



Environmental, Safety and Performance

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SUSTAINABILITY: HOW BETTER CLEANING CAN HELP

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In 2014, a 14-year old student at Dorseyville Middle School in P.A. published a peer-reviewed paper in which it was proposed that simply by changing from the ubiquitous Times New Roman font to a more ink-efficient font Garamond, the U.S. Government could save up to \$136 million a year in toner costs.

Suvir Mirchandani's paper got quite a bit of coverage at the time, and I have no idea if the concept was ever further evaluated or implemented, but it is an excellent example of how a small change can sometimes have a rather profound effect.¹

Among many such studies, one by Khan et al. in the American Accounting Association Review shows that funds that implemented E.S.G. strategies in the '90s have clearly outperformed those that have not.⁴

In addition to demonstrable financial incentives, the change is being driven by investor demands. At a 2017 interview

CLEAN AS NEW® – *Where “good enough” is never good enough*



A New Reality

Today, oil refineries and chemical producers find themselves under increasing pressure to find cost-cutting measures that, at the same time, address important environmental and social needs.

Fortunately, the sentiment that the implementation of more sustainable technologies will negatively impact financial performance is increasingly outdated.

So why has sustainability suddenly become so important to investors?

According to an article in the Harvard Business Review², there are six drivers behind this trend: Investment firm size, financial returns, growing demand, evolved fiduciary responsibility, philosophical trickle-down, and investor activism.

The authors assert that in the highly concentrated investment industry, firms have essentially become "too big to let the planet fail" – unable to hedge against system-level threats like climate change.³

with Globes magazine, Rina Kupferschmid-Rojas, UBS's Global Head of Sustainable Investing says, "New investors we meet, 90% of them, are seeking investments with social and environmental value. This is going to be the trend in the portfolios we will manage over the next 10-15 years."⁵

Following up on that comment, Axel A. Weber, Chairman of the Board of Directors, said in his speech at the recent April 2020 AGM, that "We want to be the preferred provider of financial services for clients for whom sustainability is important last year, clients increased their sustainable investments by over 56%, to nearly USD 490 billion."⁶

There has clearly been a shift in the way the industry must consider E.S.G in its approach to investment. According to the UN Environment Programme Finance Initiative, "Today, the fiduciary duties of investors require them to incorporate environmental, social and governance (E.S.G) issues into investment analysis and decision-making processes,

consistent with their investment time horizons and encourage high standards of E.S.G performance in the companies or other entities in which they invest.”⁷



Finally, investors are increasingly concerned about the global impact of their investments.

Shareholder activist organizations like “Follow This” have been leading the revolution at a “cashroots” level.

By introducing shareholder resolutions aimed at garnering commitment to environmental targets with companies like Shell, BP, Equinor, ExxonMobil and Chevron, organizer Mark Van Baal hopes that fossil fuel producers can become the “ones to lead us into the energy future and stop climate change.”⁸

A small change in how cleaning is done can have a big impact on a plant’s bottom line.

Better Cleaning – Improved ESG and Profits

Why are we as an industrial cleaning company talking about E.S.G.?

Because it is important to us as an organization, not only in how we build safe and ecologically sound facilities, treat our employees and manage the business but because we know it’s equally important to our clients and the world.

For the last 50+ years, heat exchanger cleaning has been done on Wash Pads around the world using only hydroblasting. Without requiring any change to how our clients operate their plants today, we believe a small change to how cleaning is approached can have a big impact on a plant's bottom line.

Our goal is simple, to replace the wash pad with something better, faster, safer and greener.

CLEAN AS NEW®'s approach to cleaning not only improves a plant's bottom line by reducing cleaning costs and improving production efficiency, but also provides significant

but also provides significant benefits that align well with our clients’ ESG-focused development strategies.

Butterflies – the Environmental Impact of Better Cleaning

The industry has tacitly accepted that hydroblasting cannot clean the shell side of a heat exchanger bundle to 100%. Even in fouling service bundles with ample cleaning lanes, physics prevents the entire O.D. surface from ever being fully cleaned.

In the worst case, we've seen exchangers returned to service after hydroblasting with less than 70% of the surface area properly cleaned because no reasonable amount of shell side hydroblasting would ever be effective.

This "good enough" approach to cleaning has an environmental impact in the form of increased greenhouse gas emissions due to increased heat input required to overcome poor return-to-service exchanger performance.



Also, hydroblasting uses an obscene amount of water. Typical I.D. and O.D. hydroblasting uses, on average, between 200,000-300,000 gallons of clean water per heat exchanger.

In cases where a heat exchanger is badly fouled, incomplete cleaning by hydroblasting alone can use up to 1,000,000 gallons of water. All of the water used is contaminated by the cleaning process and becomes wastewater, which must be treated.

At CLEAN AS NEW®, our combination of Tech Sonic’s ultrasonic technology, recycling and in-house treatment and reduces the water consumption per heat exchanger to less than 5,000 gallons, or a reduction of >95%.

A conservative estimate suggests that for a mid-sized refinery, cleaning 250 exchangers per year, the CLEAN AS NEW® approach would save up to 200,000,000 gallons of water per year.

Bandages – The Safety Impact of Better Cleaning

A **CLEAN AS NEW®** facility completely eliminates the risks associated with hydroblasting. Our approach has been to design the building, processes, and automation to ensure that workers are never exposed to any risk of hydraulic failure or accidental injection.

All high-pressure equipment is physically isolated, and workers are electronically locked out of operating zones. All hydroblasting operation is done remotely in a hydroblast-proof room, away from the actual activity.

In addition to being concerned about the dangers of hydroblasting, we have designed our cleaning process and equipment around a policy of "reduced touch."

Using our proprietary process, exchangers are only handled when removed from a truck in our offsite facilities, and only when removed from the shell in a dedicated client facility.

This greatly reduces the risk associated with handling such large pieces of equipment, not only for the personnel but for the equipment itself.



Benjamins – The Economic Impact of Better Cleaning

As the song says, "it's all about the Benjamins".⁹ The drive to more sustainable manufacturing must be accompanied by improved economic performance. By employing a **CLEAN AS NEW®** facility, refiners and chemical producers can reduce their overall cleaning costs, while at the same time improving operational efficiency and reducing the amount of down-time.

The economic impact can be significant. Our clients know the savings are real and the cost of cleaning is lower.

According to Shell Moerdijk's Chemical Plant in the Netherlands, Tech Sonic's cleaning is "twice as fast at half the cost."¹⁰

According to Shell Moerdijk's Chemical Plant in the Netherlands, Tech Sonic's cleaning is "twice as fast at half the cost."¹⁰ According to Braskem, cleaning a single heat exchanger using Tech Sonic's process resulted in savings in excess of \$1,500,000 in a single year.¹¹

Get your FREE Cleaning Facility today! (Wait, What?)

CLEAN AS NEW®'s business model is simple – Our clients pay for cleaning, and if we can't clean it, you don't pay.

That extends to our offer of an onsite facility to replace a current wash pad with a **CLEAN AS NEW®** facility, customized for a client's particular needs and budget, on their site or fence line.

For clients who want to reap the maximum benefits of our **CLEANER, FASTER, SAFER** and **GREENER** cleaning, we will finance, build and operate a facility under a suitable cleaning contract, at no cost to the client.

Visit cleanasnew.com to learn more about how we can save you money and join us in a free measured trial.

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