

## Waste Management

**Applied is committed to minimizing waste across our locations and logistics operations, with a special focus on non-recyclable, landfill-bound waste.**

Waste reduction, reuse, and recycling programs are managed at the site level, with waste management targets set for individual manufacturing sites based on the ISO 14001 framework. Site program targets are reviewed on an ongoing basis and scored annually, an approach that’s led to a measurable reduction in solid waste and increased reuse and recycling of product and packaging materials.

In 2020, we achieved a nearly 34% reduction in overall waste from our 2019 performance through a combination of ongoing reduction/recycling program success and a drop in waste from office and cafeteria operations due to COVID remote work protocols. We also slightly increased our diversion rate from landfill/incineration to 80%, from 79.2% in 2019.

To reduce Applied’s overall environmental impact, our facilities are working to minimize the amount of waste generated (for example, by reducing printed documentation), shifting to reusable/recyclable materials wherever possible, sorting recyclables at point of disposal, and maximizing composting of organic materials from our cafeteria operations.

See the [Design for Sustainability](#) section for information on our responsible product and packaging initiatives.

**Hazardous Waste Management:** Hazardous waste accounted for 2% of our annual waste output in 2020, representing a nearly 63% reduction in volume from 2019. We contract with licensed third parties to transport both solid and other waste (including hazardous waste) for off-site disposal, consistent with applicable laws and regulations. Our EHS and Sustainability organization provides additional oversight of third-party hazardous material disposal companies and ensures that all disposal sites and methods meet regulatory requirements. We also evaluate potential vendors via the CHWMEG Facility Review Program, which provides environmental, operational, and financial information on waste treatment, disposal, recycling, and storage facilities.

**Wastewater Management:** Applied strives to reduce the negative impacts of wastewater produced by our operations, monitoring to ensure sufficient removal of solids and adherence to permitted parameters (e.g., pH and fluoride content) before discharge to publicly owned treatment works. Each Applied facility is responsible for wastewater monitoring, with problems escalated to the site management team and applicable corporate staff for immediate correction.

2020 Waste Performance	Metric Tons
<b>Total waste generation</b>	<b>8,286.9</b>
Total hazardous waste*	163.6
<b>Total non-hazardous waste</b>	<b>8,123.2</b>
Diverted non-hazardous waste	6,629.5
Non-hazardous waste to landfill/incineration	1,493.8
Diversion rate	80%

\*Originating from Applied manufacturing facilities, including R&D and labs



**Water Performance (ML) CY2020**



**Water Management**

Although Applied’s operations are not conspicuously high-volume water consumers, we strive to optimize our water use efficiency across our global operations. Our R&D labs account for our highest consumption of high-quality fresh water, followed by our manufacturing operations, routine use at our offices, and landscape irrigation around our properties. In manufacturing, only a few of our toolsets require significant water, with others relying on efficient closed-loop cooling systems. In 2020, our total water withdrawal rose by 3.7% over 2019, owing to increased production and research and development demands. Our use of water for irrigation purposes at our facilities fell by nearly 21%.

Facilities groups are responsible for water use management at specific Applied sites, with oversight from the company’s EHS&S organization. Our Managing Director of EHS&S is responsible for ensuring that water-related risks and minimization opportunities are assessed as appropriate. Water reduction is covered under our EHS policy and ISO 14001 EHSMS,

which call for our business operations to identify opportunities and make continual improvements on environmental preservation and natural resource conservation, and to meet or exceed all relevant regulatory requirements.

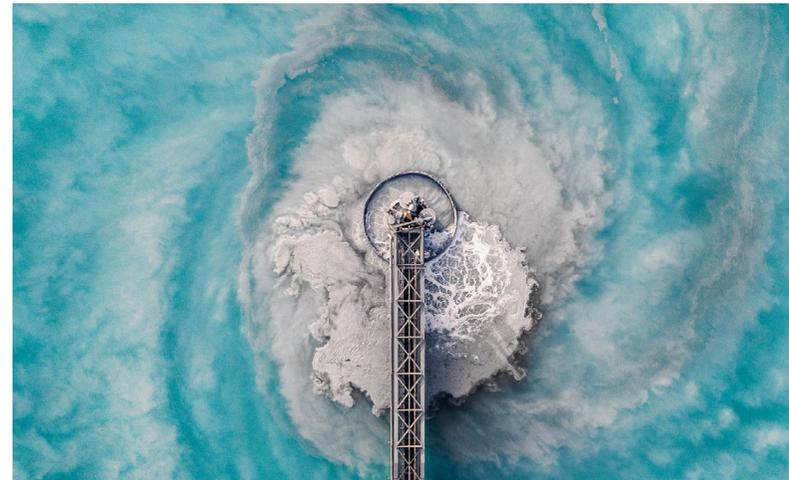
Our water conservation efforts include:

- **Water recycling and reuse** for applications that do not require potability, especially cooling and landscape irrigation
- **Designing water-efficient products**, following best practices for tool design and specifications for water use outlined in the SEMI industry requirements
- **Rainwater collection** for use in landscaping or non-production needs (at our Singapore Operations Center and Tainan Manufacturing Center 2)
- **Drought-tolerant landscaping and smart irrigation** to reduce the number of watering days

Looking forward, Applied is developing an official policy focused on the continued reduction of water use and consumption, reuse and recycling where feasible, and improved measurement and documentation of our water use. We are also conducting physical risk assessments of potential adverse climate change impacts to our global manufacturing facilities, including water-related impacts.



**Assessing Water Risk:** To gauge our water risks and identify water-stressed regions around the world, Applied Materials uses widely accepted tools such as the World Resources Institute (WRI) Aqueduct Tool and Aqueduct Water Risk Atlas. In 2020, 14% of our total water withdrawal occurred in water-stressed locations, notably at our California R&D facility. Our other most significant water risk is tied to changing demand as customers seek ever more sustainable products. We are responding to this risk by innovating more water-efficient tools.



**Water Discharge and Wastewater:** Applied Materials recognizes our responsibility to protect water sources in the communities where we operate, and to promote strong water stewardship practices throughout our value chain. To minimize both water consumption and wastewater discharge, our facilities recycle and reuse as much water as possible for cooling, landscaping, and other uses. Water that cannot be recycled or reused undergoes careful quality monitoring and is pre-treated consistent with local laws, regulations, and permit requirements before being discharged to publicly owned treatment works. Each Applied facility is responsible for wastewater monitoring, with issues escalated to the site management team and applicable corporate staff for immediate resolution.



**Water Reclamation in Austin:** In Austin, TX, our largest wet tool manufacturing facility operates an Industrial Waste Neutralization (IWN) program, reusing treated industrial wastewater in the cooling towers that provide building temperature management. The system provides over 90% of total cooling tower make-up water in cold months, and augments the original make-up water source during hotter months. Since 2017, the IWN system has reduced our usage of potable water by approximately 104 megaliters.