



cumberland

Partnering with
KW Plastics



How Cumberland Heavy Duty Granulators help Close the Loop for Circular Economy at the World's Largest Recycler, KW Plastics

The Cumberland-KW Plastics partnership began over 30 years ago to pioneer a recycling solution, achieve throughputs that validate the process profitability, and drive a more sustainable and ecological process.

CUSTOMER

KW Plastics is the world's largest post-consumer plastics recycler for HDPE, PP and other materials. Their KW Container division manufactures paint containers out of 100% Post-Consumer Resin (PCR).

CHALLENGE

The company needed to find a way to solve the problem of processing scrap materials without damaging its machinery. They also wanted to quantify the offset Global Warming Potential (GWP) achieved by recycling post-consumer packaging.

SOLUTION

Cumberland worked with KW Plastics to pioneer a 'wet granulation' solution that successfully processes high volumes of post-consumer plastics, while offering a way to quantify the net improvement of GWP compared to processing virgin resin.

RESULTS

KW Plastics successfully recycles up to one billion pounds of materials annually. In addition, Cumberland helped KW Plastics further promote the value of recycling by modeling the reduction of GWP achieved through the process.

As a pioneer in plastics recycling with over 30 years of experience, KW Plastics has relied on Cumberland to develop successful methods to grind and reprocess high volumes of polypropylene (PP) and high-density polyethylene (HDPE) curbside recycling products such as beverage containers, laundry detergent bottles, and more. To help reinforce the environmental benefits of recycling, Cumberland helped KW Plastics identify the average reduction of global warming potential (GWP) achieved through the recycling process vs. manufacturing of virgin resins. The net benefit of the process indicates a significant reduction of harmful CO₂ released into the environment.

“Cumberland has been a true partner in helping us build our recycling business to where we are today.”

*-Scott Saunders,
General Manager,
KW Plastics*

PIONEERING A RECYCLING SOLUTION

For over 30 years KW Plastics has used Cumberland granulators to help recycle post-consumer HDPE, PP and other plastics. It’s a harsh environment for machinery and a challenging process.

“Post-consumer plastics have a lot of dirt and contaminants in the material,” said Scott Saunders, General Manager at KW Plastics. “With Cumberland’s help, we pioneered wet granulation which enhanced the process to help us successfully recycle high volumes of materials.”

Saunders noted that 13 Cumberland 62B Heavy-Duty granulators are used to support KW Plastics’ operations and with Cumberland’s help over the past several decades, KW Plastics has had a great history of success, including:

- Billions of pounds processed of 7-8 material streams
- Currently processing up to 500 million pounds per year (PPY)
- Maximizing pounds per hour (PPH) throughput for each processing line
- Continued granulator reliability with extremely challenging conditions for machinery and equipment

“Cumberland has been a true partner in helping us build our recycling business to where we are today,” said Saunders. “We started out just trying to show that recycling plastics was a viable business. Once we perfected the process, we set out to expand and Cumberland has been with us every step of the way.”

Today, business is very strong for KW Plastics. “We are encouraged with the growth of plastics recycling and we believe that more recycling is a big part of the solution to the planet’s solid waste management problem,” said Saunders.



*Cumberland’s 62B Series
Heavy Duty Granulator*

GROWING THE MARKET FOR RECYCLED PLASTICS

KW Plastics started out as a plastics recycler, but it wasn’t long before the company began producing and selling recycled resin pellets to the plastics industry. At first the company produced PP recycled resins from products such as used automotive battery casings. The market for recycled PP continued to grow, and KW Plastics then moved into producing resins from recycled HDPE containers.

In 1998, KW Plastics entered the packaging industry by introducing a plastic and metal hybrid one-gallon paint can made of recycled materials. KW Container was established as an injection molding company that molded 100% recycled and 100% recyclable paint containers. “Becoming a molder of recycled products was our ‘third leg of the stool,’” said Saunders. “It completed the circular nature of recycling for us as we brought used products in, recycled them into reusable resins, and molded finished products from them.”

In 2016 KW Container launched TruSnap™ – a resealable paint can made from exclusively recycled plastic and a proprietary resin. Over 100 million pounds of recycled material is used annually to produce these paint containers, and Cumberland granulators are used in the process to support the production of over 1 million paint cans per week.

