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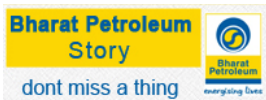
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Fuel Emulsification: Clean tech for greening fuel

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Two Delhi based entrepreneurs, both having no prior experience in the fuel industry or trade, decided to create CTPL (Creatnet Technologies Pvt Ltd) to usher in a revolution in cleaning up Industrial emissions and improving fuel combustion characteristics of heavy fuels using a long existing but little known technology known as Fuel Emulsification.

What?

Hardly a day goes by without one seeing a headline about climate change, tighter automobile emission norms, the need to clean-up the environment and yet, industrial pollution keeps on going unabated. Concurrently, often in the same month if not the day there might be another news item; that of fuel adulterators being nabbed somewhere in the country. Mostly people don't correlate the two until they learn that Fuel adulteration is a Rs. 40,000 crore business in India with about Rs. 10,000 crores pertaining to industrial fuels alone.

Industrial fuels like Furnace oil (Heavy Fuel Oil) leave the refineries and often reach the end consumer adulterated to the tune of 25% with substances like used engine oil, sludge, water and miscellaneous acid and chemical waste. This oil is later fired in Furnaces and Boilers where the impurities show up in the guise of black smoke, noxious fumes and tank sludge, all of which are major air and ground water contaminants.

Who?

It was in this environment that two Delhi based entrepreneurs, both having no prior experience in the fuel industry or trade, decided to create CTPL (Creatnet Technologies Pvt Ltd) to usher in a revolution in cleaning up Industrial emissions and improving fuel combustion characteristics of heavy fuels using a long existing but little known technology known as Fuel Emulsification. Darshan Bhat a pioneering educator and social impact entrepreneur and Sameer Shah with than 20 years in the field of industrial tools and timber trade joined hands for this incubation.

Their search for the most effective solution in greening Industrial fuel initially took them to St. Petersburg Technical University in Russia. When the equipment order from Russia reached India, the duo encountered challenges in every step - commissioning, technical trials, start production and most of all figuring out how to market a product that any lay man would consider either sophisticated adulteration or plain insanity.

After all who in the right mind would be interested in using a Fuel consisting of Oil mixed with water!!

They realized that technology was a lot more than the equipment and required constant innovations in process, chemistry and the business model

The solution to the technical impasse came in the form a maverick innovator, pioneering evangelist and system integrator of fuel emulsification technology with over eight years in this field. Wooded from beachy Goa to join the team, Ravi Deka was saddled with the responsibility of finding ways to make the technology work, start emulsified fuel production and its commercialization.

Interestingly, Ravi Deka's first distinction was as a motorcycling travel writer, who later turned Industrial consultant. Featuring on a government who's-who list of innovators and a serial guest speaker in UNDP-GEF seminars on energy efficiency, today Ravi Deka leads CTPL as its CEO.

A veteran of Citi Bank and India Bulls, Eeshwar Chopraa joined the team as the corporate door opener, a.k.a, the vice-president marketing.

Fast forward one year, today Creatnet Technology Pvt. Ltd is the sole fuel supplier to Lead recycling giant Gravitas India and Aluminium sheet manufacturer Metnere Ltd, and currently engaged in talks for supply of customised eco-friendly fuel solutions to several MNC FMCG and Pharma companies.

How?

In a nutshell, what are Fuel Emulsions and what is it about mixing Oil with Water that turns it into an eco-friendly and economical alternative to normal and usually adulterated Industrial fuels? For starters, Emulsified fuels consist of a hydrocarbon oil like Diesel or Furnace Oil, uniformly embedded with 5-10 microns water droplets turning its appearance into a sponge-like substance under microscope. When ignited in a Boiler or Furnace burner, the high flame temperatures flash these water droplets into steam causing micro-explosions which rupture the Fuel droplets into a nano-fuel mist causing a phenomenon known as "Secondary Atomization" which causes complete combustion of fuel simultaneously enriching it by releasing traces of highly combustible Hydrogen. The end result is improved combustion and fuel efficiency, with significantly cleaner flue gas emissions.

Environmentally, emulsified H.F.O (Heavy Fuel Oil) combustion uses 15%-20% less Oxygen than normal Fuel in the same Furnace or Boiler due to increased combustion efficiency and lower requirement of excess air, due to which it also produces almost 20% less waste-heat in the chimney. There is also about 30% less NOx, 20% less SOx and particulate matter in the flue gases when compared with stock H.F.O.

Challenges

Potential clients are at first intensely sceptical that anything as far-fetched as a mixture of Oil and water would even burn, let alone provide any economical or ecological benefits. And secondly, even after seeing the positive results, the only factor in which they are ever interested is a direct price discount vis a vis their normal Fuel; better ecology and improved efficiency not warranting as much as a raised eyebrow.

The deeply entranced corruption amongst many company's personnel long habituated in receiving hefty pay-offs from unscrupulous dealers and transporters for accepting heavily adulterated and substandard fuel

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had been another recurring stumbling block in penetrating the market. Meanwhile, the government agencies on their part along with the officials of most oil company officials both seem to suffer a selective myopia when addressing the rampant fuel adulteration of fuel and its resulting pollution.

The Future

Today, the Creatnet technical team is working on formulating several key solutions on the request of sectors as diverse as biscuit manufacturers, pharmaceutical companies to copper smelters in providing them an economical but more importantly a cleanly burning emulsified fuel tailor made for their specific requirements. The team is also finalizing various other fuel solutions such as Oil-Coke-Colloidal Fuel, Carbon Slurry Fuel etc., for which the patenting process has been initiated.

In the end its all about ushering hope - of greener fuels and cleaner air to the grey skies!

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