Health, Safety, and Environmental Affairs (HSE)

Barnes is committed to promoting and maintaining a safe workplace for our employees and strives to ensure that all aspects of our operations are conducted in conformance with applicable laws and regulations, as well as with all of our corporate policies pertaining to workplace safety and protection of the environment. At the corporate level, Barnes maintains a global Health, Safety, and Environmental Affairs (HSE) program which focuses on promoting employee safety throughout the enterprise. In certain cases, the Company or its strategic business units (SBUs) may establish more stringent requirements as policies, procedures, or directives. At the corporate level, these requirements are documented as Barnes HSE Standards.

The Barnes HSE Standards are consistent with our commitment to worker health and safety and to environmental protection, as well as prevailing regulatory frameworks in place around the globe. All locations are required to meet local laws and regulations, or the Barnes HSE Standards, whichever are more stringent. Furthermore, our internal corporate HSE audit program measures and monitors progress using standard protocols, ensuring that actions are tracked to closure and results are communicated to Senior Leadership.

Our past and present business operations require the use and handling of chemicals and hazardous products that are subject to extensive environmental laws and regulations pertaining to the discharge of materials into the environment, the disposal of wastes, and the use, shipping, labeling, and storage of chemicals and hazardous materials. We closely monitor hazardous waste management and environmental permitting and reporting requirements to ensure compliance with applicable laws while striving to minimize the environmental impact of our operations through our management systems approach to HSE.

Barnes did not pay any fines or penalties for HSE non-conformance in 2021. Our operations utilize standard work and online compliance calendars to manage regulatory compliance requirements, and our goal continues to be to eliminate HSE non-compliance.

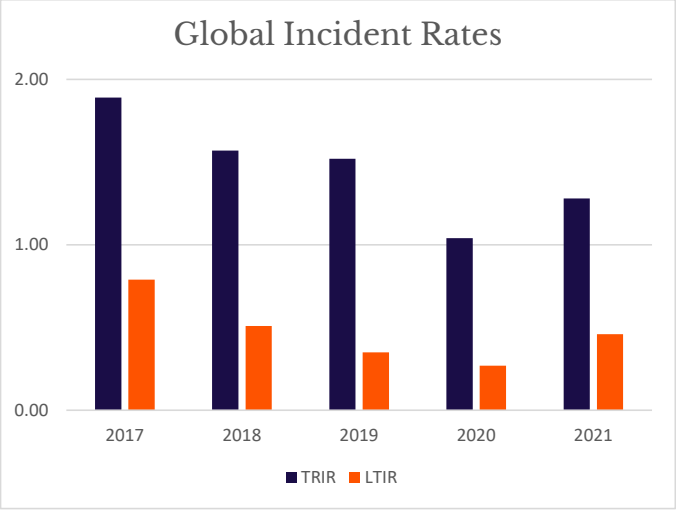
HSE Regulatory Compliance		
2021	None Reported	$0
2020	None Reported	$0
2019	Air Compliance	$4,918

Safety

We have ambitious goals when it comes to identifying and controlling hazards in the workplace to ensure our employees' safe return to their homes and families at the end of their workday. As we continue to navigate through the COVID-19 pandemic, employee health and safety remains a top priority and we continue to implement preventive measures and controls to protect our employees and keep our operations running. These efforts are consistent with our "safety first" mindset, in which we strive to integrate safe practices in everything we do.

This "safety first" mindset starts with our leadership. Through the implementation of the Barnes HSE Standards, initiatives such as the critical risk mitigation program and HSE Zone Leadership, and by leveraging tools such as job safety analyses (JSAs), risk assessments, non-routine pre-job reviews, management of change (MOC) and other activities, Barnes aims to identify and mitigate hazards in the workplace before injuries occur. Year after year, our Operations teams proactively address risk, and we share the successful risk mitigation stories across our strategic business units (SBUs) so we can learn from one another. The most common work-related injuries include lacerations and strains/sprains, and our HSE Zone Leaders and Safety Committees are actively engaged in addressing both the physical hazards that may cause injury, as well as reinforcing safe behaviors and correcting unsafe behaviors through our behavior observation programs. We also engage with employees who perform critical risk tasks – those tasks that we determined may contribute to high-consequence injuries – such as lockout/tagout, working at heights, and confined space entry in "practicing safety." Our Operations and HSE leaders work directly with these employees to review or "practice" the correct steps to safely complete these tasks to ensure the employees know how to protect themselves and execute the task safely every time.