A MORE SUSTAINABLE AND ENVIRONMENTALLY FRIENDLY PROCESS

To help KW Plastics with their mission to promote the benefits of recycling plastics, Cumberland developed a method to estimate the reduction of global warming potential (GWP) achieved through the recycling process. The net benefit of the process indicates a significant reduction of harmful CO₂ released into the environment. It was determined that it would be possible to directly approximate net greenhouse gas (GHG) emissions reductions – specifically, how many tons of CO₂ equivalent (CO₂ eq.) that are avoided by recycling plastics instead of the manufacturing process of virgin resins.

Andre Adams, Senior Product Manager at Cumberland, constructed a simplified model of the plastics recycling process for KW Plastics. This included the following measurements for a single production line running HDPE:

1. 1.90 kg CO₂ eq per kg of virgin plastic manufactured
2. 0.67 kg CO₂ eq per kg of plastic recycled
3. 1.24 average net kg CO₂ reduction per kg plastic
4. Average hours per day and days per week of operation = 24/7
5. Average days per year of operation = 365

Carbon dioxide (CO₂) is a greenhouse gas that increase global warming potential as it increases in abundance. CO₂ enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and other biological materials, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.

Greenhouse Gases Equivalencies Per Production Line

Greenhouse Gas Emissions From

14,799



Passenger vehicles driven for one year

CO₂ Emissions From

11,598



Homes' electricity use for one year

Greenhouse Gas Emissions Avoided

3,329



Garbage trucks of waste recycled instead of landfilled

Carbon Sequestered By

89,459



Acres of US forests in one year

Calculator on Environment and Protection Agency's (EPA) website to determine equivalency Franklin Associates, a Division of ERG via American Chemistry Council (January 19, 2011 Report and other public data).

Key data showed that on average, on a single production line, KW Plastics has mitigated CO₂ eq. potential by over 75,000 tons per year. This equals the elimination of emissions from 15,000 passenger vehicles per year. KW Plastics operates 6 production lines at its headquarters facility in Troy, Alabama.

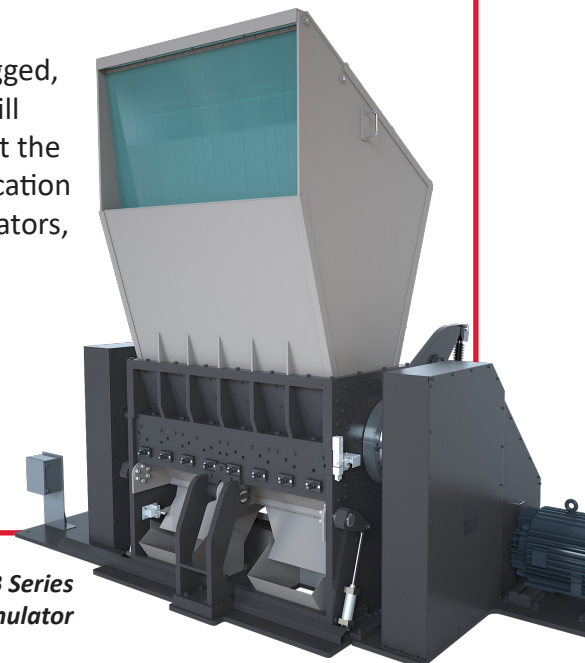
“KW Plastics already knew that the process of recycling plastics was better for the environment than producing virgin resins,” said Adams. “This analysis showed their reduction in GWP was even greater than anticipated. Recycling plastics truly supports circular economy initiatives.”



ABOUT CUMBERLAND

Cumberland is the world’s brand leader in size reduction equipment. Since 1939, Cumberland granulators and shredders have proven to be rugged, reliable, and dependable. As the first granulator company, Cumberland still leads the way with the broadest line of granulators and shredders to meet the growing needs of the plastics and recycling industries. Whether the application requires single or four shaft shredders, beside-the-press or central granulators, our customers rely on Cumberland to deliver their throughput requirements and produce the highest quality regrind available in the industry.

For more information,
visit www.cumberland-plastics.com
or call 262-641-8600



**32B Series
Heavy Duty Granulator**