

Environment



-39%

Reduction in product packaging materials

-6%

Reduction of TTI AIP scope 1 and 2 GHG emissions intensity

-2% and -15%

Reduction of TTI AIP electricity and natural gas intensity

+200%

Increase in battery collection at TTI's North American sites



Overview

TTI is committed to minimizing environmental impact throughout the lifecycle of our products and across our value chain. Driven by our focus on Innovative Products and Operational Excellence, our responsible sourcing and innovative designs have made us a leader in our industry. We continuously strive to improve our environmental performance through research and development, long-term product planning, responsible manufacturing and understanding consumer needs.

Through our environmental initiatives we are focused on furthering relevant SDGs. These include striving for clean water and sanitation, affordable and clean energy options in our operations and through our supply chain, encouraging industry innovation and infrastructure, building sustainable cities and communities, championing responsible consumption and production in all markets where we operate and taking action to combat climate change and its impacts.

Environmental Management

TTI's environmental strategy for our internal operations is outlined in this section and details how this is managed with suppliers is included in the Supply Chain section of this report. In subsequent sections, environmental information and data from TTI business units are presented by region with data from TTI AIP Dongguan highlighted separately to show progress from previous years.

Environmental Management Strategy

In 2019, we continued to enhance our environmental management strategy across the company with the following priorities:

Our manufacturing sites and offices implement these priorities, follow stringent environmental policies, track and measure environmental metrics and encourage an ethos of sustainability at all sites. Employees receive regular communications on environmental issues and how to minimize their impact.

Actions taken across our business units include the ongoing monitoring and timely maintenance of air-conditioning, heating, ventilation and building management systems to ensure energy efficiency and healthy indoor air quality. In addition, other initiatives are implemented such as adopting LED-efficient lighting, adjusting lighting levels based on occupancy needs and the availability of natural lighting, and separating materials for recycling.

A key part of our environmental strategy is focused on developing climate resilience. We assess climate change risk, such as impacts arising from extreme weather events that affect our operations and our supply chain, as part of our risk management approach. This includes ensuring our facilities are able to mitigate the impact of climate changes through diversifying our manufacturing and supply chain, to reducing our greenhouse gas emissions and adopting renewable energy. Our continued engagement with Greenstone in 2020 will enable us to have the appropriate system to collect and report on the financial implications of climate change.



Environmental Compliance

We are committed to ensuring that our operations and those of our suppliers are in compliance with all relevant environmental, legal, and regulatory requirements. For a full list of legal and regulatory requirements that have the potential to have a significant impact to our operations and performance, please refer to Appendix A of our HKEX ESG Guide Content Index on our website.

As a power equipment and household appliance manufacturer, we understand the environmental impact of our operations must be properly managed. We continuously strive to improve our environmental performance by ensuring our operations not only follow local regulations but also meet the high expectations of our customers and other stakeholders. Given the critical global need to minimize the impact of climate change, TTI's individual business units have environmental management policies in place that cover a wide array of issues ranging from energy and greenhouse gas (GHG) emission management to sustainable buildings for our manufacturing sites. Our efforts include striving to manufacture defect-free products to reduce waste, enhancing our environmental and hazardous substance management systems, investing in new technology and equipment, and raising the awareness and skills of our employees thereby minimizing our overall environmental impact.

Data Collection and Audit

A renewed focus on measuring environmental performance data across our markets was applied in 2019. Greenstone's ESG data collection and analysis software was implemented at all locations of TTI. Accordingly, our report provides more comprehensive data on air and GHG emissions, energy, water and packaging consumption, and hazardous and non-hazardous waste material usage across our markets.

In 2019, TTI AIP and some business units in North America and the EMEA regions conducted regular audits of their ISO 14001-certified

Environmental Management Systems (EMS). Offices in Germany are also certified to several DIN ISO standards, including ISO 9001 and ISO 14001, and are regularly audited by fiscal authorities as well as by the German statutory pension insurance body. In addition, in North America, TTI PE underwent two significant government regulatory inspections, one for air permit compliance and another for wastewater discharge compliance, achieving 100% compliance.

Environmental Impact

Reducing Air and GHG Emissions

TTI is consistently working to responsibly manage air emissions globally. Air and GHG emissions are mainly the result of office energy consumption, transportation and manufacturing processes. Air emissions include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur oxide (SO_x) and fine particulate matter (PM) emitted from cars, trucks and other small machinery, and from combustion processes to generate electricity for manufacturing, lighting, building management systems, heating and cooling. Fluorinated gases, such as HCFC-22, R-410a and R-404a, are also consumed as refrigerants.

