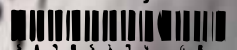


# The Beacon

**INNOVATION ISSUE**

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## The Prostheses Foundation of HRH the Princess Mother

Surprisingly, even today, stepping on a mine remains one of the main causes of people losing limbs in Indochina, after car or other accidents. Modern prosthetic limbs are very expensive for ordinary Thais. Besides the high cost, they are difficult to acquire, being mainly provided in major cities, and difficult to maintain and are not really designed for the tough life in the hills and on the farm. This is why poor people create their own substitute limbs from bamboo shafts, spare bicycle parts or from wood, leather and plastic pipes.

The late Princess Mother, whose long-time residence had been in the northern hills of Chiang Mai, had heard of the problems faced by poor amputees and of Dr. Therdchai Jivacate, who had studied rehabilitation medicine at Northwestern University. He was able to make prosthetic legs from recycled Yakult yoghurt bottles, which were lighter, more comfortable and 10 times less expensive than imported ones.

The Princess Mother was impressed by the work and the low cost of the prostheses. The late Princess Galayani Vadhana Kromluang Naradhiwas Rajanagarindra suggested setting up a foundation.

The foundation was registered on August 17, 1992. To keep within a royal directive of using local materials to keep costs down the foundation continued to use recycled plastic yogurt bottles. His Majesty the King knew of this project and suggested not to use thinner to liquefy the plastic, as it would eventually cause the doctors and technicians making the prostheses to have some serious health problems of their own as a result of breathing in the fumes. His Majesty had a word with some domestic plastics companies and those companies still cooperate in helping to break down the plastic to this day and provide the Foundation with plastic pellets for free.

The foundation now has a four to five day limit to make prostheses for roughly 100-300 clients on each visit. Before this, it would have taken one to two weeks at least. The team now holds the Guinness World Record for the most number of limbs made in one day. A free prosthetic leg from the foundation costs about US\$20 while imported prostheses cost around US\$430-US\$570.

## Editor's Note

This is the first issue of 2012, and it should be a good year after the flood crisis in Thailand last year, especially for our plants in Lopburi Province, which had to stop working for a few months and move some staff to other sites. After the water drained, machinery and equipment needed to be cleaned and repaired, but the PET and packaging plants should be up and running by May and the Wool plant later in the year. IVL is fortunate to have plants in several locations Thailand to which we transferred production and kept customers served.

In this issue, there are many interesting articles other than IVL news and activities, such as Improving the PET Oxygen Barrier. Another interesting article is on Branding as a Tool to Increase Customer Loyalty (and get more sales), which is important to building our own brand, including an explanation of what we would expect to get from branding. Other articles, such as "In the Vicinity", take you to Sardinia this time and something of "Cultural Interest."

Sirima Phanomuppathamp  
Editor

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The Beacon is published every quarter to provide information about the company's news and activities to all stakeholders. Not for sale.



**Mr. Aloke Lohia**

## Dear Colleagues and Stakeholders, The biggest risk you can take is to take no risk.

The Year 2011 was one of great change for our company and new developments into areas of business that will bear fruit for us in the long term. Many of our newest management have now had the opportunity to meet together over the last year and this one. I feel excited by the ideas and motivation shown by people attending our meetings for PTA, PET and Polyester Fibers and Yarns in Europe, and the USA in 2011, and in January 2012 in Indonesia. These opportunities to meet and exchange ideas are productive each year and the success of these events enriches everyone involved.

IVL entered some new growth regions like Mexico, China and Indonesia and our geographical diversity was accompanied by a new phase of investment into innovative companies like Auriga and Trevira, which provide us with a broader portfolio and access to value-added products. In early 2012, we also entered the polyolefin fiber industry through our acquisition of FiberVisions, which is a global leader in its field, and our first entry into the MEG business with our acquisition of Old World.

IVL aims to continue expanding the group with a proven acquisition strategy. We are targeting polyester and linked businesses in all segments. We do have ambitious targets and a clear-cut strategy. We have also established strict criteria when evaluating opportunities based on creating long term value for our shareholders. By acquiring the right businesses and driving their organic growth, we create shareholder value, with healthy financial returns and outperformance of industry benchmarks.

