulatory requirements. The Taichung plant commissioned a legal vendor to assist in the removal of waste chemicals (including toxic chemicals) in 2021, and after the environmental protection authority agreed to complete proper disposal of the waste, a copy was made available for inspection.

## Waste Output and Disposal GRI | 306-2-5

The hazardous waste of PEC is specially classified and sealed in specific containers, and labeled with information including its name, weight, waste code and date, and then entrusted to qualified vendors for further processing. Hazardous liquid waste related to biopharmaceuticals, which may be infectious, are first sterilized using high temperature, then entrusted to qualified vendors for further processing. Moreover, the toxic liquid wastes are mostly chemical wastes, which are stored according to their flammability or acid-base value. When liquid wastes are collected, the handling personnel must pay attention to potential chemical reactions caused by the mixing of the liquid wastes, and at the same time, fill out the “Liquid waste mixture form” and affix it on the liquid wastes container to facilitate subsequent clearance and processing from contractors.

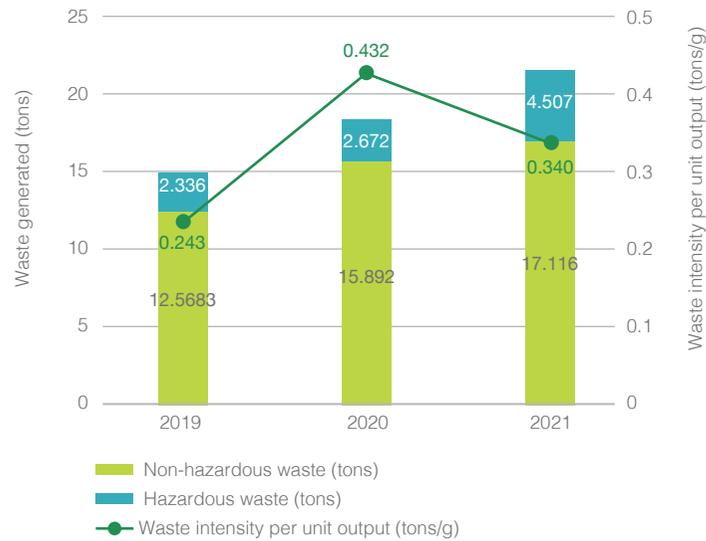
Non-hazardous waste is separately stored at temporary waste storage area based on its nature before further processing. Our waste disposal methods include: General trash and recyclable trash. In terms of waste disposal, we prioritize reuse, which is the friendliest to the environment, followed by recycling; if the wastes cannot be recycled and reused, they will undergo intermediate handling procedures, such as incineration or burial, or final disposal. The waste disposal companies contracted by the Company are legally registered class A licensed waste removal/processors regardless responsible for removal or final disposal. We also operate in a “tripartite checklist operation,” which requires the completion of the process by the Company, the cleaning company, and the final treatment plant with a seal, and then finally reporting to the EPD official website to complete the process in order to control and manage the final flow of waste.



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Through capacity and efficiency enhancements in 2021, the waste intensity from PEC’s headquarters and Taichung Plant have been reduced by 21.3% from the previous year. In the future, we will continue to reduce the amount of waste, improve the efficiency of unit output, and reduce the intensity of unit waste output as our goal, and follow short-, medium-, and long-term goals and action to refine management policies and implement management actions. Panco Healthcare did not generate any hazardous waste, and the only waste generated was domestic refuse, which is lower than the lowest 0.5 tons threshold set for businesses. The waste was entrusted to a qualified vendor for clearance and incineration.

**Statistics of waste generated and waste intensity per unit output in the past three years**



Note 1: The data for 2019 do not include Panco Healthcare.

Note 2: Emissions intensity is measured using total annual production. Since we mostly adjusted total production output based on clinical trial requirements from 2019 to 2020, and since we have not yet entered into mass production and stable productivity, there still remains some fluctuations in our waste emission intensity per unit output production.

# 5-3 Hazardous Substance Management

★ Materiality Topic

## Hazardous Substance Management Approach

PEC production processes use certain toxic and concern chemical substances regulated by the EPA. Therefore, in terms of chemical toxicant management, PEC is focused on source management and its proper storage and usage. At the same time, we also stipulate written records of usage status to manage the flow of chemical toxicants and prevents toxicant pollution on the environment and human health.

GRI | 103-2-3

**Policies**

**Internal Policy**  
Adhere to the "Environmental Safety and Health Policy" and "Chemical Hazard Management Procedure."

**External Guidelines**  
Toxic and Concerned Chemical Substances Control Act

**Commitments**

Comply with environmental laws and regulations, implement toxic chemical management to avoid disasters that cause environmental pollution or harm to human health.

**Responsibilities**

The actual use, maintenance, management and operation of toxic chemicals are the responsibility of the research and development or use unit, while the rest are the joint responsibility of environmental safety, use and storage units for the management of toxic chemicals.

**Resources**

- The cost of disposal of hazardous waste in 2021 amounted to approximately NT\$385,000 and the dedicated personnel was set up to handle all issues related to waste management. The annual chemical toxicant hazard drill was postponed to January 11, 2022 due to the pandemic.
- The QC department has designated 2 persons to participate in the professional chemical and toxicant response - operator training organized by the Management Center of the Central Taiwan Science Park, and they passed the training and obtained professional licenses (fees were paid by the CTSP project plan).
- ESH department designated 1 person to participate in the professional chemical and toxicant response - general training, and passed the training and obtained professional license (the person will serve as a point of contact for the chemical and toxicant disaster response organization at the plant).