ReNeuvo

Taking recycled plastic and rubber to the next level!

BRINGING RECYCLING AND MANUFACTURING

TO THE NEXT LEVEL AND!

RENEUVO COMPOSITES ONTARIO AND ASSOCIATED COMPANIES

ENVIRONMENT POLICIES AND PHILOSOPHIES

Our Environmental philosophy, practices and policies have been established from among alternatives experiences, international and group experiences, and considering given conditions, not only from Canadian Environmental conditions, but in consultation with key environmental institutions, Universities like McMaster, Guelph, Waterloo and Government policy experts. This has helped to develop guidelines to provide a definite course or method of action to guide and determine present and future decisions for the group of companies, especially for ReNeuvo.

These entrenched environmental policies and governance provide a high-level overall plan to embrace the general goals and acceptable procedures of how the group of companies will maintain operational environmental responsibility. These policies are ingrained and an integral part of our corporate mandate and our company culture.

ENVIRONMENTAL RESPONSIBILITY

One of the most over used, and abused, terms in use today is “Green”. With the growing public awareness and concerns over the environment, we are seeing everything from solar panels to toilet paper being marketed as Green.

Unfortunately, producing and marketing a Green product does not necessarily translate into being environmentally responsible. To accept the responsibility and make a true commitment to the environment, one must look at the entire life cycle of the product, from how the raw material was produced to the effects of the disposal of the finished product after it has served its useful life. This is referred to in the industry as “Closing the Loop”.

A good majority of the products available today, at all levels, are being produced either in off-shore countries that lack the commitment or motivation to preserve the environment or in plants and facilities built before the effects of emissions where fully understood and when energy was both plentiful and inexpensive. While this situation is slowly improving, until a universal code of ethics is accepted world-wide and the older inefficient facilities have been phased out, products will continue to be introduced into the market that will remain a threat to the environment.

An opportunity exists within the proposed group of companies to implement a true commitment to environmentally responsible technology and processes. The evaluation process will involve energy, raw material sourcing, process efficiencies, content management, waste processing and address the ability to reprocess and or re-cycle the product line after its useful life is over. The product lines must not be just "Green Washed" but rather reflect a true commitment to environmental responsibility.

Additionally, the companies should continue to seek out and develop products specifically to address environmental concerns and to develop alternatives to current processes and methodologies.

ENVIRONMENT CANADA WASTE ANALYSIS

Canada ranks among the highest producers of solid waste per capita in the industrialized world. Although Canada is viewed as a country of abundant green spaces and fresh water resources we are facing a mounting threat because of improper waste management. (Environment Canada)

RECYCLED TIRES, WASTE NYLON AND FLUFF CLEANING ANALYSIS

It has been reported that over 10 billion tires have been stockpiled world wide. That figure is the number that is known and does not take into account the number of tires that have been disposed of in a less than responsible manner. The fact remains that we can no longer afford to just stockpile these tires. There is a finite amount of real estate available to continue with this methodology.

While the disposal logistics of this material remains an issue, great advances have been made in converting the waste tires into a usable raw material in the production of other products. As a result, a significant industrial sector has emerged to produce the raw material by recycling the tires into a useable format. Unfortunately, the very physical characteristics of this material dictates that when these products are used and eventually reach their end of life, the waste tire material is then returned to the landfills as a non-recyclable waste stream. In other words, just delaying the inevitable.

For decades, tires have been used as an alternative fuel for operations such as concrete plants and other industrial facilities requiring high energy use. However, the exhaust emission profile for this fuel has led to a total ban on its use in most jurisdictions. Another promising methodology is to convert it back to its original base components using pyrolysis, resulting in a base fuel, equivalent to #2 diesel, pyrolysis oil, natural gas and carbon black. All marketable products, however, the economics of this methodology has been a major roadblock. Additional research and development is needed to perfect this method.

The dominant issue in recycling this material is to reverse the effects of vulcanization of the various components in a tire. This process is used to convert a thermal plastic compound (ability to melt when heated) into a thermal set compound (does not melt with heat), significantly reducing wear of the finished product. As a result, unless the tire crumb is de-vulcanized, this material cannot be re-molded into a useable product.

ReNeuvo Composites, through a proprietary process, has done just that and has successfully combined the resultant rubber with recycled industrial plastics and postconsumer to create a 7th category of thermal plastic elastomer (TPE). Not only is it created with 100% recycled materials, the resultant resin, if used without blending with other compounds, to manufacture a product, will itself be 100% recyclable at the end of its useful life. Ergo completing a closed loop, environmentally.

Even using the best tire recycling technologies, after the steel has been extracted, about 20% of the tire remains unmarketable. This residual contains fabric (nylon and glass fibers), carbon black, trace amounts of rubber crumb and trace amounts of steel. Typically, this residual material is disposed of in landfill sites.