Our strong work ethic has resulted in transforming a small chemical company into IVL with revenue of over US\$ 6 billion—more than any dedicated polyester enterprise in the world. Today, we have about 9,000 employees globally who can feel satisfied that they helped create a world leader.

For those of you in Thailand, the Thai New Year has its own wonderful culture and traditions in April and I would like to say to you all Sawasdee Pi Mai Krup, or Happy New Year!

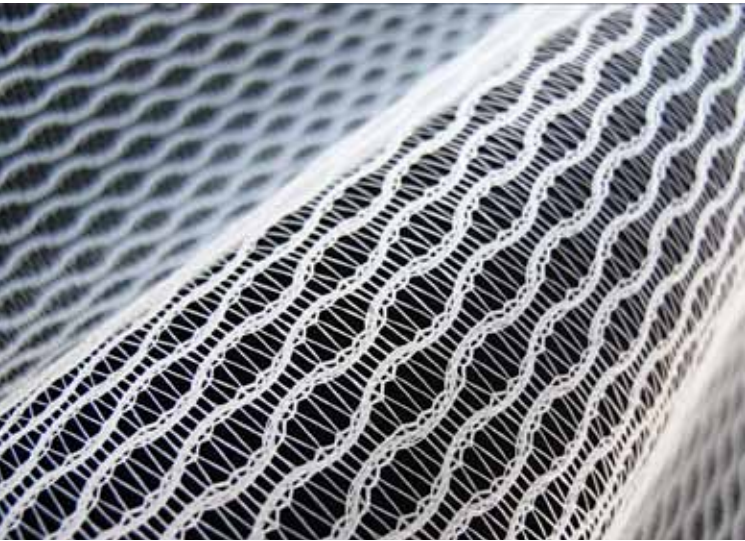
Sincerely,  
**Mr. Aloke Lohia**  
Group CEO

### IVL Fiber Business Global Conference in Indonesia

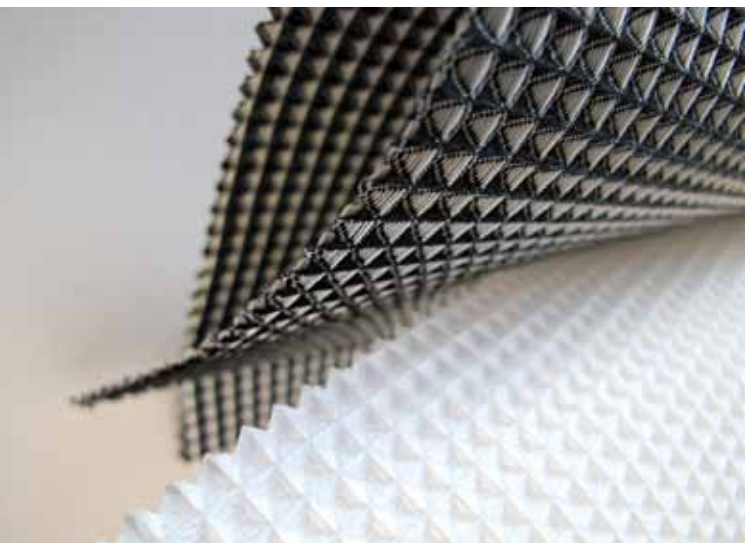




## Trevira's Hybrid fibres and yarns for bonding and stiffening



- New fine flat hybrid yarns with a stiffening effect are the basis of this Trevira CS warp-knit prototype fabric.



- Honeycomb-weave fabric development made from texturized Trevira CS hybrid yarns with stiffening effect.



- Stiffening of textile fabrics by using Trevira hybrid yarns with a low melt component.

Among Trevira's collection of yarn specialities, the range of bicomponent filament yarns meets the growing interest of manufacturers of technical materials and home textiles. Trevira NSK (low melt component) is modified polyester that is used to create hybrid yarns in combination with standard polyester, or with Trevira's flame retardant yarns.

The low melt component causes stiffening of the material, and in the process, the proportion of NSK in the fabric controls the degree of stiffness. At the finishing stage, this component causes the textile fabric to stiffen. It is not only possible to dye and print on the product, but also to pleat it or change its shape completely.

