



How Cumberland Granulators are Contributing to the Sustainability Initiatives of Teel Plastics by Grinding and Reusing Scrap Plastics

Cumberland partnered with Teel Plastics to capture previously lost regrind, increase their use of plastic scrap, and quantify data showing emissions saved from the environment.

CUSTOMER

Teel Plastics Inc. manufactures custom precision plastic tubing and profiles, offering a variety of services and products for health care, automotive, medical, and industrial sectors.

CHALLENGE

Through the use of Cumberland granulators, the company wanted to increase their reuse of plastic scrap and quantify the reduction of emissions and global warming potential (GWP) savings at their plant.

SOLUTION

Cumberland worked with Teel to convert from a central granulating room to beside-the-press granulators and identified GWP savings by calculating specific improvements that grinding and reusing plastic scrap has had on their operations.

RESULTS

Teel Plastics has captured up to 28,000 lbs. of previously lost regrind in their plant and mitigated up to 11,000 tons per year of CO₂ equivalents for a single production line; this equates to the emissions from 2,195 passenger vehicles per year.

With sustainability a top priority, Cumberland and Teel Plastics set out to improve workflow operations by increasing the use of regrind and calculating the reduction of Global Warming Potential (GWP) achieved through its grinding and reuse of plastic scrap. The net benefit of the process indicates a significant reduction of harmful CO₂ released into the environment.

Sustainability is a term that is used extensively these days, especially in the plastics industry. Processors are under increased pressure to show stakeholders and customers how they are working to be environmentally responsible. Teel Plastics (Baraboo, WI), a leading extruder and injection molder, recently worked directly with Cumberland to quantify specific improvements that grinding and reusing plastic scrap has had on their operations.

“Sustainability is much more than a buzzword,” said Andre Adams, Senior Product Manager at Cumberland. “Companies in the plastics industry realize that their future success depends largely on being environmentally responsible and contributing to a circular economy.”



3 Pillars of Sustainability
Contribute to a Circular Economy

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*-Andre Adams,
Sr. Product Manager,
Cumberland*

REDUCING MATERIAL LOSS

Teel Plastics had recently worked with Cumberland to convert their Baraboo plant from a central granulator workflow to beside-the-press granulation. This resulted in some impressive benefits, including:

- 1,000 hours of labor savings per year
- 28,000 pounds of lost regrind material savings per year
- 75% reduction in average cleanout downtime
- Up to \$300,000 in material savings per year

“We have numerous injection molding and extrusion lines here,” said Christian Herrild, Director of Growth Strategies and In-House Counsel at Teel Plastics. “Our recent switch to using Cumberland FX Series Beside-the-Press Granulators as opposed to a single central granulating room had produced some great results for us,” he said. “We want to reuse as much of our scrap material as possible. While some medical and automotive products require all virgin material being used, we can re-purpose scrap from those lines into other usable products such as cores, flexible PVC and industrial piping.”

When Cumberland approached Teel Plastics to take these initiatives a step further and try to identify emissions savings, they were happy to help. “We asked ourselves how we could quantify the direct effect on how grinding and recycling scrap plastics helps the environment, as opposed to using additional virgin resin or filling a local landfill with scrap,” said Adams. “Teel Plastics wanted to know this as well.”

MEASURING SUSTAINABILITY

After research, it was determined that it would be possible to estimate net Greenhouse Gas (GHG) emissions reductions – specifically, how many tons of CO₂ equivalent (CO₂ eq.) that are avoided by reclaiming plastics back into the plastics manufacturing.

Adams constructed a model of the manufacturing and grinding process for Teel Plastics. This included the following measurements:

- 1,500 pounds per hour (PPH) of HDPE on one processing line
- 24/7 operation

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.



T50 Series
Central Granulator

Greenhouse Gases Equivalencies Per Production Line

Greenhouse Gas Emissions From

2,195



Passenger vehicles driven for one year

CO₂ Emissions From

1,720



Homes' electricity use for one year

Greenhouse Gas Emissions Avoided

494



Garbage trucks of waste recycled instead of landfilled

Carbon Sequestered By

13,271



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).

SIGNIFICANT SAVINGS AND OTHER BENEFITS

Key data showed that on average, **on a single production line**, Teel Plastics has mitigated CO₂ eq. potential by up to 11,000 tons per year by using regrind back into their process (vs. using the equivalent amount of virgin material). This is the equivalent of avoiding the emissions from 2,195 passenger vehicles per year (per line.) Teel plastics operates 35 manufacturing lines.

"These results are significant for us," said Herrild. "We were able to quantify how much emissions we are saving from the environment by grinding and reusing scrap plastic. This showed us that using regrind not only saves us money, but it helps us achieve our sustainability goals as well."

The impact on the environment in terms of emissions saved by recycling plastic materials is measurable. Grinding and reusing scrap plastics can significantly help companies mitigate their Global Warming impact and become more environmentally responsible.

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

