2012 eNEWSLETTER – VOLUME I

In this edition of the DuPont Sustainable Solutions eNewsletter, you will find extensive information on how companies can embed sustainability into not only their strategy and operations, but also their supply chains.
If you would like further information on these topics, you may contact a DuPont representative through our website www.sustainablesolutions.dupont.co.uk

Safety Contact

Prepare Your Workers for Extreme Weather
As the near-arctic temperatures start to ease across Europe, many business leaders find themselves questioning the best means to keep their employees safe in spite of the extreme weather. This article highlights the risk, and proposes solutions for business leaders faced with the need to protect workers in extreme conditions.

Feature Article

Achieving a Sustainable Supply Chain – From Concept to Reality
In order to fully embed sustainability into their operations, business leaders are increasingly looking beyond their own corporate footprint to include the entirety of the supply chain. This article provides insight into both the value of, and means through which companies can fully incorporate sustainability into supply chains.

Case Study

Achieving Lasting Sustainability in Industrial Production: A DuPont Case Study
As one of the largest DuPont investments in Europe, DuPont Luxembourg has gone to extraordinary lengths to both achieve the DuPont corporate sustainability goals, but also preserve biodiversity and provide the community with a “green” space.

Video

Environmental Management: 8 Key Success Factors
In this video, DSS executives Davide Vassallo - Global Practice Leader for Environmental Management and Bruce George - Solutions Architect elucidate the means through which companies can incorporate sustainability into their corporate strategy.

News and Events

News & Events
The latest news about DuPont Sustainable Solutions and where you will find us in the coming months.

Prepare Your Workers for Extreme Weather

Over the past few weeks, Europe has experienced one of its coldest winters in decades. Near-Artic temperatures and heavy snow paralyzed whole regions: supply chains were interrupted, transportation networks were frozen, and utility infrastructure was heavily strained.

The latter proved especially problematic. The repair and maintenance of utility infrastructure, like facility management, very often requires work outside. Within extreme weather conditions, how do you keep your workers, and your bottom line, safe?

The Risks of Cold Weather

The human body has an average temperature of 37°C. When exposed to extreme cold, the body will need to adapt: muscles will shiver to generate heat by moving and blood flow to the extremities is reduced. Therefore, cold is first felt in the hands and feet.

To help the body maintain the proper balance, it is important to have the right personal protection equipment:

- Quality winter clothing – insulation is provided by the trapping of excess body heat;
- Dry footwear - wet items lose their ability to insulate;
- Body type - tall and thin frames lose heat faster;
- Age and physical condition: the more muscle mass, the more a body will be able to generate heat.

The most common health issues related with long exposure to cold weather are:

- Hypothermia - the body is not able to adapt and compensate the temperature loss. It will start to go below normal body temperature needed for body functions and metabolism;
- Frostbite – localized damage is caused to skin and other tissues due to extreme cold;
- Frostnip – superficial cooling of tissues without cellular destruction. This condition is less serious than frostbite.

The Risks of Hot Weather

In order to work in hot weather, the body will naturally sweat and radiate heat. However, unlike cold weather, the body can acclimate more readily, though the length of time needed to do so can vary from person to person.

Risks related with working in hot weather conditions include:

- Heat edema - abnormal accumulation of fluid beneath the skin;
- Heat rush - skin irritation caused by excessive sweating;
- Heat cramps - muscle pain that can occur during heavy exercise;

- Heat exhaustion - heavy sweating, rapid breathing and a fast, weak pulse. This can be a precursor to heat stroke;
- Heat stroke - this is the most severe type of illness related to heat and occurs when the body reaches a temperature of greater than 40.6 °C.

Ultimately, environmental factors can have a significant effect upon not only the concerned employees and contractors, but also profitability. Therefore, companies should develop or strengthen specific company policy related to extreme weather. Further, companies should provide appropriate equipment and PPE, and also ensure that all employees are properly trained to manage extreme conditions. In doing so, companies can benefit from the higher productivity and decreased frequency of on-the-job injuries and accidents.

Achieving a Sustainable Supply Chain – From Concept to Reality

There is a clear, consistent and growing shift across the business world on sustainability. Sustainability has traditionally been defined by environmental and social impact and "green" products with little visibility into their impact on actual performance along the supply chain. Now companies are shifting from trying to comply with regulations, with greatly varying requirements on a country by country basis, to proactively embedding sustainability across their value chains.

Many businesses have reframed sustainability from a good concept that was an awkward fit to an actionable way to drive business value and produce visible results for stakeholders. The results are increasingly achieved through integration within and collaboration across traditional business functions. Investment in targeting the triple bottom line, relative to people, planet and profits, is creating lasting business value and increasingly serves an engine for growth – through leveraging the supply chain. Executed well, the lasting benefits can translate into a competitive advantage.