Alongside the design, the technical possibilities and the textile look, there are important economic and ecological reasons for the use of hybrid yarns. The textile material can be finished in a rational and energy-saving manner. The partial plasticization that occurs in the finishing stage can render a coating, like acrylate, superfluous. Products made of these yarns constitute a single-material substitute for technical textiles, since the end products are 100% polyester that can be recycled without difficulty.

Special applications include as a stiffening agent in combination materials for the automotive industry, snowboards, windmill vanes, filtration engineering, refrigerator counters and storage space covers. Many further applications are feasible.

Where Trevira CS comes in as the second component, the resultant hybrid yarn is permanently flame retardant. Until now, such special flame retardant yarns have largely figured in interior sun protection applications (sliding panels, roller and vertical blinds), as well as in room dividers and wall coverings. With the stiffening, the article gains in stability and hangs better in flat panels than conventional materials. Further uses for these yarns include soundproofing and air conditioning systems (textile hoses).

For a number of years now interior solar shading has been an important element in development work. Nowadays, fibre and filament yarns in the product programme with a melt fibre component have a place in this market segment. The range is now being supplemented in the filament sector by finer yarn titres. On the one hand, this involves finer textured variants, but also, for the first time, a flat yarn. This latter addition enables completely new fabrics to be created, especially those with a particularly clean effect. In the interior sunscreen sector, these textureless qualities are frequently sought after.

Melt fibre yarns were previously used mainly in weaving, but the finer titres also offer opportunities for stiffened fabrics based on knitted articles, both warp and weft. They open up fresh possibilities in the solar shading segment, not only in terms of design, but conceivably in new applications in the technical textiles field as well. These low melt yarns thus offer great potential for new developments in the future.

In addition, Trevira offers bicomponent staple fibres for thermal bonding, e.g. for insulation and filtration materials, in the automotive sector, hygiene textiles and construction materials. The range comprises the most varied raw material combinations of core-sheath systems: PET/PE, PET/Co-PET and PET/PBT. There are also plans for a PLA/PLA bico fibre that is currently at the development stage.

# IVL Today



Indorama Ventures issued its first debenture offering to the public in October 2011. The IVL debentures worth 7.5 billion Baht were issued with the objective of making debt repayment. The IVL debentures were issued domestically with Bualuang Securities acting as financial advisor and Bangkok Bank PCL and Standard Chartered Bank (Thai) PCL as joint-lead arrangers. The debenture issuance helped IVL mitigate its exposure to interest-rate risk in the long run as well as diversifying its sources of funding. IVL has been rated A+ by TRIS, a rating agency in Thailand.

In November, IVL acquired PT Indorama Polychemicals, a PTA producer formerly called Polyprima Karyesreska, in Indonesia. IVL will hold 41% with a local partner holding another 41% and other shareholders holding 18%. Currently, the plant is not operating and is expected to start commercial production in 2012 on completion of required maintenance, revamping and capacity de-bottlenecking. Upon de-bottlenecking the capacity will increase to 500,000 tonnes per annum.

In December 2011, IVL acquired Wellman International. Established in 1973 under the stewardship of Wellman Inc, USA, it has a capacity of 85,000 tonnes and is Europe's largest PSF operation. The company manufactures high quality polyester products from recycled raw

materials and is a pioneer in recycling. It is the most reputed bottle to fiber recycler with its own and unique technology. It is also Europe's largest PET recycler, processing more than 1.6 billion post-consumer PET bottles and containers annually. It has capacity of 153,000 tonnes per annum for rPET and rFibers. Wellman International has three production facilities, polyester fiber plant at Mullagh in Ireland and recycling plants at Spijk in the Netherlands and Verdun, in France.

We also acquired FiberVisions LLC in January 2012. FiberVisions is the world's largest producer of specialty polyolefin monocomponent (mono) and bicomponent (bico) staple fibers. Its facilities are located in key strategic locations in all of the world's major regions: the USA, Europe and China, giving us the ability to serve IVL's customers globally. FiberVisions is also the leader in developing, manufacturing and marketing polyolefin staple fibers for non-woven applications. FiberVisions uses proprietary technology and state-of-the-art manufacturing facilities to supply innovative products to customers in industries such as hygiene, textiles, automotive and construction. Typical applications of its products include diapers, wipes, feminine care, filtration, geosynthetics, building and construction, automotive, apparel and textiles and paper. The company also offers technical solutions to customers.