Operational Improvements

In 2019, TTI did not have any incidents of non-compliance with emissions regulations. We report our Scope 1, 2 and 3 GHG emissions below for those business units for which data is available. Scope 1 emissions arise from onsite sources identified above, Scope 2 indirectly arise from purchased electricity and Scope 3 arise from business travel, marine transport, and from consumption of water and generation of waste. We are continuing to work on expanding our disclosure of GHG emissions as we strive to enhance transparency across all markets. TTI's total GHG emissions in 2019 amounted to 186,793 tonnes of carbon dioxide equivalent (tCO₂e).

TTI GHG Emissions by Region

	Scope 1	Scope 2	Total Scope 1 and 2 emissions (tCO ₂ e)	Scope 3*	Total emissions (tCO ₂ e)
Asia	5,770	51,435	57,205	14,853	72,058
ANZ	1,817	2,020	3,837	823	4,660
EMEA	4,922	4,853	9,775	12,546	22,321
North America	8,414	67,297	75,711	12,043	87,754
TTI Total	20,923	125,605	146,528	40,265	186,793

* In 2019, Scope 3 emissions only include data from TTI HK (business travel) and VAX UK (marine transport).

Our business units took the following measures to decrease emissions in 2019.

Asia

In Zhuhai, PRC, TTI's manufacturing operation has various initiatives to conserve gas, electricity and water, to enable the reduction of GHG emissions. These included buying air conditioners that use refrigerants with reduced environmental impact and organizing commuter buses for employees, with three of the eight being electric vehicles.

EMEA

At TTI ELC GmbH a partnership was formed with Interseroh which works together with the Fraunhofer Institute to calculate the reduction of GHG emissions per year related to polyethylene, polypropylene, mixed plastic, paper, cartons and wood.

North America

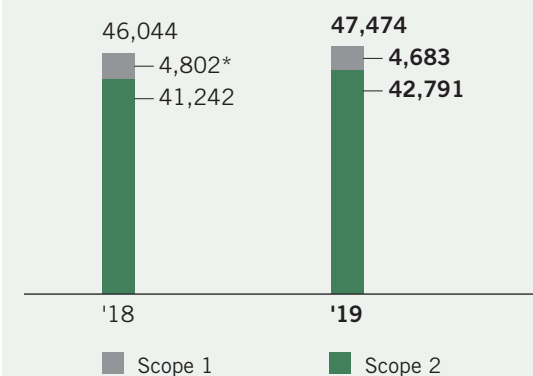
Low-NOx boilers were installed in Milwaukee's Innovation Center.

TTI AIP

TTI AIP's GHG emission figures are highlighted in the table below. In 2019, Scope 1 decreased by 2% due to our Continuous Improvement Program (CIP) which is designed to reduce energy consumption in our operations. This resulted in an overall emission intensity reduction of 6% as compared to 2018, despite an increase in production value of 7% in that same period. In 2019, the heat produced by two air compressors, comprising waste heat recovered from the manufacturing process, was used to warm water. The warm water is used as bath water for the workers living in the company dormitory. This is the third year that a reduction in emission intensity has been achieved since 2017.

TTI AIP GHG Emissions (Scope 1 & 2)

tCO₂e



	US\$ million production value	Intensity (tCO ₂ e per US\$ million production value)
TTI AIP 2019	2,892	16
TTI AIP 2018*	2,692	17
Changes in % (2019 vs. 2018)	7%	-6%

* In 2018, TTI AIP's Scope 1 GHG emissions of 7,790 tCO₂e and TTI AIP's Scope 2 GHG emissions of 54,341 tCO₂e as disclosed were calculated using the ISO 14064-1:2006 methodology. 2018 and 2019 emissions disclosed in the above table were calculated using the GHG Protocol methodology.

TTI AIP GHG Emissions (Scope 1, 2 & 3)

	Scope 1	Scope 2	Scope 3	Total emissions (tCO ₂ e)	US\$ million production value	Intensity (tCO ₂ e per US\$ million production value)
TTI AIP 2019	4,683	42,791	11,574	59,048	2,892	20

Product Improvements

TTI produces a number of Innovative Products that minimize environmental impact. Specific product categories with improved features include our cordless tools and lawnmowers as well as our low-emission generators.

Gas to Cordless Innovation

Our cordless products are more environmentally-responsible and superior in terms of safety and productivity over gas products. Examples of these products include the MILWAUKEE MX FUEL Equipment System and the RYOBI RLM18X41H240 Cordless Lawn Mower.

MX FUEL Equipment System

While our MILWAUKEE tool line is well known for revolutionary cordless power tools using our lithium-ion technology, the brand took a groundbreaking step by introducing the cordless MX FUEL Equipment System in 2019.



The MX FUEL Equipment System is the output of years of tireless research and investment in new technology and ground up development of new batteries, motors and electronics. This system aims to eliminate the environmental and health related hazards associated with emissions and reduces overall noise and vibration while delivering the performance, run time and durability demanded by the construction industry. By operating off one completely compatible battery system, the system eliminates the limitations of gasoline and power cords, thereby taking away the frustrations of gas maintenance.

