Validating UV/EB Sustainability for Customers

By Doreen M. Monteleone, Ph.D.

Nearly 60 printers in the United States and Canada have been able to certify sustainability efforts through the Sustainable Green Printing Partnership (SGP). SGP certification requires regulatory compliance, best management practices and continuous improvement. SGP Printers must document metrics and demonstrate that communication within the supply chain is continually fostered to explore more sustainable options. To learn more about the SGP criteria, visit *www.sgppartnership.org*.

For nearly a decade, the general public has been seeking out more sustainable lifestyle choices. As a result, major retailers and brands began implementing more sustainable practices and offering more sustainable products. In order to do this, companies such as Walmart also needed to transfer the pressure to be sustainable onto its own suppliers of manufactured goods. Thus, causing every link in a sustainable supply chain to step up efforts to become more sustainable.

Ultraviolet (UV) and electron beam (EB) technology can play a key role in fostering sustainable manufacturing. In an effort to promote its benefits, numerous articles have been written about the positive attributes UV/EB brings to end-users seeking to become more sustainable. Unfortunately, too often many of these articles contain little or no quantitative data from end-users to support the sustainability claims, often leaving readers questioning how the technology makes an operation more sustainable in comparison to what is already being used.

What does it really mean for an end-user to adopt UV/EB technology? For example, how will it impact their bottom line, employee safety or air emissions? "Where's the beef?" in those sustainability claims. If you're too young to remember the phrase, it originated as a popular ad slogan for the Wendy's fast food chain in the 1980s. Ever since that popular commercial appeared, the slogan has become an all-purpose phrase for questioning the substance of an idea, event or product. It can't be understated that to make the case for sustainability, attributes must be quantified and supported.

Defining Sustainability

Being more "sustainable" is more than just being "greener." It goes well beyond environmental concerns. The widely accepted definition of sustainability is rather broad. "Meeting the needs of the present without compromising the ability of future generations to meet their needs," according to the 1987 United Nations report *Our Common Future*.

More commonly and certainly within a manufacturing industry, sustainability has been described as encompassing the three Ps—people, planet and profit. The first P relates to the health and well-being of employees and others; planet signifies environmental concerns; and profit is the monetary component or prosperity of the company.

The three Ps have been depicted as three pillars working together to support sustainability. It's also expressed graphically as the three circles in a Venn diagram, with the "sweet spot" in the center being sustainability. Without one of the

Ps, a company or product cannot be sustainable. Also, no matter how "green" or "safe" it is, if a company cannot make a profit, it won't be sustainable. So, if a technology is "greener," but does not perform well in a production facility; create a product which meets customer demands; or allows for a business to be profitable, it is not a sustainable business option.

For many companies today, sustainability has become an integral component of successful business planning and management. Proactive companies want to be more sustainable because it is essentially just good business sense. Others are seeking to be considered sustainable to meet the demands of their customers. Although they may have begun the sustainability journey for a competitive reason, they too find it is a worthwhile approach to sound business management. Becoming more sustainable is synonymous with finding ways to reduce waste, protect employees and the public, as well as become more profitable.

Validating Sustainability

No matter the reason a company wants to claim sustainable business practices, it must be supported with proof such as documented sustainability metrics. Otherwise, the claims could not only be misleading, but could also put the company into the legal jeopardy of making false claims. Specifically, a company can be cited for violating the Federal Trade Commission's 2012 Green Guides (16 CFR Part 260– Guides for the Use of Environmental Marketing Claims).

To validate sustainability, appropriate metrics associated with the three Ps must be established and monitored. A current baseline should be determined against which future measurements can be compared. This is important as continuous improvement is a requirement of a sustainability journey.

Because of the drive for a sustainable supply chain, manufacturers are often thrust into the world of sustainability. They must understand this relatively new concept and the need to prove or validate their sustainable status for customers. In turn, these manufacturers must also pressure their own suppliers to provide more sustainable material and manufacturing options. Sustainable inks, adhesives and coatings are key components in this process.

Some of the obvious sustainability metrics within manufacturing in the environmental area are impacts on air, water and land. This can be releases of volatile organic compounds (VOCs), carbon dioxide and hazardous air pollutant emissions. Water, electricity and natural gas should be measured. Many companies are now calculating carbon footprint as a measure of impact on global warming. Carbon footprint calculations require substantial documentation of the various parameters being tracked and the conversions needed to determine the carbon dioxide equivalent (CO_2e).

Other considerations within the three Ps include employee illness and injuries; labor practices; health of employees; and financial health, among others. Although not every change or practice in a facility may improve all three Ps, none should become worse as a result. If using a product makes a company "greener" and helps to improve the planet, a sustainable option would not do this by sacrificing people or business prosperity.

Continuous improvement requires working within the supply chain and with other stakeholders to develop the most sustainable options. By opening up those communication channels, every entity in the supply chain will better understand the needs of the others and work together to develop the best solutions for a more sustainable supply chain.

When UV/EB technology is promoted as a sustainable option—whether it is for the printing industry, wood or metal products—metrics associated with those claims need to be transparent. It's been often reported that UV/EB technology can help reduce VOC emissions and energy use compared to conventional systems, but the question is "by how much?" What might be the financial return on investment? How will it impact the three Ps? This should be demonstrated under actual operating conditions of an end-user facility. Case studies often are the most convincing method for documenting the benefits of new techniques and technologies.

When touting the sustainability benefits of UV/EB technology to your customers, make sure you're able to answer "Where's the beef?" Be prepared to support the claims that a company can be more sustainable, keeping in mind all three Ps. One of the best ways to do that is to create "beefy" case studies in collaboration with end-users that include quantitative information which can be shared with others.

Participating in the new RadTech Sustainability Committee may also help to identify trends, priorities and resources in sustainability, as well as offer an independent resource for the corroboration and advancement of your efforts!

For more information on measuring sustainability performance, contact Doreen Monteleone at *Doreen@RadTech.org.*

—Doreen M. Monteleone, Ph.D., is RadTech director of sustainability and EHS initiatives