

CASE STUDY



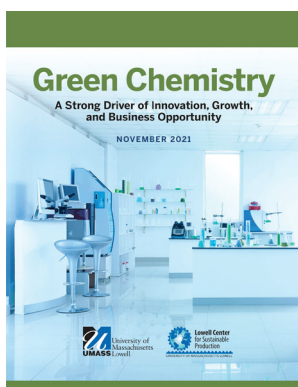
Apple's Green Chemistry Leadership Role

Apple has three priorities when it comes to sustainability: climate change, resources (i.e., finite resources), and smarter chemistry. The last one is a big priority, but so is the goal of becoming carbon neutral by 2030, a goal established by Lisa Jackson, VP of Environment, Policy and Social Initiative (and a former EPA administrator under the Obama administration). All three goals are “big” priorities, and all three are interconnected. The goal on finite resources involves a commitment to produce all products from renewable and recyclable materials. The first two efforts then tie into the need for green chemicals, which can help reach the goal of carbon neutrality and improve renewable material targets. As Jackson notes: “We don’t pretend to have all the answers. What we do have are goals to strive for and a global community of businesses committed to doing the right thing by people and the planet.”¹

Apple has been pursuing greener chemicals for many years. Significant effort involves the supply chain team, which is focused on improving selection of materials, developing safer products and processes, and contributing to worker protection from chemicals. Green chemistry and toxicology play a critical role in many different aspects of any organization’s Environmental Health and Safety footprint. The focus is not only on compliance but also a proactive approach to reduce chemicals of concern and finding substitutes.

QUICK FACTS

- Apple was founded in 1976
- Leader in consumer electronics, computer software, and online services.
- Based in Cupertino, California
- Pre-acquisition revenue (2020) of \$274.5 billion



Excerpted from **Green Chemistry: A Strong Driver of Innovation, Growth, and Business Opportunity**, University of Massachusetts Lowell, November 2021

<https://greenchemistryandcommerce.com/publications>

Green chemistry is a continuous journey that every electronics company is pursuing. One of the major shifts that is affecting the industry is the new set of Chinese Volatile Organic Compounds standards that came into effect on December 1, 2020. These standards cover coatings, adhesives, cleaning agents, and printing inks. Three of these four categories came into effect on December 1, 2020, and the last

¹ <https://www.apple.com/environment>

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category (printing inks) came into effect on April 1, 2021. These standards cover almost every type of material used in manufacturing and are impacting many companies and their suppliers in China, including apparel companies, electronics, automotive, and consumer products. The volume of material impacted is also massive, as there are multiple applications of adhesives and coatings. For instance, the adhesives and coatings impact the construction and automotive industry, whilst printing inks impact every industry. To meet these new requirements, the entire manufacturing industry in China has been forced to develop new VOC formulations that contain low levels of hazardous substances. The new Chinese VOC standards are part of the Chinese Blue-Sky campaign, spurred by the environmental conditions in Shenzhen, Shanghai, and major manufacturing hubs throughout the country. The campaign is tied to China's 5-year plan and is focused on improving air quality.

Established in 2013, Apple's chemical management program is designed to help build supplier capacity to manage chemicals safely and to transparently share information with their employees about the chemicals in the workplace, both of which are requirements evaluated in every supplier assessment. The company takes extra care when a new chemical is proposed for use. In 2019, Apple assessed more than 110 new chemicals, which included reviewing product formulation and test reports, understanding the specific circumstances for use, and conducting exposure assessments to proactively eliminate risks to people and the environment as a result of using the proposed chemical.²

In 2019, Apple began scaling the adoption of safer cleaners and degreasers beyond Apple's supply chain. They started with tackling the lack of a comprehensive industry-wide standard for defining safer cleaners and degreasers. They worked with Clean Production Action, an independent, non-profit third-party expert on smart chemistry, to create criteria that can be used across the electronics industry to assess safer cleaners. Clean Production Action created a tool called Green-Screen™, which is a chemical hazards assessment framework that looks at 18 different endpoints and creates a benchmark score to allow even someone with no chemistry background to choose smarter chemistry. This enables chemical manufacturers and suppliers to have the cleaners and degreasers they use assessed around the world using a common framework. If a chemical is of concern, the supplier is informed that this is a chemical of high concern and is given the opportunity to reformulate the product. If the supplier does not have the inhouse R&D to find the alternative, Apple will work with them to find a cleaner that has been shown to be effective and less hazardous. The safer cleaners' criteria were also reviewed by Apple's Green Chemistry Advisory Board, a group of the world's leading toxicologists, researchers, and academics focused on integrating green chemistry into Apple's products and supply chain. In 2020, these criteria were shared openly with others to encourage the adoption of safer alternatives and industry standards that can be adopted globally across sectors.³ For its efforts, Apple recently won the Safer Choice Partner

2 https://www.apple.com/supplier-responsibility/pdf/Apple_SR_2020_Progress_Report.pdf

3 https://www.apple.com/supplier-responsibility/pdf/Apple_SR_2020_Progress_Report.pdf

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of the Year⁴ from the U.S. Environmental Protection Agency, based on their work with suppliers to eliminate chemicals used in manufacturing processes, and making that information available.

Apple collaborates across the industry to scale their chemical management program, driving the elimination of exposure to hazardous chemicals beyond the industry. Apple helped found the Clean Electronics Production Network (CEPN), a network of companies and other experts in the electronics industry facilitated by the Center for Sustainability Solutions at Green America. With Apple as a signatory, CPEN launched its Toward Zero Exposure program, committing to protect workers by reducing exposures to toxic process chemicals, into the electronics industry through substitution.⁵ Apple also collaborates with ChemForward to grow the availability of chemical hazard assessments for chemicals used in the sector and has collaborated with the Swedish non-profit ChemSec to make its approach to evaluating alternatives to endocrine disrupting chemicals public, called ChemCoach.⁶

4 <https://www.epa.gov/newsreleases/us-epa-announces-2020-safer-choice-partner-year-award-winners-california>

5 <https://www.towardzeroexposure.org>

6 <http://chemsec.org/chemcoach>