RYOBI Cordless Lawn Mower

Another of our environmentally-conscious products is the RYOBI cordless lawn mower. One of our cordless lawn mowers was compared with one of our petrol lawn mowers to understand the benefits of the cordless technology. The results of the analysis conducted by an independent expert showed there is a reduction of 8% in the GHG emission footprint of the cordless lawn mower when looking purely at the products, namely as a result of their materials, manufacturing and assembly. However, an indicative scenario of 500 uses of the two products yields different results.

Testing showed that after 500 uses, the RYOBI Cordless Lawn mower had a significantly lower GHG emissions footprint, approximately 166% or 2.6 times lower than the gas lawn mower equivalent.



Low-emission Generator

RYOBI RY907022FI Portable Generator

Our RYOBI RY907022FI Portable Generator has also been recognized for minimizing carbon monoxide (CO) emissions, as well as having safety features that save lives. Portable generators can emit high levels of CO. This product is highly regarded for both its built-in sensor that triggers an automatic shutoff if CO builds up to dangerous levels and its low-emission engine that releases less CO.

Other generators with safety features meet the standard created by the Portable Generator Manufacturers' Association (PGMA), approved by the American National Standards Institute. The PGMA standard requires that the shutoff mechanism of generators automatically stop the engine before CO reaches 800 ppm or if the average exceeds 400 ppm over any 10-minute period. TTI, however, follows the more stringent UL standard that shuts off if an average of 150 ppm across any 10-minute period or a peak of 400 ppm arises. Since our product was the only one voluntarily tested to meet the UL 2201 CO safety standard, with its automatic shutoff and for its significantly reduced CO emissions, the RYOBI RY907022FI Portable Generator was rated No. 1 out of 11 generator models by Consumer Reports in 2019.

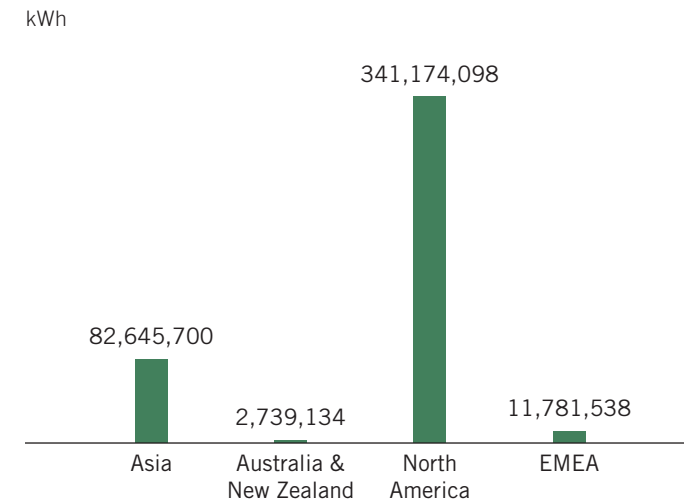


Improving Energy Efficiency

As our business continues to grow with higher production rates that make reducing energy consumption difficult to accomplish, we therefore focus on improving energy efficiency. TTI is committed to embracing and investing in both cleaner and renewable sources of energy across all our manufacturing operations.

TTI's total electricity consumption in 2019 amounted to 438,340,470 kWh. Consumption figures by region are included in the table below.

TTI Electricity Consumption by Region



Business units across the globe took the following initiatives to improve energy efficiency.

Asia

In TTI Zhuhai, PRC, production was scheduled to minimize changeover so machines were not left idle. In addition, heat treatment and painting machines were run continuously to avoid wasting energy during warm up and cool down periods.

At TTI AIP, a cooling pump that stops automatically when the air conditioning compressor is stopped, was implemented on one of the building's air-conditioning lines to save electricity.

EMEA

DreBo Germany installed a new compressor and used waste heat to reduce gas consumption for the factory heating system. The business unit also adopted its first hybrid car and is in the process of installing electronic car charging stations and providing electronic bikes for employees. All employees were educated on the importance of turning off lights and devices when leaving the office and only running the dishwasher once a day.

North America

In North America, the TTI FC facility in Cookeville installed energy-efficient hybrid injection presses in the molding area. Various energy-efficiency initiatives were also implemented at Milwaukee. To keep systems running efficiently, biannual preventative maintenance was conducted on heating, ventilation, and air-conditioning (HVAC) equipment such as remote terminal units (RTUs), boilers and pumps. In addition, all HVAC controls were put on a building automation system (BAS) to help monitor and maintain heating systems for maximum efficiency. Also, filters on all RTUs and exhaust systems were changed regularly to help with airflow to reduce strain on fan motors. With regards to lighting, a building automation system was added to control light levels and run times more effectively.