Collectively, these efforts have helped us prevent serious injuries and reduce recordable and lost time injuries over time. In 2021, as our President and CEO and our Segment Presidents continued to emphasize safety as a core value, we continued to reduce our total recordable injury rate versus pre-pandemic levels. Safety incidents from across our operations are reported in accordance with our corporate standard for incident management, and incident rates are calculated based on 200,000 hours worked. Barnes remains committed to the execution and implementation of our Barnes HSE Standards and critical risk mitigation program, which once again helped us achieve a year with zero serious injuries* and zero work-related fatalities with over 9.3 million hours worked. We are confident in our HSE Management system and strategy and continue to empower and encourage employees to proactively identify and mitigate potential safety issues through Safety Committees, HSE Inspections, Zone Leadership Walks, and our near miss program.



*Barnes defines a serious injury as any work-related incident resulting in amputation, partial amputation, multiple fractures, or loss of consciousness

Preventing Serious Injuries

Barnes has not experienced any work-related employee fatality or serious injury in the past 3 years.

Environment

In 2020, Barnes established environmental targets for 2025 – specific goals for reducing the energy and water we use and the waste we generate against a 2019 baseline – on a normalized basis. As a Company, we will work to reduce the energy we use in our factories – as measured in carbon dioxide equivalents (CO_2e) – by 15%, the amount of water we use by 20%, and the amount of industrial process waste we generate from our manufacturing operations by 15%.

The Barnes HSE Standards define water usage, process waste and energy usage that must be reported using our centralized HSE information system. The standards require that all non-office locations greater than 20,000 ft^2 report their data. Local HSE and Finance managers report these metrics and provide supporting documentation from which their data is derived. To ensure accuracy in reporting, we are establishing validation standard work and internal processes to review the data, and identify and correct any reporting errors. For example, select data is audited by our Internal Audit Department (IAD) as part of regular accounting and financial reviews. In addition, environmental data is reviewed periodically as part of the Corporate HSE Audit program. In 2021, we established additional controls to further validate our data. This included upgrading our centralized HSE information system to a new sustainability suite, which automates greenhouse gas (GHG) calculations and stores an electronic audit trail for our data.

Of course, establishing targets is only the first step in our journey to reduce our environmental footprint. In order to achieve our 2025 targets, we are analyzing water and energy usage as well as process waste streams at our manufacturing divisions to determine which strategic business units are the greatest contributors to our footprint. This will allow us to identify strategic investments to achieve our goals and reduce our environmental footprint in the most cost-effective manner. While our manufacturing divisions have made great progress through local energy efficiency and optimization projects, we engaged one of our energy partners at the end of 2021 to help us develop an energy roadmap. Launched in January 2022, the project aims to identify opportunities to decarbonize and reduce Scope 1 and Scope 2 emissions through the use of renewable energy and help us accelerate our progress towards our 2025 target.

Waste Management

At Barnes, our operations track and report waste generation data using a common online system, according to the framework established in our corporate environmental standards. Centralized reporting of both non-recycled and recycled industrial process wastes began in 2014 and enables us to identify pollution prevention and waste minimization opportunities, as well as to drive towards recycling a greater percentage of our industrial waste streams. While recycling is good, we recognize that waste reduction at the source is even better, which is why we set a target to reduce the amount of industrial process waste we generate from our manufacturing operations by 15% by 2025 on a normalized basis. This year, a number of our divisions took steps to minimize waste generation at the process level, increase resource efficiency, and reduce single-use waste, which has resulted in a reduction in the volume sent for offsite disposal. The following paragraphs highlight some examples of this work.

At the Barnes Aerospace MRO location in Singapore, the current clean line and FPI area discharges waste water with high biological and chemical oxygen demand (BOD and COD, respectively). In order to reduce the amount of waste produced, the site worked with a consulting company to increase their waste water treatment capabilities. The enhanced treatment capabilities have allowed the site to meet local regulatory requirements for discharging trade effluent into public sewers, while also reducing the amount of sludge generated in the treatment process. With an additional investment in a self-contained solvent distillation and

recycling system, the site's combined waste reductions are estimated at 25 tons per year. Compared to 2020 waste records, the site's waste treatment and disposal dropped approximately 40% in 2021. Our Barnes Aerospace location in West Chester, Ohio in efforts to increase their tool room machining scrap recycling, has collaborated with a full service industrial recycling corporation and identified opportunities to recycle 10 additional waste streams, such as wet and dry grinding dust and molybdenum scrap.

