

The Inventucator™

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Charles
Grispin

Polyflow: Rethinking Recycling

All Forms of Plastic and Rubber
Distilled into a Cost-Effective
and Green Solution

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Meet the Inventor of This
Exciting Form of Pyrolysis!

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Inventions take ingenuity, persistence, and creativity. The most important and difficult task for an inventor is the implementation phase of an invention. The inventor and Chief Technical Officer of Polyflow, Inc. in Akron, Ohio, Charles Grispin, fully understands that although an invention may help positively change the world, there are a lot of steps in order to commercialize the product and make the general public aware of its crucial need. Additionally, change seems to be a key driver in the long road to the commercialization of an invention.

"Something new... especially something of significance... is always going to be a change to the status quo. Anyone who wants to really change things is going to find resistance," stated Grispin.

Charles Grispin is the inventor of a form of "pyrolysis" that focuses exclusively on the

recycling of plastic and rubber waste, including rubber tires, carpeting, electronic waste, and Styrofoam™. The American public has continued to make strides in the recycling of plastic waste as they pay for private waste recyclers or participate in community recycling programs. Despite these efforts, a large portion of the public does not know that 93% of plastic *still* gets placed in landfills. The current plastic recycling process effectively sorts type 1 (water bottles) and type 2 (milk jugs) of plastic but it is too expensive to economically sort plastic type 3 through type 7. These plastics are difficult to identify and create an excessive labor cost that is higher than the value of the sorted plastic. Moreover, the difficulty to sort plastics has been increased as plastic manufacturers have increased the value of their products by making co-polymers, co-moldings, and co-extrusions.

Even though a majority of the public does not know this problem exists, it does! Charles Grispin has been planning on solving it for 20 years.

"I worked at a place that made a lot of waste and did a lot of environmental damage," Grispin said. "I couldn't believe that they threw the stuff away. It took about six weeks of library research to come up with the concept of how to turn plastics back into chemicals."

"The Inventucator™ Magazine" - - Inventucation™, as defined by the **National Museum of Education**, combines both the words "invent" and "education". The theory behind the creation of this word is that all invention is the result of an innovative, creative way of learning, fusing science & critical thinking. The Inventucator magazine showcases individuals who exemplify the spirit of "inventucation" by promoting innovation through education.

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The process created by Charles can be simplified in the following way. The process begins by feeding a processor with plastic and rubber components ranging anywhere from children's toys to grocery bags to carpeting and tires. The processor is heated and pressurized. The oxygen within the processor is removed and the plastic heats to a point in which a portion of it reaches a vapor state. The vapor travels through a pipe system, condenses, and is pulled from the processor as a valuable chemical liquid. The valuable Polyflow chemical liquid meets and exceeds West Texas Intermediate (WTI) benchmark crude oil standards. Charles and Polyflow have created a lighter and more valuable end product. The liquid gas is comprised of 1/3 gasoline, 1/3 diesel fuel, and 1/3 feedstock for making plastics. The feedstock is then broken down into hydrocarbons such as benzene, toluene, and styrene, which are used to once again create plastic materials. All non-condensable gas remaining in the processor is used to fuel the process.

The economic and environmental benefits of the technology are evident in two broad areas. First, the Polyflow process eliminates the current method of producing hydrocarbons via the refining of oil. This will lessen the United States dependence on foreign oil by 3.5%. Second, the Polyflow process diverts plastic and rubber waste from landfills into a process that can once again create plastics.

"This process is an economic power house that makes money and cleans up the environment at the same time," said Grispin. "This technology is a way to make the environment pay for itself."

The path to commercialization is close for Charles and Polyflow. The company has completed the pilot plant phase after successfully running over 40 process runs to prove out the commercial salability of the liquid gas. Over the last year Polyflow produced 4 tons of plastic waste, which yielded 2.6 tons of liquid gas. Polyflow is currently negotiating with a Cleveland, Ohio based brokerage company to sell their product on the open market. Charles and Polyflow have worked over the last year to create the design of the first production plant located in the Akron/Cleveland area.

Finally, Polyflow has strategically aligned with Hiram College, the City of Stow, Portage County Solid Waste Management District, Summit Akron Solid Waste Management Authority, and several waste haulers to create the "Global Polymer Sustainability Project." This project will showcase to the rest of the country the ability of an institution and a City to efficiently supply a single plastic waste stream into Polyflow, thereby creating a "center of excellence" for all of the groups in terms of plastic sustainability.

There is still work to be done at Polyflow. Funding is paramount in order to commercialize the product. Polyflow is open to commercial investment, private investment, and is pursuing grant money. In order to spread the Polyflow message of sustainability, Polyflow has started conversation with the Akron-based National Museum of Education to create a corporate sponsored young inventor's competition for school children in grades 5-12. The vision of the competition is to prompt the students to create second life applications after the original plastic products life has expired. Until then, the persistence of Charles Grispin continues in his pursuit to reuse and repurpose plastic waste throughout the world. Charles summed up his 20 year drive, "I have the desire to succeed. I knew that a new way to recycle plastic was possible. Once I found how to do it I never really wanted to quit."

For more information on Charles Grispin and Polyflow please visit their web site :
www.polyflowcorp.com.