A Sustainable Supply Chain Drives Good Business

A sustainable supply chain is fundamentally about minimizing "bad" or harmful inputs and outputs, while maximizing the "good" across networks of companies and geographies. The good and bad are defined by the five major elements of sustainability: environmental impact of waste, air emissions (with a major focus on greenhouse gases), energy use, fundamental human rights, and increasingly water – all under the concept of decreasing or avoiding the depletion of resources not only through the supply chain, but also through a lifetime of end use. To achieve improved performance, increasingly companies are applying systematic approaches to take them from risk management to business model innovation.

Real World Application – Energy Production

DuPont's work in the cellulosic ethanol industry is a good example of reframing sustainability from a compliance challenge to a fundamental part of business and market value. When DuPont decided to develop biofuels, we looked at this venture directly as a means of generating value for not only our business, but also for society. DuPont's vision to address food and fuel for a growing world provided the idea to create fuels from residual biomass. A fundamental value of the cellulosic ethanol business is sustainable harvest, production and delivery of products and, to that end; a sustainable supply chain was built into the business design as a condition of making the business work.

DuPont started at the beginning of the supply chain – working with our farmers to produce products and manage their land sustainably and working with communities, state universities and local organizations to understand their needs and concerns and to learn from their experience. The business development is informed by Life Cycle Analysis (LCA), which involves taking a static analysis and making it a more dynamic part of the business and is evolved as the business progresses.

DuPont invested in R&D to learn how to harvest efficiently. From there, every process was viewed through the lens of operating in a sustainable manner. DuPont collaborates with partners

to learn how to remove the biomass in a way that does not induce harmful side effects, and even aids the growing of the next crop.

For the harvesting stage, we use lean practices for the most efficient and effective way to move across fields, sourcing the highest efficiency equipment and using the equipment at full capacity to avoid wasting energy. DuPont also looked at locations with access to rail routes to provide a more environmentally friendly and financially efficient mode of transportation. Finally, we considered the waste material from the harvest and production processes not as waste, but as potential opportunities.

Each of these individual acts is important; however, the sum is greater than the parts. We are creating a sustainable supply chain throughout the entire lifecycle of our cellulosic ethanol operations. By making sustainability an integral part of how the supply chain and business is developed we drive both innovation and the adaption of existing methods to deliver sustainable outcomes.

Achieving a Sustainable Supply Chain – From Concept to Reality and Performance
Companies that are seeking to create a sustainable supply chain must first demonstrate a clear commitment to the idea of embedding and integrating sustainability into all business decisions in order to build a better business. DuPont embodies this by utilizing the R&D organization to help vet new opportunities by determining the potential risks and opportunities related to sustainability and the specific venture.

While understanding the benefits of a sustainable supply chain is easy, creating one or injecting sustainability into an existing supply chain is challenging. A sustainable supply chain is one that is intentionally developed or improved to:

- Operate efficiently – an easily overlooked opportunity for cost through energy use and carbon emissions;
- Be resilient in adapting to changes;
- Be proactive in end user and/or consumer use and eventual disposal;
- Deliver sustainability competitively as an accepted integrated high value outcome just as with cash, cost and service;
- Proactively engage and leverage supplier capability to meet sustainability performance goals as part of the value compensated and risk managed; and
- Be benchmarked equally on traditional measures as well as sustainability measures.

DuPont invests in R&D specifically for sustainability performance across the supply chain as well as for the end products. We use this approach, called Product Stewardship, as a way to reflect on the impact that a product will have from all angles – financial, environmental, social, risk to the organization as well as to society and the environment, and finally the opportunity itself.

Sustainability is an embedded criteria and it can be used to modify or even cancel a new product initiative. If it is not good for business, the environment and society then it is not

something that DuPont wants to undertake. Sustainability is not a compliance tactic; for us it is a growth strategy.

Getting Started

The first step in getting your organization to commit to operating a more sustainable supply chain is to prove the business case by understanding the external drivers. Next, you must assess your supply chains for scope, impact and priorities in order to develop a plan of action, which should include goals and timelines for implementation. Lastly, to continue proving the business case for investment in sustainability, it is critical to measure programs, capture results and communicate performance.

Partnering with other companies, suppliers, associations, NGOs and government entities can provide unparalleled value across the supply chain and the entire business, particularly if these organizations have experienced the sustainability journey themselves and succeeded with the challenges. At DuPont, for example, we have collaborated with the Supply Chain Council in an effort to drive further improvement.

Achieving Lasting Sustainability in Industrial Production: A DuPont Case Study

Sustainability, as an environmental concept, is an evolving approach to the protection of our planet. Corporate response to environmental issues has changed over the years and is having to continue changing today. Over the past two decades, global science-based products and services company DuPont has undertaken its own efforts in sustainable growth. The company had set very clear sustainability goals for its entire organization to achieve by 2015. With 60,000 employees of 80 nationalities operating in around 90 countries and manufacturing in excess of 500,000 products, this was an ambitious step.

