

Milepost 2020: Scrap Tires

Tires remain one of the most recycled and reclaimed products in the U.S. Since 1990 – through the combined efforts of USTMA, state and federal regulators, recyclers and other stakeholders – 94% of the scrap tires stockpiled in the U.S. have been recovered for new uses. However, USTMA's 2018 Sustainability Report warned that scrap tire markets needed to grow to accommodate growth in new tire shipments. Data contained in the 2019 USTMA Scrap Tire Summary Report show that scrap tire markets have not kept up. Although the total number of scrap tires going to recycle and reclaim markets has not significantly changed since 2017, the beneficial end use rate for U.S. scrap tires is now just under 76%, down from its 2013 peak of 96%, as scrap tire generation grew 7% (by weight) between 2017 and 2019.

USTMA is working with other stakeholders on multiple fronts to encourage the growth of circular, sustainable markets for scrap tires:

- 1. Advocating for the proper funding of state scrap tire programs.** States must resist the temptation to divert scrap tire funds away from their intended purpose; USTMA supports reasonable fees on the sale of new tires to manage state programs, like those collected in 35 states.
- 2. Raising awareness for public and private investments for research and innovation.** For example, the USTMA-founded Scrap Tire Research and Education Foundation hosted a 2019 conference to highlight promising technologies and facilitate the exchange of relevant research and best practices among public and private stakeholders. This national event was

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Progress and Challenges in Existing Scrap Tire Markets

Scrap tires are managed in three primary markets:

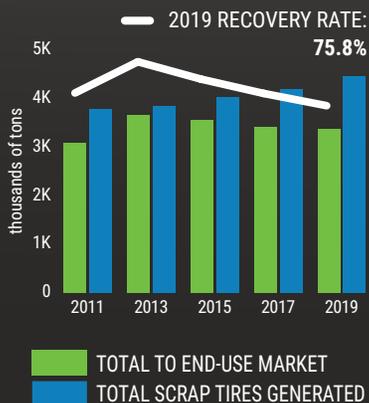
- **Tire-derived fuel (TDF) used in cement kilns, pulp and paper mills and utility boilers.** The strength of this market is generally linked to overall energy prices; domestic TDF consumption was down between 2017 and 2019. The exporting of tires for use as TDF abroad increased 25% compared to 2017. However, exporting is well below the peak years of 2011 and 2013.
- **Ground tire rubber used in rubber modified asphalt, landscaping and playground mulch, athletic surfaces, molded and extruded products, automotive parts and many other applications.** Use of ground tire rubber in rubber modified asphalt

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VISION:

USTMA members have the goal that all scrap tires enter sustainable end use markets.

2017-2019 SNAPSHOT: Growth in scrap tire generation outpaced the recovery of scrap tires for recycling as total markets remained essentially flat.



Growth in scrap tire generation demands growth in scrap tire markets

USTMA ADVOCATES:

- Investment in scrap tire solutions that advance the circular economy
- State grant programs to grow new and existing markets
- Federal investment in sustainable infrastructure that advances innovation while protecting health, safety and the environment
- Additional research to assess life-cycle impacts





USTMA Members Lead the Drive to a Circular Economy

The U.S. tire manufacturing industry is doing its part to ensure sustainable, circular markets for their products:

- Michelin acquired Lehigh Technologies, which uses patented cryogenic turbo mill technology to recycle rubber from used tires.
- Bridgestone, Continental and Michelin use recycled carbon black to produce new tires
 - Bridgestone partnered with Delta-Energy Group to bring at-scale use of recycled carbon black (rCB) to the tire market
 - Continental worked with Pyrolyx to help tire manufacturers scale up the production of recycled carbon black from scrap tires for use in products ranging from mobile phones to ink pens.
 - Michelin invested in recycling startup Pyrowave and partnered with Enviro Systems to commercialize pyrolysis technology.