TTI AIP

Manufacturing output increased by approximately 7% and part of the warehouse facilities were re-purposed as a workshop. As a result, overall electricity consumption increased by 5% in 2019 over the previous year. The use of natural gas decreased by 9% compared to 2018 due to changes in the kitchen equipment. Another key initiative in 2019 was the replacement of the original screw chiller with the energy-saving Maglev central chiller. The estimated power savings per year due to this replacement is over 590,000 kWh.

TTI AIP Electricity and Natural Gas Consumption

	Electricity			Natural gas		
	Consumption (kWh)	US\$ million production value	Intensity (kWh per US\$ million production value)	Consumption (m³)	US\$ million production value	Intensity (m³ per US\$ million production value)
TTI AIP 2019	68,356,004	2,892	23,636	544,736	2,892	188
TTI AIP 2018	64,946,273	2,692	24,126*	595,410	2,692	221
TTI AIP 2017	60,357,750	2,062	29,271*	541,990	2,062	263
Changes in % (2019 vs. 2018)	5%	7%	-2%	-9%	7%	-15%
Changes in % (2018 vs. 2017)	8%	31%	-18%	10%	31%	-16%

* The electricity intensity of 2017 and 2018 have been restated.

Reducing Water Usage

TTI is also actively working to improve our water management to address worldwide concerns over water scarcity. Our efforts are put towards finding ways to consume water efficiently and maximize its beneficial use. TTI obtains all water for its operations from local sources and has not had any issues with sourcing. All of our operations follow regulations for water usage and wastewater discharge and, in 2019, there were no incidents of non-compliance.

In 2019, TTI's total water consumption amounted to 1,288,367 m³. Consumption figures by region are included in the tables below.

TTI Water Consumption by Region

	2018 (m ³)	2019 (m ³)
Asia	1,056,431	1,164,387
ANZ	N/A	262
EMEA	5,031*	29,488
North America	7,777*	94,230
TTI Total	1,069,239	1,288,367

* In 2018, only partial data from EMEA and North America were disclosed.

Examples of market-specific water conservation initiatives are as follows.

Asia

In TTI's Zhuhai PRC operation, cooling water was recycled, regular checks were conducted on water pipes and water usage was closely monitored to detect leakage. In addition, conservation of water and other natural resources was promoted.

EMEA

DreBo Germany continues to avoid fluid cooling systems for machining when possible to minimize water consumption.

North America

At TTI PE, water-saving fixtures were installed in new facilities and fixtures were checked to ensure they are set to optimize water use.

In addition to managing our own water consumption, we also ensure that any legacy issues at the sites that we operate at are addressed. For example, TTI PE continues to contribute to the Anderson and Pickens community by aggressively addressing legacy environmental issues created by previous owners of properties. To reduce risk to the community, all issues are currently contained and the cleanup is well underway. Since 2016, over 160 million liters of groundwater have been treated.

At Milwaukee, motion-sensing faucets were installed in all restrooms to reduce water flow.

TTI AIP

To work towards achieving its water reduction targets, TTI AIP maintained its wastewater recycling system and took steps to strengthen awareness about water conservation among staff. The wastewater recycling system reduces consumption of fresh water and reduces wastewater discharge to the municipal sewage system. A total of 195,955 m³ of water was reused through this system at TTI AIP in 2019.

TTI AIP's consumption rate increased by 5% in 2019 due to a break in an underground water pipe. Once detected and fixed, additional pipe maintenance was conducted to prevent and minimize the impact of future occurrences.

TTI AIP Water Consumption

	Water consumption (m ³)
TTI AIP 2019	1,105,146
TTI AIP 2018	1,054,058
TTI AIP 2017	847,212
Changes in % (2019 vs. 2018)	5%
Changes in % (2018 vs. 2017)	24%

Waste, Materials and Recycling Management

TTI is focused on reducing our consumption of materials and minimizing the generation of waste throughout our operations. When waste production cannot be avoided, we ensure recycling or responsible disposal procedures are followed. Across our facilities and offices, building management services provide separate bins for recyclables and properly dispose of non-hazardous and hazardous waste.

Hazardous waste is managed using scheduled pick-ups by licensed professionals to ensure its proper disposal. To improve our waste management process, we continuously track the types of waste disposed of by our business units. In 2019, there were no incidents of non-compliance with waste management regulations.

In 2019, TTI produced 38,563 tonnes of non-hazardous waste and 1,570 tonnes of hazardous waste. Waste primarily consists of cutting fluid, dye coating, filter, oily sludge, organic solvent, packaging bucket, packaging / container, rags, batteries, and WEEE waste.