FiberVisions is the technology leader for bico fibers and specialty and differentiated mono fibers with core competence in nonwovens and the ability to leverage technologies across a range of products and market segments. It has global research and development capabilities and global manufacturing, sales, and customer support. In February 2012, we closed a deal to acquire a small packaging company in the UK called Beverage Plastics. Established at Craigavon, Northern Ireland, Beverage Plastics produces 500 million Preforms per annum, 180 million blown bottles, 850 million Closures and 425 million Closure Printing runs. IVL acquired a 51% stake and intends to use the facility to serve its customers in the UK.

IVL is also acquiring PT Polypet Karyapersada adjacent to IVL's joint venture PTA asset, PT Indorama Petrochemicals (formerly known as PT Polyprima Karyesreska) and therefore receives its PTA feedstock via pipeline. Polypet will provide IVL the opportunity to further consolidate its foothold in the expanding Indonesian PET market. It is located in Cilegon, West Java, Indonesia.



On September 14, 2011, representatives from Indorama Ventures PCL presented H.E. Yingluck Shinawatra, the Prime Minister of Thailand, with a donation of one million Baht for The Prime Minister's Office to use in aiding flood victims around Thailand. The picture shows H.E. Yingluck Shinawatra (right) receiving the donation from Ramesh Narsinghpura (center) and Mr. Ashok Upadhyaya (left) at government house in Bangkok.



Ms. Prapai Palakawong Na Ayuthaya a representative from Indorama Polyester Industries Public Co., Ltd. (Nakhon Pathom) received the Workplace Learning Award for 2010 from Mr. Phadernchai Sasomsub, Minister of Ministry of Labour on September 8, 2011 at Impact Convention Center, Muang Thong Thani, Nonthaburi Province.





Subsidiary of IVL are AsiaPet (Thailand) Limited, Indorama Holdings Ltd. and Indorama Petrochem received CSR-DIW Award 2011. Indorama Polyester Industries Plc. (Nakhon Pathom and Rayong) received CSR-DIW Continuous Award and CSR-DIW Network Award 2011. The Award Ceremony was on September 22, 2011.



Indorama Holdings Ltd. received the Provincial Safety Award 2011 organized by the Department of Labour Protection and Welfare, Ministry of Labour. The Award Ceremony was held on September 14, 2011 at Monnipa Seminar Centre, Holiday Hotel Lopburi presented by Mr. Kumnung Isaro, Deputy Governor of Lopburi Province.



Indorama Polyester Industries Public Co., Ltd. (Rayong) received the National Outstanding Industrial Establishment on Labor Relations and Welfare Award 2011 for the seventh consecutive year (2005-2011). The Award Ceremony was on September 14, 2011. In the picture Mr. Ashok Arora (left) and Ms. Sunanta Lornopparat (center) received the award from Mr. Padermchai Sasomsub, Minister of Labour.



Indorama Holdings Ltd. received the National Outstanding Industrial Establishment on Labor Relations and Welfare Award 2011 for the sixth consecutive year (2006-2011). The Award Ceremony was on September 14, 2011. In the picture Mr. Rajesh Banka (left) and Ms. Supeeraya Kumduang (center) received the award from Mr. Padermchai Sasomsub, Minister of Labour.



Indorama Polyester Industries Public Co., Ltd. (Nakhon Pathom) received The National Outstanding Industrial Establishment on Labor Relations and Welfare Award 2011 for the third consecutive year (2009-2011). The Award Ceremony was held on September 14, 2011. In the picture Mr. Ashok Mathur, Vice President Operations (left) and Mr. Ashok Upadhyaya-JVP Finance & Accounts (center) received the award from Mr. Somkiat Chayasriwong, Permanent Secretary of Ministry of Labour (right)



Indorama Petrochem received The National Outstanding Industrial Establishment on Labor Relations and Welfare Award 2011. The Award Ceremony was on September 14, 2011. In the picture Wijit Kamkom, Associate General Manager Public & Employee Relations (left) and Mr. Wasant Sangthong Assistant Instrument Manager (center) received the award from Mr. Somkiat Chayasriwong, Permanent Secretary of the Ministry of Labour (right).