Our Barnes Aerospace location in West Chester, Ohio uses a common solvent for numerous cleaning processes. After researching recycling options with suppliers and the regulatory requirements with Ohio Environmental Protection Agency, the site invested in solvent distillation and recycling equipment early in 2020. The self-contained, intrinsically-safe system is capable of recycling the used solvents to 99.9% virgin quality, and the recycled solvent is reused on site. In addition to reducing the spent solvent waste stream by over 90%, the recycling program also resulted in cost savings by eliminating waste disposal costs and the need to purchase new solvent. In 2021, our Barnes Aerospace location in Singapore implemented the same recycling solution for their cleaning solvent and we expect to realize similar waste reduction and cost savings.

Early on in the Company's efforts to reduce waste from our operations, our Force & Motion Control, Strömsholmen location in Trånas, Sweden conceptualized and installed a centralized coolant processing system. The system processes water-based coolants from machining operations and is paired with an evaporator to reclaim and reuse the water. This investment successfully reduced the volume of their coolant waste stream by more than 90%.

Our Engineered Components, Associated Spring location in Singapore reduced the usage of pallet stretch film in the shipping area by replacing the manual process with automatic mobile pallet stretch equipment. Based on 2019 data, the shipping department had been using 72 rolls per year with manual wrapping. After automation, the usage decreased by more than 75%, reducing plastic waste and generating savings in purchased materials.

SILVER 2021 ecovadis Sustainability Rating

Sustainability News

EcoVadis, the worldwide Sustainability Ratings Provider, re-evaluated our Automation, Gimatic business. EcoVadis increased its rating of Gimatic and awarded it a Silver EcoVadis Medal, placing Gimatic among the top 25% of companies assessed. The EcoVadis rating is a common tool used globally for supplier evaluation.

Recycling

Our Engineered Components, Associated Spring location in Corry, Pennsylvania implemented a cardboard recycling program in 2021. Cardboard that was previously co-mingled with trash destined for the landfill is now separated and baled for recycling. The location realizes a small financial gain from sale of the cardboard bales and a reduction in transportation costs for waste hauling, while successfully diverting several tons of material from the landfill on an annual basis. On the source reduction front, our Associated Spring location in Singapore implemented a paperless Purchase Requisition/Order process, eliminating hundreds of paper copies per year.

Our Molding Solutions, Männer location in Bahlingen, Germany operates a Validation Center where customers conduct mold trials for new and modified products. Since the test pieces from these trials are not used for production, Männer collects these parts, together with any unused granules, and partners with a recycling company that is committed to 100% material recycling of the residual plastics. The plastics are sorted on a granulator, finely ground, packed in bulk containers and marketed to new end users. The primary field of application for the reprocessed materials are plastic profile producers for the construction industry. In 2021, this partnership enabled Männer to revert more than 55 metric tonnes of plastic to the marketplace, preventing the material from being landfilled and supporting the circular economy.

Our Molding Solutions, FOBOHA location in Haslach, Germany has a similar plastics recycling program in place. In Haslach, a large quantity of the test parts made in the production line are collected and sent for recycling. In 2021, this process resulted in more than 75 metric tonnes being recycled.

Water Conservation

Barnes has committed to reducing the amount of water we use in our manufacturing operations by 20% by 2025 against our 2019 baseline. Our operations have been tracking water usage data for several years, and we are pleased to report that we are making steady progress towards this goal thanks to the Operational Excellence initiatives implemented by our divisions. Some of the most recent water conservation initiatives implemented include:

- Our Barnes Aerospace locations that operate chemical process lines have been implementing smart connected factory digitalization projects for the past two years to ensure that we optimize both water and energy usage, while ensuring quality for our customers. The teams have already implemented new smart connected factory process controls and have identified several opportunities for water use reduction. Capital funding for the largest water reuse project was approved in 2021 and the implementation is set for early 2022 at our Ogden, Utah location.

- Our Engineered Components, Associated Spring location Corry, Pennsylvania surveyed the facility to identify equipment using non-contact cooling water. One hydraulic press using non-contact cooling water to cool the hydraulic oil had continuous flow at 0.5 gallons per minute, 24 hours per day, 7 days per week. The division installed an electric solenoid valve on the incoming water line connected to a thermostat and thermocouple in the hydraulic oil tank. The thermocouple now initiates valve opening only when the temperature inside the hydraulic oil tank reaches 90˚F and flows water just until the temperature drops below 90˚F. It is estimated water consumption will decrease by more than 250,000 gallons of water per year.

- Our Engineered Components, Heinz Hänggi location in Bettlach, Switzerland invested in an evaporation/ distillation system to lessen its requirements for large volumes of water used in the deburring process – a key process required to meet customer quality requirements. During the process, the water is also used for rinsing the parts to meet cleanliness requirements; therefore, the water quality must be within a certain specification. In the past, fresh water was used. In order to reduce the amount of fresh water consumed and to help achieve the Company's environmental goals, the evaporation/distillation system was installed. This system processes the used water and produces water of distillate quality. The distillate is enriched with additives and brought back into the cycle in a closed loop. Since all water for deburring is now recirculated, we anticipate that the fresh water consumption will be reduced by over 90%, saving over 8,000 cubic meters of fresh water per year.