DUPONT SUSTAINABILITY GOALS

1. To reduce greenhouse gas emissions by at least 15% from base year 2004.
2. To reduce water use at sites where renewable fresh water is scarce or stressed by 30% on 2004. To hold total water use flat at all other locations.
3. To ensure the entire fleet of company off-site vehicles is fuel efficient.
4. From the current 92% reduction in global air carcinogens achieved since 1990, DuPont plans an additional 50% reduction of remaining emissions by 2015. This will result in a total reduction of 96% since 1990.
5. By 2015, DuPont will have 100% of its environmental efforts validated by independent third parties.
6. Reduce energy intensity by 10% by 2020 compared to 2010. Intensity defined as non-renewable energy normalized by revenue.

Implementing sustainability goals

These goals apply to all DuPont sites across the world. DuPont Luxembourg, founded in 1962, is no exception. It is one of the DuPont's largest investments in Europe and today employs more than 1,150 people. On the 104 hectare DuPont runs four major production units for polyester films, spunbonds and elastomers. Here DuPont produces building products, geosynthetics, spunbonded polyethylene such as DuPont™ Tyvek® used in personal protection industrial and medical packaging and much more. The site also has its own power plant and waste water treatment station with a population equivalent capacity of more than 50 000. Two big office buildings host a business centre for DuPont and its joint venture DuPont Teijin Films, the world's leading producer of PET and PEN polyester films.

DuPont Luxembourg had already begun focusing on improving energy efficiency, emissions and water usage, as well as biodiversity around its site in 2000. The site has been ISO 14,001 certified since 1997 and is also Wildlife Habitat certified. However, the corporate 2015 sustainability goals for water and energy consumption go beyond what is required for this certification and also exceed national regulatory requirements.

Putting in place a structure
Spurred on by the 2015 sustainability goals, the site set up three networks to tackle specific areas. The energy, pollution prevention and waste committees meet regularly to identify new ideas and develop projects using internal assessment documents as the starting point. Every production unit on the site sends a representative to these networks, so they are peopled by a good mix of product experts, engineers and managers. The site also has a responsible care committee composed of the site director, operations manager and SHE professionals.

Furthermore, DuPont Luxembourg is part of several other wider reaching DuPont projects that focus on lean production, in other words increasing production while decreasing waste. “Waste reduction has the additional benefit of decreasing exposure to risk in manual handling terms alone,” Alan Turner of the DuPont Energy Centre of Competency points out.

Energy projects
In 2010 and 2011, Luxembourg’s energy network set up a total of 29 energy reduction programmes resulting in yearly estimated savings of more than 40,000 MWh of primary energy and annual CO2 reductions of more than 8,000 tonnes.

One of the big contributors to these savings was a project conducted on two of the casting lines of DuPont Teijin Films. By reducing the heating and ventilating air flow by half in one year from 210,000 m3/h to 105,000 m3/h, the Luxembourg site was able to save almost a thousand MWh in electricity, and cut down on low pressure steam to such an extent that CO2 emissions were reduced by more than 1,000 tonnes. Carbon dioxide emissions were also cut by re-circulating hot exhaust air from H&V in the Typar® production area, achieving savings of about 2,400 tonnes. The natural gas consumption needed to produce one tonne of 12 barg steam is reduced from 71 to 65.4 Nm3/t by preheating the boiler feed-water with a heat exchanger in the exhaust gas stack.

“Although many of these programmes seem minor in themselves, combined they added up to an overall 28% reduction on energy use by the end of 2011 compared to 2004,” Alan Turner says.

For 2012, the site has set its sights on achieving even further savings through similar projects: returning more steam condensate to the boiler feed-water tanks, recovering heat from a casting oven, installing more efficient steam jets, using variable speed drives on compressors and pumps, to name but a few.

Reduction of air emissions
Since 1990, the site has reduced its Volatile Organic Compound emissions by 90%, sulphurous gas emissions by 99% and nitrous gas emissions by more than 80%.

Focus on water reduction
Alongside the work on energy efficiency, the Luxembourg site has also made significant efforts to reduce its water consumption. By the end of 2011, the site had achieved a 35% reduction on 2004 levels and a 53% reduction compared to 2000. The joint venture DuPont Teijin Films was able to reduce its water consumption on 2010 levels by more than 40 000 m3 due to the implementation of three major projects:

1. Optimizing the VOC (Volatile Organic Compound) scrubbing system: This project improved the cooling capacity of the cooling tower system and therefore reduced the amount of process water which was injected for cooling purposes during the polymer production?