TPT Petrochemicals Plc and Indorama Polyester Industries Public Co., Ltd. (Nakhon Pathom) received the award "Green Industry Level 3 - Green System" certificate on September 26, 2011. The award is presented to companies where the Environmental Management System has been systematically performed, monitored, and evaluated, reviewed for continuous improvement and where the company has received other well-known environmental awards and/or certificates for achieving other environmental standard. On this occasion, Mr. Satyanarayan Mohta (2<sup>nd</sup> left). and Ms. Prapai Palakawong Na Ayuthaya (3<sup>rd</sup> left) company's representatives received award from Dr. Witoon Simachokedee, Permanent Secretary of the Ministry of Industry.



On January 25, 2012 Mr. Alok Lohia joined the Thailand – India Business Forum, organized by the Thailand Board of Investment in India. The objective was for Thailand to enhance economic relations with India, which presents numerous opportunities for investors and enhances the potential of new markets.



Mr. Chanitr Charnchainarong, Executive Vice President - Issuer & Listing Division The Stock Exchange of Thailand visited Mr. Alok Lohia at IVL's offices on occasion of New Year 2012.



Ms. Prapai Palakawong Na Ayuthaya was granted an audience with HRH Crown Prince Vajiralongkorn to receive a gift for continuing commitment to help the poor and needy patients on Mahidol Day September 24, 2011.



On December 16, 2011 Orion Global Pet received a Gold Medal for its product-Ramapet R1L from the Chairperson of the Parliament of the Republic of Lithuania, Ms. Irena Degutiene (2<sup>nd</sup> left). The event was conducted at the Lithuanian Parliament attended by the fellow Industrialists and Members of Parliament amongst others. In the picture are Mr. Arunas Jonuka (1<sup>st</sup> left), Mr. J.K. Malik (2<sup>nd</sup> right), Mr. Gediminas Rainys President of Lithuanian Confederation of Industrialists (1<sup>st</sup> right).



### IVL Recognized as Economic Champion 2011

Auriga has been named an Economic Champion for 2011 at an awards luncheon held by the Spartanburg Area Chamber of Commerce on November 11, 2011. Auriga was one of only 10 outstanding companies whose confidence and collective investments are providing a healthy economic climate for upstate South Carolina. Attending the awards luncheon was Bryan Moore (1<sup>st</sup> left), Business Development and Technical Director, Tammi Harrison (2<sup>nd</sup> left), Human Resources Manager, Prabhushankar Srinivasan (2<sup>nd</sup> right), Senior Vice President and Operations Head for North America and Juan Flores (1<sup>st</sup> right), Vice President of Operations.



H.E. Prime Minister Yingluck Shinawatra and Mrs. Suchitra Lohia share a few moments at the Foreign Correspondent's Club of Thailand dinner following the Prime Minister's speech. Mrs. Lohia donated money on behalf of Indorama Ventures to assist the Club provide money to schools affected by the floods last year.





# Improving the PET Oxygen Barrier



**Research** and Development (R&D) continually looks for projects that are designed to help increase the share of PET used in consumer packaging. Any performance deficiencies of PET compared to competitive packaging materials, whether glass, metal, or other plastics, represent opportunities to reduce the deficiencies of PET and thereby expand PET's share of the large and growing consumer packaging market.

One prime example of a performance deficiency of PET is its relatively high rate of permeation of gases such as oxygen and carbon dioxide as compared to glass. Glass is a popular material for packaging oxygen sensitive foods and beverages due to its ability to essentially eliminate the permeation of oxygen which can cause spoilage, off-tastes, and odors. PET has a relatively low rate of oxygen permeation when compared to other commonly used plastics, but it is inferior to glass. Thus, it has been a focus of R&D for many years to improve the "barrier" that PET provides against the permeation of oxygen, in hopes of taking market share from glass in the packaging of oxygen sensitive foods and beverages such as fruit juice, wine, ready to drink tea, vitamin and nutritional supplements, delicate meats, and flavored waters.

