

Kings Mountain & Gastonia Zero Waste to Landfill

**Roseann Huffman
Environmental Engineer**



Who We Are

Firestone Fibers & Textiles Co., LLC

- **Subsidiary of Bridgestone Americas**
 - **Kings Mountain & Gastonia, NC**
 - **~ 350 employees including 40 contractors**

Primary Business

- **Textile Manufacturing of Tire Cord and Industrial Fabrics**
 - **Yarn processing**
 - **Fabric Weaving and Treating**
 - **Batch Chemical Operation**





PEOPLE



ENVIRONMENT

Environmental Mission Statement

To help ensure a healthy environment for current and future generations...

We, the Bridgestone group, are committed to continually working toward a sustainable society with integrity and in unity with our customers, partners, communities and the world around us.

Therefore, we are focused on three objectives.



In harmony with nature

To contribute to biodiversity through habitat enhancement, and through environmental education and research.



Value natural resources

To continually improve natural resource conservation through operational improvements and product design.



Reduce CO₂ emissions

To continually reduce emissions of Greenhouse Gases, including CO₂ from our products' complete life cycle.

The Bridgestone group's environmental mission covers all aspects of our business.



TEAMS: Total Environmental Advanced Management System
TEAMS unites the group under a progressive management system to help ensure a healthy environment.

One Team, One Planet.



Firestone

Fibers & Textiles Company

July 1, 2017

Kings Mountain and Gastonia Plants Environmental Policy

Firestone Fibers & Textiles, as a part of the Bridgestone Group of companies, is committed to help ensure a healthy environment for current and future generations. To that end, we will:

- Comply with all applicable legal requirements and other commitments relating to our environmental aspects, and support the principles and goals of the Bridgestone Global Environmental Mission
- Manage responsibly our environmental aspects, setting and reviewing specific environmental objectives and targets as an integral part of our ongoing and new business, with a commitment to prevention of pollution, continual improvement of our environmental management system and environmental performance.
- Educate all persons working for or on our behalf regarding our environmental impacts
- Communicate openly with stakeholders about our environmental performance and support natural resource conservation in our community as part of our goal to be a good corporate neighbor.

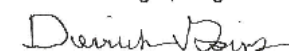
Brian Goldstine
President, Fibers & Textiles



