



Value of Plastics



At Chevron Phillips Chemical, we are proud that our products can offer access to clean water, food supplies, medical care and provide many significant benefits to society that are often overlooked.

Healthcare

Plastics play an integral role in healthcare. Their lightweight, flexible and durable characteristics make plastics an ideal material for medical applications like implants, IV bags, syringes, and personalized prosthetics.^{1,2}

Plastic packaging helps to reduce the spread of infections by keeping medical supplies and medications secure and sterile. Items like gloves and masks made with plastics offer extra layers of safety to healthcare professionals and their patients.

From soft and comfortable contact lenses to strong and rigid child-proof pill bottles, we rely on the versatility of plastic products to maintain our health and wellness.



DID YOU KNOW?

With the development of 3D printing, prosthetics made with polyethylene have been used to help humans and injured animals regain mobility.³

Transportation & Fuel Efficiency

In cars and aircraft, plastics have safely replaced some steel components and improved efficiency. Plastic can reduce a vehicle's weight by up to 30%, lowering stress placed on the engine and allowing the vehicle to operate with better fuel efficiency.⁴

A six meter length of corrugated polyethylene pipe weighs about 272 kg. A reinforced concrete pipe of the same diameter weighs over 10205 kg pounds, more than 37 times heavier.⁵ Imagine the difference in fuel expenses when transporting these two materials!

Electronics

So many of our electronics utilize plastics to keep the world connected. Electricity can be dangerous, and plastic shielding on electrical wires allows us to safely use extension cords, connect network cables, and charge our electronics.

Don't want to be tangled in cables? Wireless devices like smart watches, cell phones, laptops and headphones are designed with strong plastics that protect sensitive components without weighing you down.

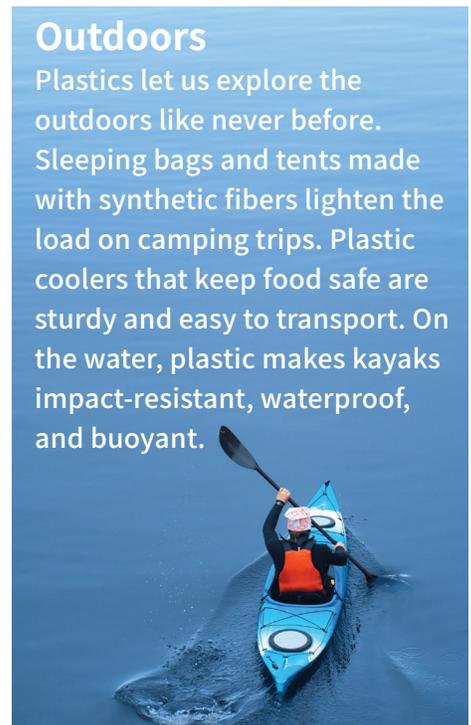


DID YOU KNOW?

Plastics from electronics can be recycled through e-waste recycling programs. Remember to check with your local waste management company before you discard electronics and appliances.

Outdoors

Plastics let us explore the outdoors like never before. Sleeping bags and tents made with synthetic fibers lighten the load on camping trips. Plastic coolers that keep food safe are sturdy and easy to transport. On the water, plastic makes kayaks impact-resistant, waterproof, and buoyant.



Construction

Plastics are used in construction to help maximize energy efficiency, durability and performance of homes and buildings. A one-year study found that the use of plastic building and construction materials saved 467.2 trillion Btu of energy over alternative construction materials. Over the course of a year, that's enough energy to meet the average energy needs of 4.6 million U.S. households.⁶



Energy Efficiency

Plastics require less energy to produce than glass, paper, wood, and metal. Replacing plastics with other materials would result in a 57% increase in energy use and a 61% increase in greenhouse gas emissions.⁷



DID YOU KNOW?

Producing plastic packaging requires less energy than alternative materials and weighs considerably less. For example, Folgers saw a 40% reduction in the weight of its coffee can after switching from steel to plastics.⁸

Preserving Food

Food waste is responsible for significant greenhouse gas emissions, and it is estimated that one third of all food produced for human consumption is lost or wasted every year.⁹ It is critically important that we utilize the durable and versatile characteristics of plastics to protect food from damage and extend its shelf life. Plastic packaging keeps what we eat clean and fresh long after our groceries are brought home from the store, which helps to reduce food waste.



Using 1.5g of plastic film to wrap a cucumber can extend its shelf life from three to 14 days.

Reusable and Recyclable

The versatility of plastics and their ability to be recycled and repurposed make them the sustainable choice for many applications. We believe plastics should not end up in the environment and we're working to create a circular economy for plastics, where every piece of post-use plastic is recycled, reused or repurposed. Chevron Phillips Chemical is proud to pursue innovative technologies and engage in solutions that reduce plastic waste and increase recyclability worldwide.

¹ N. Paxton, M. Allenby, P. Lewis, M. Woodruff, Biomedical Applications of Polyethylene, European Polymer Journal, 2019

² S. Kurtz, UHMWPE Biomaterials Handbook: Ultra High Molecular Weight Polyethylene in Total Joint Replacement and Medical Devices, Elsevier Academic Press, 2015

³ Plastics Make it Possible, Hudson the Railroad Puppy Gets a New Plastic Paw

⁴ American Chemistry Council, Plastic Resins in the United States, 2013

⁵ Plastics Pipe Institute, A Greener Infrastructure Franklin Associates, Ltd., U.S. DOE and U.S. Census Bureau

⁷ H. Pilz, B. Brandt, R. Fehring, The Impact of Plastics on Life Cycle Energy Consumption and Greenhouse Gas Emissions in Europe, 2010

⁸ Healthcare Packaging, P&G Switches to Plastics for Folgers, 2003

⁹ N. Voulvoulis, R. Kirkman, T. Giakoumis, P. Metivier, C. Kyle and V. Midgley, Examining Material Evidence. The Carbon Fingerprint, Imperial College (London), 2020