

# Sustainability and Green Manufacturing Practices

## Energy Efficiency

1. Two water chillers (one using 80 amps, another 40 amps) replaced with very energy efficient outside cooling tower system. All seven extruder lines use this system, which also recycles cooling water use.
2. High-temperature, energy-saving insulation blankets retrofitted on all seven extruder barrels.
3. T5 lighting fixtures installed in new 20,000 sq. ft. raw-material processing building. High-bay 400 watt metal-halide lamps replaced with T5 high-bay lighting fixtures in extrusion building.
4. White, reflective, high-insulation-value, spray foam roofing applied to 38,000 sq. ft. of older manufacturing buildings.
5. Two raw-material processing lines (600 h.p. approx.) run on 3<sup>rd</sup> shift resulting in more than 50% "off peak" electricity usage saving company money and reducing peak daytime usage for electric utility company.
6. Regularly repair compressed-air leaks.
7. Converting to programmable thermostats and compact fluorescent lighting in administration and plant areas.
8. Lights turned off in administrative and plant sections when areas not used in 3-shift-per-day operations.
9. Variable-frequency A/C drives used in new extrusion line (125 h.p.). Reducing electrical usage significantly and have reduced maintenance (no brushes). All extruder lines will be upgraded to these efficient motors (two lines already replaced, one in 2015 and one in 2016).
10. Hybrid company vehicle (Ford Escape Hybrid).
11. Motion-sensitive T5 high-bay lighting in new warehouse.

## Green Cleaners, Lubricants, and Chemicals

1. Natural, biodegradable cleaning materials used.
2. No chemicals used in our manufacturing process.
3. Investigating use of USDA BioPreferred lubricants.

## Waste Reduction, Recycling, and Reuse

1. All products manufactured by the company are made from 100% recycled plastic, mostly post-industrial scrap with annual production of 5 million pounds per year. All scrap plastic is sourced from our home state (Iowa) or surrounding states to minimize energy use in transporting our raw materials to the plant.
2. Cardboard and office paper baled for recycling.
3. Steel and other metals collected for recycling.
4. Use recycling kits and containers for toner cartridges, fluorescent lamps, and batteries.
5. Inbound wood pallets in good condition are reused for outbound shipments. Damaged pallets and wood scrap (non-treated) are broken down and donated to local residents for heating in wood stoves. Will transport to a local user.
6. Plant tours are encouraged for local schools, organizations, and groups to demonstrate a successful recycling operation and encourage recycling. Regularly participate in recycling demonstrations and programs to encourage recycling.