This is one area that warrants some significant research and development. If this residual "fluff" could be effectively cleaned and separated, everything except the glass fiber would be valuable as a recycled product. It is then estimated that the unusable residual could be reduced to less than 2%.

RECYCLED PLASTICS

Of even greater concern, is the growing quantities of waste plastics. Even if all production of plastics stopped today, we would have to contend with the current residual waste for the next 800 to 1,000 years. This waste has proven to be highly resistant to environmental degradation and as such remains, as disposed of, for protracted periods of time. The adverse effects of this waste, both from an environmental standpoint and the dangers to our health, is well documented and researched. Predominately, this relates to post-consumer plastics, widely used in packaging and a myriad of consumer products. From a global perspective, these plastics must no longer be perceived as a waste product but rather as a, previously under utilized, resource.

Post industrial plastics on the other hand are generally a valuable commodity, as the purity levels, chemical composition and physical characteristics of the plastics are generally well documented and the ability to recycle same allows it to be incorporated into new product at the same levels as virgin materials. These are the plastics that, initially, ReNeuvo will be using in the production of our TPE.

A global mandate must be established to fully research separation technologies, recycling methodologies and reuse opportunities to mitigate this growing concern. One of the primary mandates of the ReNeuvo Research Center will be to work closely with plastic recyclers in order to develop new compounds utilizing post consumer plastics in our TPE product line and to investigate separation technologies to assure the purity levels required for our process.

RECYCLED TIRES CARBON CREDITS

A carbon credit is a generic term for any tradable certificate or permit representing the right to emit one tonne of carbon dioxide or the mass of another greenhouse gas with a carbon dioxide equivalent (tCO2e) equivalent to one tonne of carbon dioxide. Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of greenhouse gases (GHGs). One carbon credit is equal to one tonne of carbon dioxide, or in some markets, carbon dioxide equivalent gases. Carbon trading is an application of an emissions trading approach. Greenhouse gas emissions are capped and then markets are used to allocate the emissions among the group of regulated sources.

The goal is to allow market mechanisms to drive industrial and commercial processes in the direction of low emissions or less carbon intensive approaches than those used when there is no cost to emitting carbon dioxide and other GHGs into the atmosphere. Since GHG mitigation projects generate credits, this approach can be used to finance carbon reduction schemes between trading partners and around the world.

There are also many companies that sell carbon credits to commercial and individual customers who are interested in lowering their carbon footprint on a voluntary basis. These carbon off setters purchase the credits from an investment fund or a carbon development company that has aggregated the credits from individual projects. Buyers and sellers can also use an exchange platform to trade, which is like a stock exchange for carbon credits. The quality of the credits is based in part on the validation process and sophistication of the fund or development company that acted as the sponsor to the carbon project. This is reflected in their price; voluntary units typically have less value than the units sold through the rigorously validated.

INTERESTING ARTICLES ON ENVIRONMENT INVESTMENTS

1. Environmental Investing: The Most Influential Investors

http://www.thejei.com/environmental-investing-influential-investors

2. Article about green energy and the environment

http://www.ipolitics.ca/2014/09/05/how-to-exploit-the-coming-boom-in-clean-energy/

According to Bloomberg New Energy Finance, investors poured $207 billion into clean energy deployment around the world in 2013. In Canada, investment hit $6.5 billion, ranking us 7th among G20 countries for clean energy investment.

And because clean energy technology costs are dropping, dollar for dollar, this investment is building more clean energy capacity than ever. For example, Bloomberg has tracked a drop of more than 75 per cent in solar module prices since 2008. It's little wonder that 2013 marked the first-time solar power received more investment than any other renewable energy technology.

The International Energy Agency calculates that avoiding serious climate disruption will require mobilizing US$36 trillion in clean energy investments globally by 2050. This would create an immense export opportunity for Canadian clean energy companies. So, choosing renewable energy here in Canada is not just about cleaning up our own power grids — it's also about developing technologies and services that are in demand by clients around the world.

For example, a recent study produced by global consultants McKinsey & Company for Natural Resources Canada found that Canada has an opportunity to enhance our competitiveness in next-generation automotive technology and advanced trains and jets. They also found that we could take the lead in emerging markets with solar photovoltaics, bioenergy, unconventional hydro and energy efficiency.

Increasingly, Canadians understand the benefits — environmental and economic — of competing in clean energy. A recent Environics Institute survey found that 70 per cent of Canadians believe it is possible for their province to shift most of its energy requirements from fossil fuels to clean, renewable forms of energy. Equally important, according to a poll conducted by the Université de Montréal for Canada 2020, they'd even be willing to pay more for it.

Developing Technology Without Considering the

Environment

Is not Environmentally Responsible!