

Pyrolysis Technology Turns Plastic Waste into Hydrogen, Fuel Oil, Recovered Chemicals and Clean Energy

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/EINPresswire.com/ -- Klean Industries Inc. ("Klean") is a specialist in pyrolysis technologies used in processing end-of-life plastics and is pleased to update project developers, investors, and waste management companies on the viability of converting plastic waste into hydrogen, fuel oil,

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The majority of single-use plastic waste ends up in landfills or the natural environment, including oceans, within the year of its manufactured life. The time has come for a global EPR program.”

*Jesse Klinkhamer, CEO of
Klean Industries Inc*

recovered chemicals, and clean energy. Klean's plastic pyrolysis technology is a commercial-scale process that turns waste plastics into reusable resources that can be recovered from plastic waste and can be integrated and used as a "drop-in" feedstock right back into their original manufacturing supply chain. The innovative process is set to revolutionize the way we deal with plastic waste, which is one of the biggest environmental challenges we face today.

Plastics remain one of the most prevalent and challenging waste streams in the resource recovery sector. The use of plastics continues to rise, despite regulations in certain

jurisdictions on single-use plastic bags, and some forms of soft plastics known as polyolefins such as Polyethylene Terephthalate ("PET"). However, the collection and reuse crisis is not properly handling and dealing with PP, PS, PE, HDPE, and LDPE at scale which represents the largest number of consumer plastics not being effectively recycled. Industry and government are working to devise solutions, but more work is needed. The plastic recycling crisis is a complex issue that requires urgent action from all stakeholders.

Governments and businesses have a critical role to play in addressing the plastic recycling crisis. They need to invest in infrastructure and technology to improve recycling rates and reduce plastic waste. They can also support policies that promote sustainable alternatives to plastic, such as biodegradable materials or reusable packaging. Consumers also have a role to play by reducing their use of plastic, recycling properly, and supporting businesses that prioritize sustainability. The fact remains, we are never running out of oil and we are never going to stop using plastics despite the climate change narrative and political shenanigans that surround the

use of plastics and plastic recycling.

The world's current waste management and recycling systems are broken, mostly consisting of downcycling applications, and are governed by political theater. While there are efforts underway to increase plastic recycling rates, progress has been extremely slow. Petrochemical companies manufacturing plastic are making billions in profits and need to do less greenwashing. It's time these companies start making significant investments into this sector as the technologies and solutions that exist today can create positive improvements to the plastic recycling sector as the time is now to start addressing the plastic pollution crisis. We need to stop kicking the plastic football down the road and start implementing solutions on a scale that makes sense.



Klean Industries - Plastic Pyrolysis Technology
Converts Plastic Waste into Hydrogen, Diesel, Oils,
Chemicals & Clean Energy

"It's estimated that the majority of plastic waste, approximately 90%, is not recycled at all. Instead, it ends in landfills or the natural environment, including oceans, within the year of its manufactured life. How does this make any sense? Humans go to great lengths to find, extract, and refine petrochemicals and hydrocarbons and then we make these products at a great expense both financially and environmentally, then in a short period of time and we either incinerate the resource or we tax end-of-life plastic all the way back into the ground via the landfilling. Our solutions like [the patent-pending Klean Loop™ platform](#), combined with our advanced pyrolysis technologies, have the potential to change the way we deal with waste plastic by converting waste plastic into hydrogen, liquid fuels, chemical, and clean energy while reducing the amount of plastic waste that ends up in our environment. The benefits far outweigh downcycling, and landfill by creating a sustainable source of energy/fuel that can help us reduce our reliance on fossil fuels while reducing degradation to our environment.", said Anders Bergman, President of European Operations for Klean Industries.

Here are 10 facts about single-use plastics, for more details see <https://www.earthday.org/fact-sheet-single-use-plastics>:

#1 - Around 380 million metric tons of plastic are produced yearly. 8.3 BILLION Metric Tons (9.1 BILLION US Tons) of plastic have been produced since plastic was introduced in the 1950s. The amount of plastic produced in a year is roughly the same as the entire weight of humanity.

#2 - Humans use about 1.2 million plastic bottles per minute in total. Approximately 91% of plastic is not recycled. Roughly half of our global annual plastic production is destined for a single-use product.

#3 - Virtually every piece of plastic that was ever made still exists in some shape or form (except for the small amount that has been incinerated).

#4 - Americans purchase about 50 billion water bottles per year, averaging about 13 bottles per month for every person in the United States. That means by using a reusable water bottle, you could save an average of 156 plastic bottles annually.

#5 - Five trillion plastic bags are produced worldwide annually. It can take up to 1,000 years for a bag to disintegrate completely. Americans throw away 100 billion bags annually- that's equivalent to dumping nearly 12 million barrels of crude oil. By switching to reusable shopping bags, we can eliminate that waste, which amounts to about 307 bags per person.

#6 - Americans alone use half a billion drinking straws every day.

