



CASE STUDY

Casella Waste Systems Implements OPS-1™ System to Extend Oil Drain Intervals, Reduce Environmental Waste

Leading waste management and recycling company expects to save 55,000 gallons of oil and \$600 per vehicle each year

Company:

Casella Waste Systems is an integrated solid waste and resource management company headquartered in Rutland, Vermont. In addition to providing traditional solid waste collection, transfer and disposal services, the company renews the life-cycle of materials at its 37 recycling facilities, and generates clean energy at its five landfill gas-to-energy facilities. It is the only solid waste services company participating in the U.S. Environmental Protection Agency's Climate Leaders program to reduce greenhouse gases, and was recently named the EPA's Landfill Methane Outreach Program 2008 Industry Partner of the Year for its efforts to produce renewable energy and reduce greenhouse gas emissions at its landfills.

Challenges:

For the waste and recycling industry, proper equipment maintenance can be a frequent and expensive undertaking. Casella typically changes the oil on its trucks seven or eight times a year, or about every 300 hours. At a cost of \$100 per oil change, this regular maintenance represented a significant cost for Casella. Vehicle engines and engine oil are subject to high levels of wear and tear as trucks used for waste collection and recycling make frequent starts and stops, while also running high rpm at idle to power the garbage packer. Additionally, Casella's vehicles often run in tough road and weather conditions.

Casella's trucks require a very large volume of oil from 30-44 quarts per truck to lubricate the engine and to protect the bearings and all the other moving parts. In order to maintain oil circulation in the engine, the typical full-flow filter will only filter out particles 20 microns and larger. While this design

doesn't restrict the amount of oil needed in the engine, it does allow the most damaging particles – those two to 10 microns in size – to remain suspended in the engine oil. Eventually these particles accumulate to a point requiring the oil to be replaced.

While the cost of maintaining its equipment and performing frequent oil drains was a concern to Casella, the company was also troubled by the impact it was having on the environment as it continued to use and dispose of more and more oil.

As a result, Casella began looking for ways to extend the time between oil changes while also minimizing the negative impact on the environment.

Solution:

In early 2007, Casella began an evaluation of Oil Purification Systems' OPS-1™ on-board oil cleaning system, installing multiple units on trucks in Rutland, Vt. and Auburn, N.Y. Instead of changing the oil on each vehicle every 300 hours of operation, Casella analyzed oil samples once a month measuring 27 different attributes, including wear metals, viscosity and total base number to determine the condition of the oil in the vehicles. After each analysis during the evaluation period, all levels were found to be within the normal range of the oil and engine. After approximately 3,400 total hours for all vehicles, the evaluation units were still running without an oil drain.

Technology:

The OPS-1 system is installed in a bypass configuration to clean and refine oil without affecting the engine's full-flow filtration system. The system works in two stages: during the first stage, solid contaminants are removed down to three microns, eliminating the 2 to 10 micron-sized particles that cause the majority of engine wear damage. During the second stage, the evaporation chamber of the OPS-1 system removes the liquid contaminants – mainly water, fuel and glycol – and returns clean, refined oil to the engine. Removal of water, diesel fuel and glycol restricts acid formation, corrosion, oxidation and sludge, as well as viscosity breakdown.

“We looked at a number of solutions for extending the oil life on our vehicles instead of changing it so frequently,” said Gary Simmons, Casella's vice president of fleet management. “With each of our vehicles running more than

2,400 hours per year we were able to very quickly see the benefits of the OPS-1 system in extending the life of our engines' oil, and saving the company a substantial amount of money in oil maintenance costs."

Once Casella completed the evaluation, the company quickly began implementing the OPS-1 system on 850 collection vehicles in its fleet. OPS field technicians began installing the units at 43 locations and completed the first stage of Casella's implementation in early 2008. Less than a year later, Casella installed an additional 200 units to the company's off-highway and industrial engines used by landfills, transfer stations and recycling centers.

"OPS came in on-time and on-budget with the first phase of implementation, so it was an easy decision for us to also implement the system on our off-highway and industrial equipment," said Simmons. "The OPS-1 implementation gives us the ability to have an easy impact on both the environment and our resource conservation goals, without having to wait months or even years for the real benefits to kick in. We view OPS as a trusted supplier working in partnership with the Casella team."

Results:

With more than 1,000 installed units of the OPS-1 system, Casella expects to save more than 55,000 gallons of oil and \$600 per vehicle each year. Casella also expects to realize its return on investment in less than a year, and over a ten-year period to see a 1,300 percent ROI.

Additionally, Casella estimates that the use of the OPS-1 system on its vehicles and the resulting reduction in the use of engine lubricants, will reduce the company's greenhouse gas emissions by over 26 metric tons of CO₂ equivalents annually by avoiding the manufacturing, transportation and disposal of oil and oil filters.

"We are keenly interested in technologies and processes that are built on the idea of resource sustainability and conservation – in short, that save both money and scarce material resources," said John W. Casella, chairman and CEO of Casella. "When we come across a product like the OPS-1 system, that is not only good for the environment but also has a positive financial impact on the business, it makes perfect sense

About Oil Purification Systems

Founded in 2002, OPS is headquartered in Shelton, Conn. and has production facilities in Waterbury, Conn. Oil Purification Systems, Inc. is the leader in fluid cleaning technology with products including the OPS-1, Eco-pur, and Enviro-Pur fluid cleaning systems. The OPS-1 is an on-board fluid cleaning system that virtually eliminates routine oil changes utilizing a patented cleaning technology. It is used by hundreds of fleets on thousands of vehicles, generators and large pieces of equipment in trucking, waste management, oil and gas, busing, construction, mining and many other industries. Developed specifically for the oil and gas industry, the Enviro-Pur fluid cleaning system utilizes patented technology to maintain the quality of lubricating fluids used by all types of drill rig equipment reducing the overall consumption of those fluids and more importantly the cost to run and maintain them.

For more information, please call 866-645-7873 or visit <http://www.ops-1.com>.