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Veolia starts UK's first safe treatment for nitrous oxide canisters

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Veolia has started the first UK process lines for the safe treatment of nitrous oxide canisters. The innovative new systems are designed to treat and recycle the used canisters, and stop the greenhouse gas impact caused through discharge of the gas which has nearly 300 times the warming power of carbon dioxide.

This technological first has been developed at the company's Empire facility in Birmingham, and the new process can capture the gas from N_2O canisters and separate the nitrogen and oxygen components to enable the gases to be safely vented in proportion to relative volumes already in the atmosphere. The empty canisters are then recycled.

Nitrous oxide is used in kitchens to produce foams and whipped cream, and as an inert gas to fill packets of crisps or snack foods in the wider food industry. By using this treatment process it will effectively stop the damaging greenhouse gas that stays in the atmosphere for an average of 114 years, where the nitrogen oxides deplete the stratospheric ozone layer and expose the Earth to more solar radiation, and increasing climate change. These emissions are accelerating and the global rise in nitrous oxide emissions from 2020 to 2021 was higher than their average annual growth rate over the past 10 years.

Used cylinders also pose a risk of explosion during waste processing if disposed of in general waste. Although Nitrous oxide is not considered flammable, because it can not burn as a fuel, it can act as an oxidizer and cause a fire to burn hotter, faster, and more intensely. Recently littering of used cartridges, and cylinders has been highlighted as an issue and this incurs clean-up costs, and is harmful to the natural environment. Importantly, cartridges and cylinders are steel and can be recycled.

Nicola Henshaw, Director Hazardous Waste at Veolia UK, said: “The new treatment process for commercial nitrous oxide canisters represents a real step forward in how industry can stop the discharge of this potent greenhouse gas which causes the destruction of the ozone layer. By safely treating the gas, and breaking it down into its atmospheric elements, we can limit the environmental impact, and return metals for recycling. This is another example of how Veolia is delivering real ecological transformation for the future of the planet. “