#7 - The world uses 500 billion plastic cups every year. The world also produces more than 29 million US tons of polystyrene (plastic foam) each year. Americans alone throw away around 25 billion Styrofoam coffee cups every year.

#8 - In 2017, packaging production constituted the highest-demanded use for plastic, with 146 million metric tons used.

#9 - At least 14 million tons of plastic end up in our oceans every year. Many countries lack the infrastructure to prevent plastic pollution such as: sanitary landfills; incineration facilities; recycling capacity and circular economy infrastructure; proper management and disposal of waste systems.

#10 - When plastics end up in landfills, they aren't harmless. They break down into tiny toxic particles that contaminate the soil and waterways and enter the food chain when animals accidentally ingest them. Researchers in Germany indicate that terrestrial microplastic pollution is much higher than marine microplastic pollution- estimated at four to 23 times higher, depending on the environment. This could ultimately have adverse health effects on humans and animals.

As an example, the APAC region is one of the greatest plastic polluters on planet earth and is responsible for a vast amount of waste plastics entering our oceans and other natural habitats. In Australia alone, there are estimated to be more than 3 million tonnes of waste plastics stockpiled in various cities that are available for resource recovery because there is a lack of infrastructure in place to process waste plastics properly, much of which was previously being containerized and dumped in Asia before this was banned. Australia is facing a massive plastic

waste crisis that continues to grow every day and there is enough plastic feedstock to build hundreds of plants in Australia alone.

Klean is on track to announce a series of significant announcements and deals over the course of the next twelve months where several partnerships will enable the construction of a number of projects that target the conversion of waste plastics into hydrogen and transportation fuels in Australia and the APAC region.

The Company has identified several potential sites and is evaluating permitting and feedstock opportunities in Australia, the Philippines, and Singapore. Klean's technology has already been deployed at a commercial scale and has a significant amount of customer locations in the pipeline, where the Company intends to implement its integrated state-of-the-art hydrogen technologies alongside its plastic transformation facilities.

"Klean's focus has been to deploy its next generation of infrastructure that will not only help solve the waste plastic crisis but will also produce and distribute clean hydrogen energy. This new adaptation of integrating existing technologies with plastic pyrolysis technologies can help to reduce the demand for new plastics by using recovered petrochemical products to produce new plastics. By recycling existing waste plastic, fewer new plastic products need to be produced, which can help to conserve natural resources and reduce the environmental impact of plastic production, and can help to reduce greenhouse gas emissions by those who manufacture plastics. Klean's technologies play an integral role in solving energy, waste, and climate change.", commented Jesse Klinkhamer, CEO of Klean Industries Inc.

The process is simple, safe, and effective. First, the waste plastics are sorted and shredded into small pieces and are then pelletized where they are then fed into an advanced thermal reactor where the pelletized plastic is heated to a high temperature in the absence of oxygen. This process breaks down the plastic molecules, known as de-polymerization, producing a synthetic gas which is then converted into liquids that can be used in a range of applications, including as a raw material for new plastic products, as a fuel source, new polymers, clean energy, or a feedstock to produce other chemicals. This advanced thermal technology uses a unique process that converts waste plastics into a range of chemicals that can be used in the production of new plastics, and it can also be used to create fuel oils equivalent to diesel, gasoline, and heavy oils that can be used to generate electricity for export to the grid. Klean Industries technology has already been used extensively in Asia, where it has successfully converted waste plastic into high-quality low-sulfur diesel fuel. The company is engaged in similar facilities to expand the technology to other locations in the United States, Europe, Asia, and the Oceania region.

The continued development and deployment of our plastic pyrolysis technology is a major step forward in the fight against climate change and the plastic waste crisis. Klean Industries is proud to be at the forefront of this innovation and is committed to helping create a cleaner, more sustainable future.

Klean expects to finalize these agreements by the end of 2023 as plans are being developed for listing the company on a major exchange to finance more opportunities for the company's expansion plans. [For more information on plastic liquefaction/pyrolysis systems](#) and many more technologies to combat climate change while advancing to a circular economy, please visit the company's website.

About Klean Industries

Klean Industries ("Klean") provides best-in-class technologies and solutions in the waste-to-value industry. Our international team of award-winning experts has decades of experience in the design, engineering, and manufacturing of the highest-quality equipment to convert waste streams into valuable energy and resources. Our unique products and services are a result of combined knowledge in the design of recycling, resource recovery, waste management, and power generation projects. Our global project management expertise safeguards timelines and budgets enabling projects to be delivered in less time and at lower costs.

Klean uses proprietary technologies to rapidly develop projects that produce the highest quality fuels, recovered carbon blacks, and green hydrogen from various kinds of feedstocks. Our know-how and technical skills provide a specialization in building projects that use advanced thermal technologies such as pyrolysis, gasification, and carbonization, which convert end-of-life tires, waste plastics, and municipal solid waste into domestic energy, sustainable commodities, and new cleantech jobs. We create a symbiosis between waste, resources, and energy. Klean Industries is the link between the low carbon, circular economy, and the goal of zero waste to landfill.

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