For more information on USTMA and member company actions on the circular economy, visit us at sustainability.ustires.org

Partnerships are a Proven Road to Success

Three decades of collaborative efforts engaging value chain stakeholders have made scrap tires one of the most-recycled materials in the United States. USTMA remains confident that partnerships are the best approach to achieving America's long-term scrap tire management goals and we continue to work closely with state and federal agencies and recyclers to get there. Our recent initiatives include:



2019 Scrap Tire Recycling Conference

- In 2019, The Scrap Tire Research and Education Foundation, founded by USTMA, brought together nearly 250 representatives from state and federal agencies, industry groups, recyclers and environmental groups to share new research and best practices and encourage investment in new markets.
- USTMA recently partnered with The Ray and Dr. Bill Buttlar from the University of Missouri to better understand the lifecycle impacts of rubber modified asphalt and produce a new state-of-knowledge report.
- USTMA conducts workshops to grow scrap tire markets and clean up illegally dumped and stockpiled tires. In 2020, USTMA conducted two rubber modified asphalt workshops to educate state departments of transportation, including its first virtual workshop in response to Covid-19 travel restrictions. USTMA also held a workshop with the Texas Commission on Environmental Quality to identify solutions to stockpiled and illegally dumped scrap tires in that state.

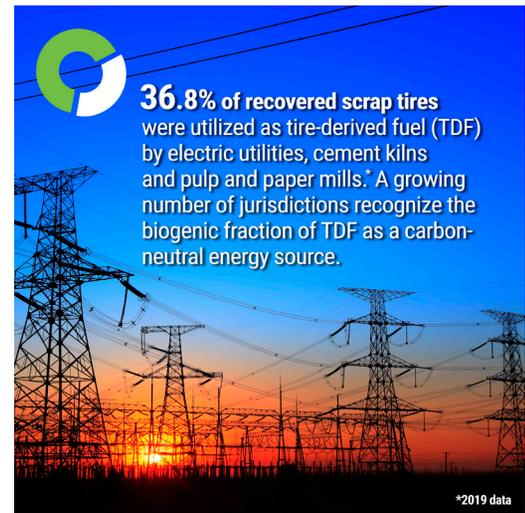
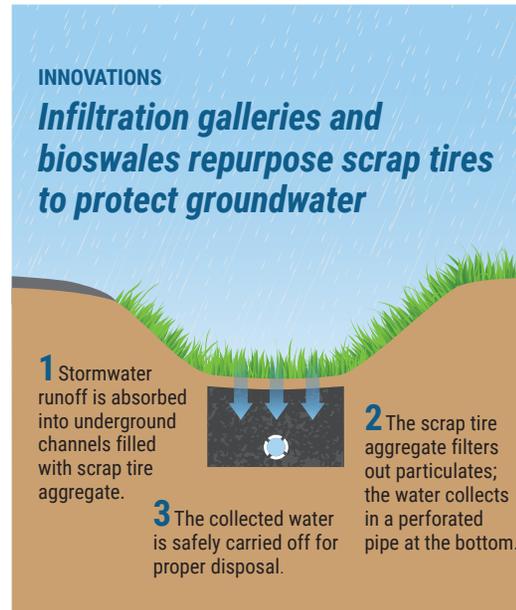
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supplemented by a variety of state-specific educational workshops.

3. Advocating for federal sustainable infrastructure legislation and raising awareness at the federal and state level for the promising benefits of rubber modified asphalt.

In addition to its many performance benefits, rubber modified asphalt helps to advance the circular economy; asphalt is one of the most recycled materials and can be reused over and over again.

4. Continuing to support innovation in the industry for recycled carbon black. USTMA member companies Michelin, Bridgestone and Continental already use recycled carbon black to produce new tires.



36.8% of recovered scrap tires were utilized as tire-derived fuel (TDF) by electric utilities, cement kilns and pulp and paper mills.* A growing number of jurisdictions recognize the biogenic fraction of TDF as a carbon-neutral energy source.

*2019 data

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increased approximately 50% since 2017. (Depending on the application, one lane mile can use between 500 and 2,000 scrap tires.) Meanwhile, the use of ground rubber in playgrounds and as mulch held relatively steady.



The use of ground tire rubber in rubber modified asphalt increased roughly 50% since 2017.

- Civil engineering applications, such as helping to build road embankments. This market sector decreased almost 29% between 2017 and 2019, in part due to the cancellation/postponement of several large state-level projects. USTMA has identified the use of scrap tire aggregate in roadside water infiltration galleries as a promising new market that repurposes scrap tires while also protecting precious groundwater supplies.