TTI's Non-hazardous and Hazardous Waste by Region

	Non-hazardous waste (tonnes)	Hazardous waste (tonnes)
Asia	14,168	271
ANZ	1,091	0
EMEA	6,935	1,167
North America	16,369	132
TTI Total	38,563	1,570

Local regulations and building management procedures determine how waste is managed in each of our locations. Initiatives by region are outlined as follows.

Asia

TTI AIP provided recycling training and campaigns for employees twice in the year and achieved an overall recycling rate of 97.1%. Recycled input materials used in primary products consisted of 4,688 tonnes of recycled paper, which amounted to 13.5% of all paper consumed in 2019. Overall, at TTI AIP, the quantity of hazardous waste generated increased substantively in 2019 by 30%. The increase in hazardous waste generation resulted from several factors, including increased testing conducted at our laboratories, and by our regulatory team, operating a new chemical testing laboratory, our TTI Suzhou laboratory moving operations back to TTI AIP, as well as floorcare products, which went from being outsourced to being produced by TTI AIP. In TTI Zhuhai, materials such as paint containers, cooling water and plastic boxes were recycled. Paint line changes were also minimized to reduce the hazardous waste generated with each change.

TTI AIP Non-hazardous and Hazardous Waste

	Non-hazardous waste		Hazardous waste	
	Quantities (tonnes)	Intensity (tonnes per US\$ million production value)	Quantities (tonnes)	Intensity (tonnes per US\$ million production value)
TTI AIP 2019	13,060	4.5	243	0.084
TTI AIP 2018	14,900	5.5	187*	0.065
TTI AIP 2017	7,239	3.5	120	0.058
Changes in % (2019 vs. 2018)	-12%	-18%	30%	29%
Changes in % (2018 vs. 2017)	106%	57%	56%	12%

* Hazardous waste data for 2018 that was previously disclosed as totaling 122 tonnes, has been restated in the above table to include waste that was generated in 2018 but had yet to be quantified as it was sent for proper disposal in 2019.

EMEA

In Germany, offices recycled scrap, paper, emulsion, used oil and batteries according to local laws. DreBo Germany achieved an overall recycling rate of 90%. At TTI ELC GmbH, 80% of input materials used to manufacture primary products comprised recycled materials. Actions to reduce hazardous and non-hazardous waste products were taken according to two European directives, REACH and RoHS. Lead material was added to the scope of REACH, which led to efforts to track the amount of lead used and to work on corrective actions with suppliers to remove or substitute lead materials. In addition, responsible waste disposal initiatives were adopted for batteries, recyclables and organics.

North America

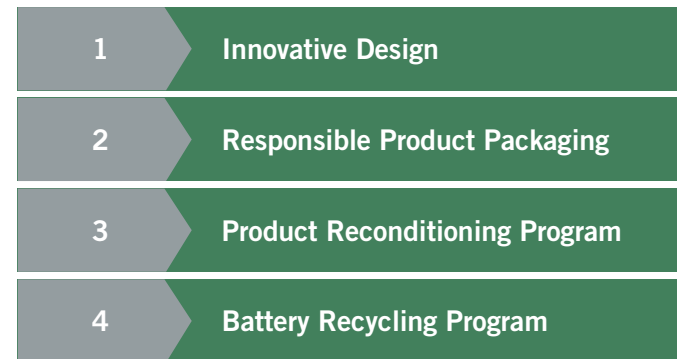
At TTI NA, single stream recycling of Styrofoam, glass, office paper, cardboard and plastic bottles is conducted using separate containers for dry recyclables and wet waste provided by building management. In addition to paper recycling containers, the pantry has designated waste receptacles for recyclables and waste. The bags for waste and recyclables are made from biodegradable and compostable material.

At TTI PE, washable tableware was purchased for the cafeteria, break areas and conference catering. A dishwasher was also installed, reusable takeout containers provided and a food bio-digester for food waste management was installed. In addition, the office paper recycling program was upgraded and a plastic bottle and aluminum can recycling program was added, achieving an 83% solid waste diversion rate in 2019. In Canada, a new waste diversion program was initiated at all offices in 2019. This included separating organic and non-organic waste and eliminating all single-use plastic at the head office and service centers. As a result, 0.091 tonnes of plastic and 0.141 tonnes of disposable paper cups were avoided. The in-house recycling program now captures 90% of recyclable materials.

The principles of minimizing waste and effectively managing materials are built into our product planning process and considered from the design stage through to after sales. As described in the next section, the initiatives embedded in the product lifecycle of our Powerful Brands, including our design, packaging, product reconditioning scheme and battery recycling programs are key to our environmental strategy.

Product Lifecycle Management

Measures to reduce environmental impact are, when feasible, integrated across the lifecycle of our products starting from product design as a key part of the production process, all the way through to the end of the product's life. Even after products are sold, our efforts to minimize waste continue through our comprehensive product reconditioning schemes and battery recycling programs across all markets.



