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## White Paper

# Improving Corporate Compliance and Image Through Green Products and Green Chemistry

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## IMPROVING CORPORATE COMPLIANCE AND IMAGE THROUGH GREEN PRODUCTS AND GREEN CHEMISTRY

### CSR Image and Environmental Positioning for Sustainability

The title of “good corporate citizen” is a coveted status that requires far more than an unblemished record of compliance. Over a decade ago, retail consumers started setting strong sustainability expectations through purchasing practices, compelling economic participants to shape up their environmental act. Business consumers on different levels of the supply chain are equally as focused on these issues. Non-Government Organizations (or groups loosely associated with governmental agencies) have substantial influence, often times defining and monitoring sustainability goals and objectives to which business and industry practices are compared and scrutinized.

Companies that lack sufficient drivers to advertise, fund or support a formidable Corporate Social Responsibility (CSR) programs with strong green initiatives, may be at a competitive disadvantage. Increasingly, bid proposal requirements request organizational CSR policy outlines, including performance measurement data. This is not likely to subside, as trends clearly indicate more and more purchasing decisions factor in a broad base of sustainability initiatives.

As CSR continues to expand its influence as a key business issue, organizations that do not give consideration to its operational impact on society may find it difficult to maintain market share. The risks of not keeping pace with consumer (retail and B2B) and stakeholder expectations are significant. So, too, are the opportunities for companies that take CSR seriously.

However, assessing and reporting on CSR and environmental performance is difficult. Policies and management practices are generally not linked to outcomes. Few standardized forms of reporting are recognized. Metrics are often not comparable from one company or industry to the next. With a significant lack of substantive outcome measures and performance indicator validation, defining commonly accepted standards and benchmarks for responsible corporate behavior to facilitate comparative analysis is elusive.

### Green Chemistry

In recent years, more and more researchers have focused on finding environmentally benign ways to manufacture products. According to the U.S. Environmental Protection Agency (EPA), Green Chemistry, also known as sustainable chemistry, is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances. Green chemistry applies across the life cycle of a product, including its design, manufacture, and use.

A primary goal among many for green chemistry is the reduction or elimination of toxic solvents, poisonous metals, corrosive chemicals and other hazardous substances.

Paul Anastas, formerly of the U.S. EPA and John C. Warner developed [12 principles of green chemistry](#), which help to explain what the definition means in practice. The principles cover such concepts as:

- Designing processes to maximize the amount of raw material that ends up in the product
- Using safe, environmentally benign substances, whenever possible
- Designing and deploying energy efficient processes
- Recognizing the best form of waste disposal is not to create it in the first place

The 12 principles are:

1. It is better to prevent waste than to treat or clean up waste after it is formed.
2. Synthetic methods should be designed to maximize the incorporation of all materials used in the process into the final product.
3. Wherever practicable, synthetic methodologies should be designed to use and generate substances that possess little or no toxicity to human health and the environment.
4. Chemical products should be designed to preserve efficacy of function while reducing toxicity.
5. The use of auxiliary substances (e.g. solvents, separation agents, etc.) should be made unnecessary wherever possible and, innocuous when used.
6. Energy requirements should be recognized for their environmental and economic impacts and should be minimized. Synthetic methods should be conducted at ambient temperature and pressure.
7. A raw material or feedstock should be renewable rather than depleting wherever technically and economically practicable.
8. Reduce derivatives - Unnecessary derivatization (blocking group, protection/deprotection, temporary modification) should be avoided whenever possible.
9. Catalytic reagents (as selective as possible) are superior to stoichiometric reagents.
10. Chemical products should be designed so that at the end of their function they do not persist in the environment and break down into innocuous degradation products.
11. Analytical methodologies need to be further developed to allow for real-time, in-process monitoring and control prior to the formation of hazardous substances.
12. Substances and the form of a substance used in a chemical process should be chosen to minimize potential for chemical accidents, including releases, explosions, and fires.

### **Demonstrating A Consistent Commitment**

Claims of corporate accountability are publicly scrutinized and require far more than well funded, massive ad campaigns that espouse unsubstantiated or bloated assertions of environmental accomplishments. While an isolated minor violation could be somehow redeemed, being tagged with the greenwash label is tougher to shed. Compliance violators may be entitled to some level of forgiveness, if significant effort and resources are not spared to right past wrongs. Deceptive characters whose intent was to game the system and mislead the public may not be so lucky. The U.S.-based watchdog group Corp Watch defines greenwash as "the phenomena of socially and environmentally destructive corporations, attempting to preserve and expand their markets or power by posing as friends of the environment."