2. Modification of the DuPont Teijin Films process water feeding arrangement: Due to a modification and relocation of the process water feeding point it was possible to achieve a more consistent temperature distribution for the various different production lines. As a result of this, the overall amount of process water, which was fed for cooling purposes could be reduced significantly.
3. Polymer press process water replacement: Process water was used in a polymer press for cooling purposes. By modifying the press to connect it to the cooled water system, which runs in a closed circuit, water usage by the press was eliminated.

In addition to these projects, the Luxembourg production unit for the polyester elastomer, Hytrel®, optimized the treatment control of the cooling tower water, which reduced process water supply to two cooling towers by more than 30 000 m3/year.

The site continues to reduce water usages and is aiming for another 50 000 m3 savings in 2012 through two additional projects in the Hytrel® production process: the first project will consist of recuperating condensate water, which formerly was lost. The second is based on the possibility to pelletize the Hytrel® polymer at a higher water temperature, which will reduce the amount of process water needed to regulate temperatures.

Waste treatment

For 2010, DuPont Luxembourg had set itself the goal to recycle at least 90% of its materials rather than allow them to go to waste. That goal has been achieved through improving waste segregation in the offices and production units by ensuring waste went into the correct recycling containers.

Luxembourg has also managed to reduce its overall waste output between 2008 and 2010 by almost half.

Landfill has been discontinued since mid-2010.

Biodiversity

The DuPont Luxembourg site is surrounded by woods and is located close to two communities 1km and 2.5km away respectively. The woods are maintained in a close to natural state and therefore present remarkable biodiversity. This green belt is one of the rare remaining areas close to Luxembourg town that are neither urbanized nor agricultural land. As a member of the Wildlife Habitat Council (WHC) since 2002, DuPont decided to enhance this land under a "Wildlife at Work" programme by creating wetlands that are now well established. Two ponds provide an important habitat for amphibians, dragonflies and many other insects. The site also gave four acres of land back to wildlife in 2003, and repopulated an old landfill for inert rubble area with natural pioneer vegetation in 1999. These areas have now turned into richly flowered meadows which offer a refuge to wild bees, butterflies and other pollinating insects from the intensely farmed agricultural areas that are nearby. DuPont was particularly pleased to see rare butterflies and orchids return to the area.

Henri Werner, Global Product Stewardship and regulatory communications manager for DuPont, explains. “To make access for visitors easier, volunteers from our site have created a nature trail which DuPont opened to the general public in 2002. The nature trail includes tablets on plant species in several different languages. The trail has a recreational and an educational side and thus benefits the local community.”

Though recent sustainability efforts in Luxembourg focused on safe operations, reducing water, energy and waste consumption, reducing gas emissions as well as on supporting biodiversity, the site has demonstrated its commitment to its core values.

DuPont Luxembourg is one of 39 DuPont sites operating along sustainable principles in Europe. DuPont shares its experience in sustainable operations through its consulting services and technology arm DuPont Sustainable Solutions providing advice on improving energy efficiency, asset productivity and reliability, as well as capital effectiveness.

Environmental Management: 8 Key Success Factors

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http://www.youtube.com/watch?v=XbxAhX2nYAk&feature=player_embedded

News & Events

News

DuPont Learning Management System Receives New Product of the Year Award by Occupational Health and Safety Magazine. Read more at http://www2.dupont.com/Media_Center/en_US/daily_news/january/article20120105a.html

DuPont Sustainable Solutions will also be hosting a series of workshops focusing on the conceptual basis for behavioural based safety and risk reduction, and specific methodologies to address safety in the workplace using SafeStart®. Click here to see when a workshop will be held in your area: http://www.training.dupont.co.uk/event-calendar/event-calendar

Upcoming Events

You can find DuPont Sustainable Solutions at the following events:

Phosphates 2012 - El-Jadida, Morocco - 19-21 March 2012

The only global event for the fertilizer, industrial and feed phosphate markets, Phosphates 2012 will bring together experts and decision makers from the leading companies within the fertilizer, industrial and feed phosphate industries. Attracting over 350 delegates from 40 countries, this biennial event provides you with the perfect opportunity to network with senior executives from organisations that define phosphate supply and demand.
Giovanni Marchesi, Business Manager MECS®, will give a presentation on alloy towers for ODI projects.

ARA 2012 - Marrakech, Morocco - 19-23 March 2012

The African Refiners Association (ARA) was founded in 2006 and has quickly become the voice not just of refineries but of all downstream oil in Africa. The objective of the ARA is to harness the synergies and solidarity which exist in the downstream oil industry by encouraging its members to discuss and exchange ideas and experience in all areas of oil refining, distribution and supply.

Projects Forum and Russia & CIS BBCT - Moscow, Russia - 17-19 April 2012

This truly interactive forum will include outlook presentations on future planned projects in the Russia & CIS downstream industry as well as discussions, guest-moderators of which will be representatives of Refineries, Petrochemical & Gas Plants and their partners.