1. Innovative Design

Our environmental considerations begin with design innovation. Our research and development projects aim to enhance the user experience, ensure the safety of the production process and of the end user, reduce emissions, improve resource efficiency, and increase the durability and recyclability of our products where possible, in order to work towards a closed loop, circular economy. TTI conducts lifecycle assessments and takes recyclability, reparability and longevity of products into consideration during our design development stage.

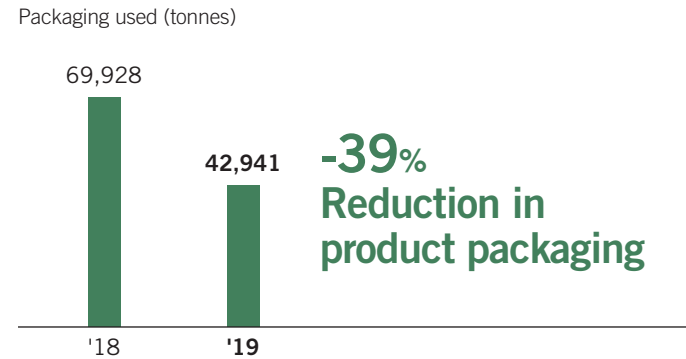
One example is the successful RYOBI cordless tools which currently rely on One+ lithium-ion battery technology. This brand platform meets all our design objectives as they are easier for customers to use and also effectively reduce resource consumption and waste. Our cordless tools effectively minimize waste as they are powered by a system which has remained consistent since the launch of TTI's first RYOBI ONE+ Battery Tool in 1996. The original ONE+ Battery was a NiCad battery and it was replaced by our newer lithium-ion battery platform in 2007. Tools which use these NiCad batteries can still be used with the lithium-ion battery. Likewise, a battery from a previous generation can also be used with a newly launched tool. With the connection system remaining consistent between the battery and the tool, our system has allowed end users to buy compatible tools, batteries and chargers separately, minimizing waste and excess consumption for the past 23 years.

2. Responsible Product Packaging

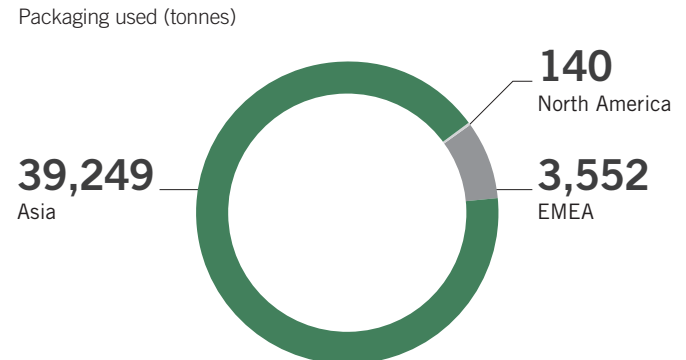
Another environmental management initiative in our product lifecycle is in the way we approach packaging materials. Environmentally responsible packaging and packing materials are a key focus for TTI as these minimize our impact and reduce our material and transportation costs. The most common materials we use for packaging include paper for boxes, cartons, die cut sheets, and plastic for polybags, bubble bags, clamshells and tool bags. We consciously use recycled materials whenever possible, opting for corrugated cardboard, honeycomb board, chipboard, paperboard and/or molded pulp. We also use biodegradable packaging and paper in packaging products.

Driven by our consistent efforts to achieve Operational Excellence in all areas of our business, TTI strives to adopt more environmentally responsible packaging and packing options across our business units. This resulted in a nearly 39% reduction of packaging used in 2019 as compared to the year before. Packaging and paper data globally and by region are included in the below charts.

TTI Product Packaging Data Comparison



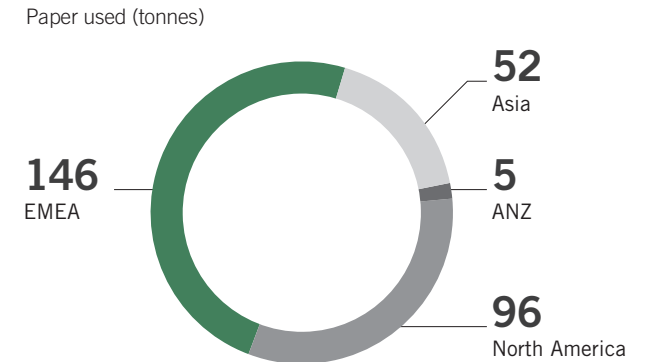
TTI Product Packaging Data Comparison by Region



In 2019, TTI consumed 300 tonnes of paper across our offices in Asia, Australia, New Zealand, North America and Europe. Of the 300 tonnes, 4.67 tonnes (1.6%) of total paper was classified as 100% recycled paper content.