Energy Conservation

Since we began requiring our operations to track and report energy usage in 2013, our divisions have continually demonstrated their commitment to energy conservation. As in previous years, our facilities expanded their use of energy-efficient LED lighting and motion sensors, with significant relamping projects completed at our Molding Solutions, FOBOHA location in Haslach, Germany and Thermoplay location in Pont-Saint-Martin, Italy in 2021. In addition, select divisions have achieved climate-conscious energy reductions through different means to help move our Company towards our target of 15% reduction in energy usage by 2025 versus our 2019 baseline.

- Our Molding Solutions, FOBOHA location in Suzhou, China installed a new cooling tower system to replace the former cooling water system. The new cooling tower system uses natural cooling and requires just one fan to operate. The new system reduces energy demand by over 250,000 kWh per year and generates cost savings for the operation after just 6 months.

- Our Engineered Components, Associated Spring location in Bristol, Connecticut purchased and installed a high efficiency mist eliminator for the compressed air supply system that has a 1 psid efficiency. The facility also removed the old flow control system and streamlined the plumbing to eliminate pressure loss. These improvements allowed the facility to turn the air supply operating pressure down, resulting in >5% reduction in energy consumed at the air compressors.

- Our Engineered Components, Associated Spring location in Singapore installed a solar panel array to power the facility's outdoor perimeter lights, as well as mini air reserve tanks on two coiling machines. The reserve tanks stabilize the air supply, minimizing downtime and reducing energy inefficiency due to fluctuations in demand.

- Our Barnes Aerospace OEM location in Windsor, Connecticut improved energy efficiency by implementing a machine shutdown process. Training and signage was posted to empower employees to power down a machine when it is not in use. This practice has reduced electricity usage from 2020 to 2021 by approximately 10% in the same time frame. Windsor also replaced a natural gas fired boiler in early 2021 with a new energy efficient boiler that has reduced natural gas usage; the site's local utility granted an incentive of $15,000 for the purchase.

- Our Barnes Aerospace West Chester, Ohio location replaced two 20-ton rooftop HVAC units. The goals of the project were three-fold: to eliminate and remove class 1 chlorofluorocarbons (e.g., R-22 refrigerant) in accordance with the EPA Clean Air Act Section 608; to reduce the site's electricity consumption; and to decrease overall GHG emissions. The location estimates the energy savings will be approximately 77,000 kWh per year or roughly 68 tonnes CO_2e/year.

- Our Molding Solutions, Männer location in Bahlingen, Germany implemented a unique project with environmental benefits necessitated by the COVID-19 pandemic. In 2020 -2021, when customers were unable to travel safely to our Validation Center, the team developed an online qualification process, offering virtual tool qualification services, including Factory Acceptance Tests, by leveraging high-resolution camera technology. Customers could be "live" for all the essential steps of the qualification process yet remain virtual. While travel restrictions were in place, the online qualification option saved our customers time and money, avoided the emissions associated with business travel, and enabled us to meet deadlines for time-critical projects. While the process was developed in response to the global pandemic, we anticipate that it will continue to be used by some customers after the pandemic due to the efficiencies and savings realized.

Renewable Energy at Barnes

- Our Force & Motion Control location in Mitcham, United Kingdom purchases its electricity from a company that ensures that it only supplies 100% Renewable Energy Guarantees of Origin (REGO)-backed renewable energy into the grid. The REGO scheme provides transparency about the proportion of electricity that EU suppliers source from renewable generation.

- Our Force & Motion Control location in Tranås, Sweden gets its district heating from Tranås Energy's combined heat and power plant, which only burns renewable biomass. Tranås Energy also repurposes the leftover ash as a natural fertilizer.

- Our Molding Solutions, Synventive location in Bensheim, Germany purchases its electricity from a local energy provider, 65% of which is derived from a mix of solar, wind, and hydropower.

- Our Molding Solutions, Männer location in Au, Switzerland derives all of its purchased energy from hydropower.

- Our Automation, Gimatic location in Bagnolo Mella, Italy generates a small portion of its energy from a rooftop solar panel system.

- Our Molding Solutions, Thermoplay location in Pont-Saint-Martin, Italy generates approximately 9% of its energy from a rooftop solar panel system. In addition, Thermoplay purchases the balance of its electricity from a local supplier that derives all of its energy from hydropower.