Organizations should diligently ensure sincerity through verifiable processes and outcomes initiated on actionable intelligence, supported by tangible evidentiary fact. There is ample room on this bandwagon, but imposters may get dumped off quickly and suffer irreparable damage.

### **Budget Considerations**

Greener does not necessarily translate to more expensive, and considerations need to stretch beyond unit price. Less regulated materials are inherently less expensive to import, export, store, transport, use, and dispose of. Less regulated and non-regulated substances often require much less in the way of documentation (MSDS, PDS, TDS, classification and labeling, chain of custody records, shipping papers, permits, disclosures, product registrations, etc.), and savings related to these costly and labor intensive activities can add up quickly.

## Data Access and Management

One key is to leverage readily available information already being used for a singular compliance purpose. Case in point: Material Safety Data Sheets (MSDS). As agency requirements expand and overlap and the focus of compliance programs evolve, so has the format and content of the MSDS. Mostly for convenience, as the addition of critical data to an existing structured document has been a simple, cost-effective approach. Today, most MSDSs offer a broad spectrum of information that exceeds OSHA requirements to include chemical classification, transportation, environmental, ecological, and disposal considerations. The value of MSDSs has shifted from mandatory possession of a required document to the immediate access of a comprehensive data set that is the starting point for much EH&S analysis and decision making.

MSDS management has gone from a tedious, unilateral exercise in pushing paper, to an integral part of a company's overall EH&S strategy, impacting a broad range of activities to include safety management, industrial hygiene, product stewardship, R&D, environmental compliance, transportation, and risk management. Data management and integration are the keys in leveraging this repository of essential information to achieve multiple compliance requirements and support green initiatives.

Three critical elements of a data-driven chemical inventory compliance program are organizational-specific information, product-level data and regulatory content. Individually and collectively, these three components will enable lifecycle chemical management across your supply chain. Each phase of the supply chain has its own unique sustainability requirements. There is, however, a common thread throughout: access to comprehensive, accurate regulatory data is required during each and every phase. This data is one of the most essential requirements for green and sustainability initiatives, and its importance cannot be overstated. *It is absolutely critical for assessing the EH&S sustainability footprint of chemical products.*

Much of this data has already been collected for current compliance activities. Proper analysis will reveal how it can also be used to aid in the development and selection of safer and more environmentally friendly products. The well known risk evaluation method:  $Risk = f(\text{hazard} * \text{exposure})$  is useful when determining the relative desirability of products and substances. The hazard variable is exactly the kind of intelligence you are likely to find among toxicity and classification data already collected for compliance activities.

## Opportunities to Succeed / Measurable Results

Ethical and green consumerism is creating opportunities for corporations to stand out in the marketplace.

**Reputation and brand management:** CSR performance accounts for over 49 percent of the "image and reputation" driver of customer satisfaction. Statistical analysis shows that improvement in the public's perception of an organization's CSR activities results in an increase in customer satisfaction.

- ***Competitiveness and market positioning:*** Statistical data is clear, social irresponsibility translates into consumer action. Ethical and green consumerism is creating opportunities for companies that seek marketplace differentiation. Increasingly, consumers, procurement practices, business partners, etc. are paying strict attention to the manner in which products are produced.

- ***Business risk management:*** Expanding the decision-making scope to include non-financial areas of performance can assist with the identification, mitigation and management of emerging risks.

- *Improved relations with regulators:* Organizational engagement in and recognition for CSR-based accomplishments will help navigate and expedite regulatory compliances processes. Agencies track and monitor those entities who have made their way to the repeat offender list, but there is another list being formed that includes companies that have, through significant, sustained efforts attained the reputation of good corporate citizen.
- *Cost savings and operational efficiency:* Using less (energy, water, raw materials, use chemicals, etc.) may require less (labor resources, waste disposal, regulatory oversight, reporting and permitting) and lead to bottom line cost savings.
- *Access to capital:* Institutional investors are factoring corporate values and CSR expectations into portfolio management. Socially responsible investment assets broke the billion dollar mark over a decade ago and continue to increase.
- *Employee recruitment, motivation and retention:* A survey of over 4,000 people carried out by recruitment job site MonsterTRAK found that 80 percent of young professionals are interested in securing a job that has a positive impact on the environment. Meanwhile, over 90 per cent claimed they would prefer to work for an environmentally friendly employer.
- *Organizational transformation and continuous improvement:* Commitment to a more sustainable operation that includes transparency and public information disclosure can be a powerful tool that empowers employees at all levels to drive internal process improvements.

When systematically applied, green product policies and processes built upon a solid foundation of green chemistry, and supported by solid platforms, tools, and data, can play a major role in strengthening corporate social responsibility.