Examples of initiatives to monitor and reduce packaging and paper consumption by region in 2019 were as follows.

TTI Paper Consumption Data by Region



Asia

TTI AIP monitors its packaging material composition and recycling on a daily basis. In 2019, packaging redesign resulted in avoided consumption of 201 tonnes of paper and 25.8 tonnes of plastic. Overall, packaging consumption comprised 31,492 tonnes of paper, approximately 300 tonnes of polyfoam and 4,536 tonnes of bags for DIY tools. The performance of our PRC operations provides a good example of our progress in this area. More information is provided in the TTI AIP Packaging Initiative spotlight example.

EMEA

TTI Central Europe maintained an almost paperless office, with TTI Eastern Europe using recycled Xerox paper for internal use and reusing carton boxes for deliveries. TTI ELC GmbH adopted measures to reduce paper consumed in the sample inspection report process.

North America

TTI PE teams are always looking for sustainable and efficient packaging options that meet shipping requirements. In 2019, testing was implemented to replace or reduce polybags, Styrofoam and corrugated materials. Testing was completed and changes were implemented that are expected to result in a 113 tonnes reduction in corrugated material in the coming year. Also, testing is underway and looking favorable to reduce the use of polybags in favor of biodegradable materials. At TTI FC, initiatives to reduce foam packaging and cardboard were implemented at our manufacturing operations in Cookeville.

TTI AIP Packaging Initiative

While packaging reduction efforts in the PRC have been successful, improvements are needed in other areas including the use of polybags. Our consumption of polybags amounted to 86 million pieces in 2019, which is equivalent to 534 tonnes of plastic and 942 tonnes of CO₂ emissions. To minimize the environmental impact of this, we have invested in three key initiatives.

1. TTI has invested in a Random Vibration Machine (RVM) for use in testing products before they are shipped. This machine performs a more realistic ISTA-2A standard compliant pre-shipment test which is better at simulating the shipping process in comparison to the ordinarily used, Fixed Displacement Vibration Machine (FDVM). As the RVM is less damaging to the products, it shows where polybag protection can be eliminated, hence reducing plastic.
2. TTI is working to replace polybag packaging for batteries with biodegradable bags that are compliant with shipment safety requirements.
3. TTI is aiming to replace polybags that hold manuals, leaflets and accessories with paper bags. This will reduce polybag consumption by 133 tonnes, which is equivalent to an 82-tonne reduction of CO₂.

With these initiatives in place, our PRC operations hope to meet the following targets in 2020:

- ▼ Avoid 58 million polybags
- ↔ Replace 28 million polybags with biodegradable bags
- ↔ Replace 35 million polybags with paper bags
- ▼ Avoid 425 tonnes of plastic
- ▼ Avoid 597 tonnes of GHG emissions

Manuals and Safety Literature

Another area where our responsible packaging initiatives have been successful is in our approach to the instruction manuals and safety literature, which accompany our products.

Beginning in 2012, TTI business units initiated various cost reduction measures, which also minimize our environmental impact, mainly by reducing the amount of paper we use in manuals. As a result, ANZ and EMEA regions reduced the number of pages in their outdoor and power tool manuals by 48% and 36%, respectively. The techniques used to achieve these types of savings include:

- Implementing new manual templates to reduce overall white space and thus page count
- Reducing manual paper weight, thereby reducing the cost and amount of paper
- Transitioning from wood-free paper to 100% recycled paper
- Eliminating redundant warnings, instructions and specifications for less complex tools, thereby reducing the length of manuals
- Replacing manuals with simple one page instructions or installation sheets for spare parts and consumables such as filters
- Replacing instructional text with instructional graphics and pictograms where appropriate, thereby reducing manual length

3. Product Reconditioning Program

Our product reconditioning scheme is another initiative that minimizes environmental impact, and results in 80% of the original product being reused with labor being conserved. Reconditioned tools, power tools and outdoor equipment under our consumer power tools brands are sold through our Direct Tools Factory Outlets. As a result, waste is avoided, TTI can guarantee quality and our customers are able to reuse the products with a one year warranty.

All reconditioned products, including batteries and chargers, are rigorously inspected for mechanical problems. Products are then professionally repaired by manufacturer-trained technicians who use replacement parts from our factory. After this, the products are tested to ensure they are working at optimal standards and packaged as certified pre-owned units. In this way, the lifecycle of our products is extended without compromising on quality.

Across the globe, TTI has service centers where products are professionally repaired to extend usage and minimize waste. TTI operates 45 service centers and 1,386 are operated by third parties.