Matthew Pollock
Plant Manager, Gastonia

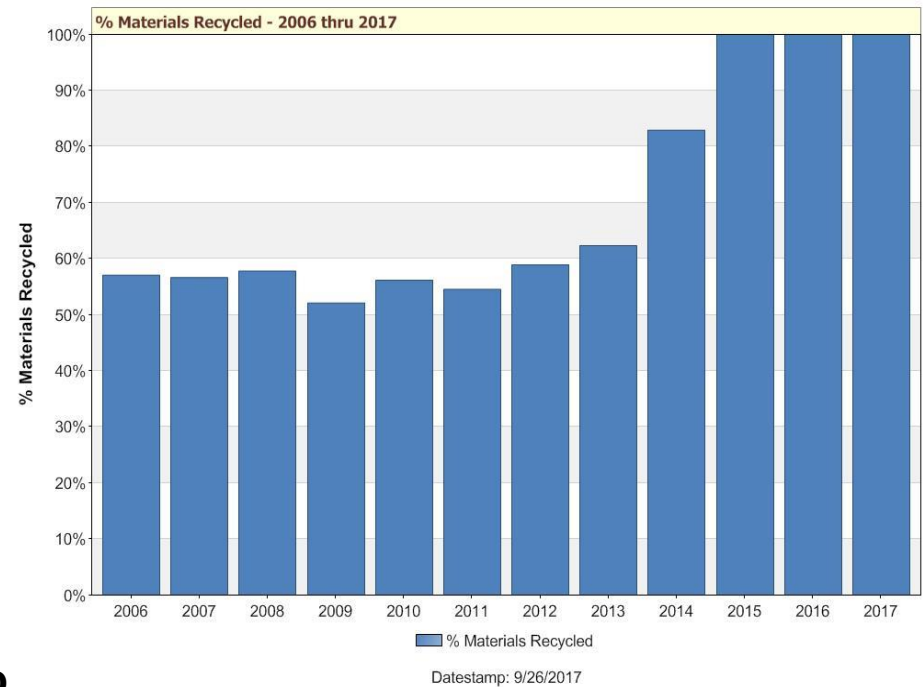


Derrick Goins
Plant Manager, Kings Mountain



Our Zero Waste To Landfill Journey

- **2006 - Applied for Rising Steward - Kings Mountain and Gastonia**
- **Goal 1 - Reduce Landfill Waste by 10%**
- **Year End Actual - 57%**
- **2013 – Recycle Goal of 96%**
- **Year End Actual – 62%**
- **2014 – March 17th – First Day on the Job**
 - **“You will reach Zero Waste to Landfill by July 1st”**
- **2014 – April – Vendor chosen to handle our waste**
- **2014 – May – First load of “Dip Waste” was sent to VLS**
- **2014 – June – Vendor cans were in place for trash & wood**
- **June 27th – Four Days to Spare**
 - **“Zero Waste to Landfill”**



Waste Segregation for Recycling



- Dip Waste (20,000 - 40,000 gals/mth) – WTE
- Dip Solids (3 tons/month) - WTE
- Wood and Plant Trash (1 ton/mth) - WTE
- Plastic Bottles and Cans (264 lbs/mth) – Recycled
- Material Waste (122 tons/mth) – Recycled
- Metal (39 tons/month) – Recycled
- Cardboard and Paper (95 tons/mth) – Recycled
- Used Gloves and Rags (.65 tons/month) – Recycled

2016

- Recycled – 2,685 tons
- WTE – 1,963 tons

2017 YTD

- Recycled – 1,963 tons
- WTE – 1,609 tons



- 2013- \$203,978
 - 2014 - \$315,926
 - 2015 - \$382,405
 - 2016 - \$379,414

Firestone’s “Zero Waste to Landfill” program has increased our waste management budget by more than 53% since 2013.



Validation

In May 2015 we consulted UL to discuss a Zero Waste to Landfill Validation

Three Validations Were Offered

- Zero Waste to Landfill - The highest designation, consistently achieves a landfill waste diversion rate of 100%
- Virtually Zero Waste to Landfill - Landfill diversion rate of 98% or greater
- Landfill Diversion Rate - Landfill diversion rate of greater than or equal to 80%

At the time of our UL discussion the allowable diversion for WTE was 10%.



Wait to Certify - Firestone has more work to do

- **Diversion Rate**
 - UL's 10% diversion rate for WTE
 - Dip Waste - >15% of total waste volume
- **Cost of Validation (~ \$19,000)**
 - Two phased Validation Approach
 - Pre-Validation Assessment
 - 4 to 6 weeks
 - Validation
 - 6 to 8 weeks
- **Added Value for FSFT?**
 - Recognized globally as an Environmentally Responsible Corporate Citizen under Bridgestone Americas
 - NCEI "Steward" at Kings Mountain and Gastonia



- **Continue to reduce waste generation**
 - Identify alternative packaging of incoming products
 - Identify manufacturing process improvements to maximize usage of raw materials and minimize off-quality product
- **Continue to meet our Zero Waste to Landfill goal as it is now**
- **Continue to work with our Waste Vendor to identify alternative options for our waste streams**
- **Reviewing our products “end of life”**
 - What happens at the end of our products life?
 - How can we help to ensure that our product does not end up in landfill?
- **Reconsider Validation in the near future**



Tire Cord USA

- Fabric Waste
- Plastic from the Plant

C&C Scrap

- Metal

Sonoco

- Cardboard & Paper

Catawba Valley Recycling

- Used Pallets

VLS Recovery Services

- Solid Dip Waste
- Liquid Dip Waste
- Plant Trash & Wood



VLS Recovery Services – Everett Nance

They are a full-service, non-regulated waste processing and recycling company

- Waste-to-Energy
- Alternative Fuel Program
- Oil Recovery
- Bulk Wastewater Treatment
- Universal and Electronic Waste Recycling
- Shredding and Product Destruction
- On-site Labor and Waste Management Programs
- Transportation-Bulk and Containerized



Industrial Recycling Facility (IRF)

- They accept a wide range of off-spec or expired consumer products and general plant trash and debris
- Material is sorted and various recyclables such as cardboard and plastics are removed for recycling and reuse
- The remaining material is then processed as an alternative engineered fuel
- Certificates of recycle

One Stop Shop