4. Battery Recycling Program

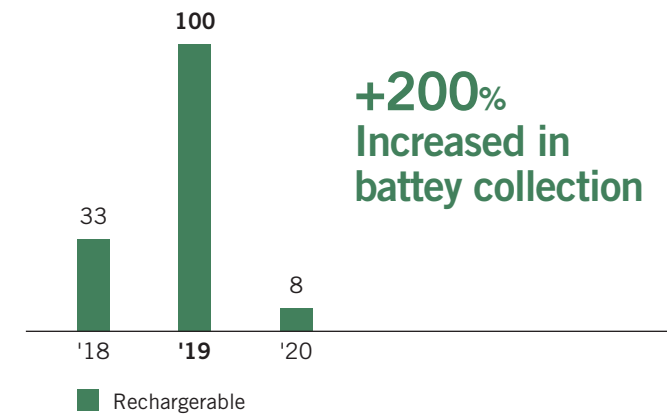
Another important product lifecycle initiative to reduce environmental impact is our battery recycling program. As described above, TTI is a leader in the design and manufacturing of lithium-ion batteries, which are interchangeable within each brand to reduce battery waste. We strive to implement recycling partnerships globally with the goal of increasing the recycling rate of batteries and products, which have reached the end of their useful lives.

Different markets partner with various external organizations to reduce battery waste, thereby responsibly recycling our batteries and our products containing batteries. In North America, rechargeable battery recycling is done through our partner, Call2Recycle®. Call2Recycle®, North America's first and largest battery stewardship program, has been collecting and recycling batteries since 1994 and is the first program of its kind to receive the Responsible Recycling Practices Standard (R2) certification.

In 2019, over 100 tonnes of batteries were collected for recycling from TTI's plants and offices across North America. This significant increase from the 33 tonnes collected in 2018 was due to TTI's active efforts in facilitating collection from sites. TTI pays stewardship fees to Call2Recycle® based on North American battery and battery product sales. In return, TTI has the licensing rights to apply the Call2Recycle® battery recycling seals on our batteries, products and packaging. Customers can easily access the toll-free number on the seal in order to locate collection sites in the United States and Canada. Customers can also go to the website at www.call2recycle.org to find the locations of more than 25,000 collection sites, including local household hazardous waste sites and national retailers.



2018-2020 Total Collection at TTI's North America Sites
Weight (tonnes)



Region	Battery collection (tonnes)
Asia	74
ANZ	38
EMEA	26
North America	104

In 2019, Call2Recycle® collected and recycled over 3,175 tonnes of batteries in North America with rechargeable batteries accounting for approximately 2,268 tonnes of that total. Based on a recent audit, 65-70% of rechargeable batteries collected are power tool batteries, many of which are TTI brands. Since its inception, Call2Recycle® has collected and recycled more than 71,214 tonnes of batteries in North America.

Apart from our partnership with Call2Recycle®, we partner with recycling organizations across the globe as outlined below.

Asia

In the PRC, TTI has been partnering with recycling companies specializing in battery recycling for several years. In 2019, 74 tonnes of batteries and cells were collected and recycled from TTI's sites.

ANZ

In Australia and New Zealand, the business units have partnered with Envirostream and other retail partners to ensure battery recycling stations have been established in their stores. Battery drop-off stations are provided at point of sale locations and within service centers. The batteries are crushed down to recover cobalt, copper, steel and aluminium. These materials are then returned to the manufacturing sector. This process also produces Mixed Metal Dust (MMD) which is used as an input material in the manufacture of cathode materials for new batteries. This revolutionary approach to battery recycling ensured that over 38 tonnes of battery waste was repurposed and saved from landfills through the partnership with Envirostream in 2019. TTI continued to participate in the industry-led voluntary program, Batteries 4 Planet Ark (B4PA) stewardship scheme in Australia in 2019. This program also helps divert batteries from landfill and supports a circular economic model which returns materials in manufacturing sectors.

EMEA

In Europe, battery recycling is organized according to applicable national laws derived from the European Union Battery Directive. We have joined common collection schemes in each country that involve registering with the local authorities, reporting sales to authorities, joining a collection scheme and financing the recovery of batteries based on reported sales.

The common collection scheme is acting on behalf of the producers who supply containers for battery collection to retail outlets, public institutions and commercial end users. The producers organize the transport of full containers to sorting facilities where the batteries are sorted according to their various electrochemical system properties and materials. The batteries are then treated in recycling facilities to recover materials such as iron, manganese, nickel and lead. The whole process is controlled by the common recycling scheme to ensure compliance with all legal requirements and environmental, health and safety standards. 26 tonnes of batteries were recycled in 2019.

North America

In addition to Call2Recycle®, other battery recycling partnerships were pursued by business units in North America. At TTI FC, batteries were recycled through Blue Sky Recycling with batteries collected from our facility by a vendor. In 2019, 4 tonnes of batteries were recycled by Brown's Recycling.