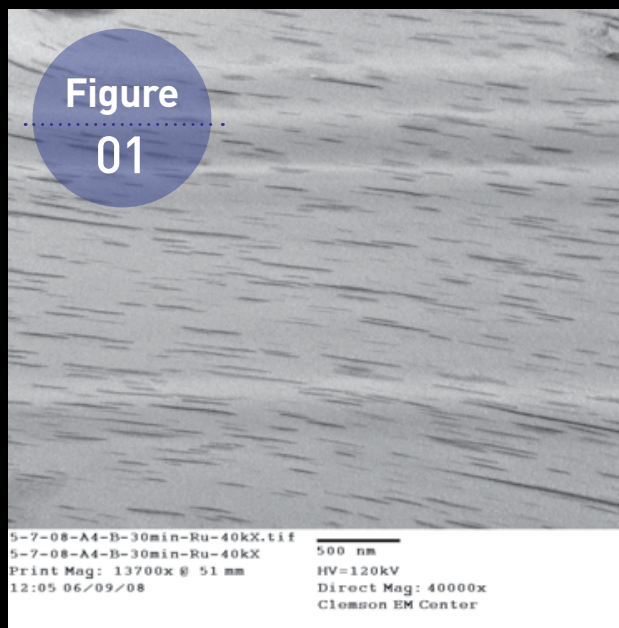
Technologies have been developed in an attempt to improve the barrier of PET to oxygen. For example, preform and bottle coatings provide additional protection against oxygen ingress. Very thin layers of glass or carbon have been applied to the interior of bottles in a vapor deposition process, yet such technologies are capital intensive, decrease rates of bottle production, and can be prone to failure due to cracks or "pinholes" in the coating. Another

technology developed to improve the oxygen barrier of PET is the multilayer bottle containing layers of PET and one or more additional materials that have a higher natural barrier to oxygen permeation. One commonly used material is aromatic nylon, particularly MXD6. Unfortunately, the production of multilayer bottles requires significant capital, involves more complex production processes, and the resulting bottles are prone to failure by delamination, or the separation of the various layers.

Perhaps the most elegant and effective way of providing additional barrier against oxygen is to blend a second polymer into PET that can provide an "active" barrier. This approach was first developed about two decades ago by researchers using MXD6 nylon. By blending relatively small amounts of MXD6 nylon (5% or less by weight) into PET and using a cobalt catalyst to increase the rate of MXD6 oxidation at room temperature, it was discovered that a PET bottle could essentially stop the permeation of oxygen for several months. Unfortunately, bottles made from these "monolayer" blends of MXD6 nylon in PET appeared "hazy" due to the chemical incompatibility between PET and nylon, which causes the nylon to separate in the PET, scattering light and making the bottle appear cloudy. About a decade later, British Petroleum researchers developed an oxygen barrier polymer that was slightly more compatible with PET compared to MXD6 nylon. This material, commercially known as AMOSORB, has a relatively low capacity for absorbing oxygen, requiring high levels in order to provide adequate shelf life.

What Auriga Polymers did to develop its own barrier technology.





**Figure 1:** Transmission Electron Microscopy (TEM) image of bottle sidewall containing 3% by weight of OxyClear<sup>®</sup> Resin oxygen barrier polymer in PET. The dark platelets are OxyClear<sup>®</sup> Resin; the surrounding gray material is PET

**Figure 1** provides an electron microscope image of a bottle sidewall that contains 3% of the polymer prototype we call “BB-10”. This polymer is compatible with PET and produced platelets on the order of 100s of nanometers (1 nanometer is one billionth of a meter).

Just as importantly, we wanted to provide for a long shelf life while using the least amount of the barrier as possible. Progress was measured by using specialized equipment designed to measure the rate of oxygen entering into a controlled atmosphere; in this case, the atmosphere inside a PET bottle.

The equipment used is based on the principle of the thermal conductivity of gasses, using a sensitive thermal conductivity cell to precisely measure the amount of oxygen in a sample of a gas. First, the bottle is sealed and the inside flushed with dry nitrogen for several hours ensuring all oxygen is removed. The instrument periodically draws in a sample of the interior atmosphere of the bottle into the thermal conductivity cell. The thermal conductivity measurement is converted into cubic centimeters (cc) of oxygen entering the package per day. This measurement is known as the Oxygen Transmission Rate (OTR). Once the OTR for the package is determined, this data can be converted directly to concentration of oxygen in parts per million (ppm) entering the package over a period of days or even months. The time to achieve a certain ppm of oxygen in the package determines the shelf life of the package for a given application. For example, orange juice typically can tolerate 5 ppm of oxygen, while beer can tolerate only 1 ppm.

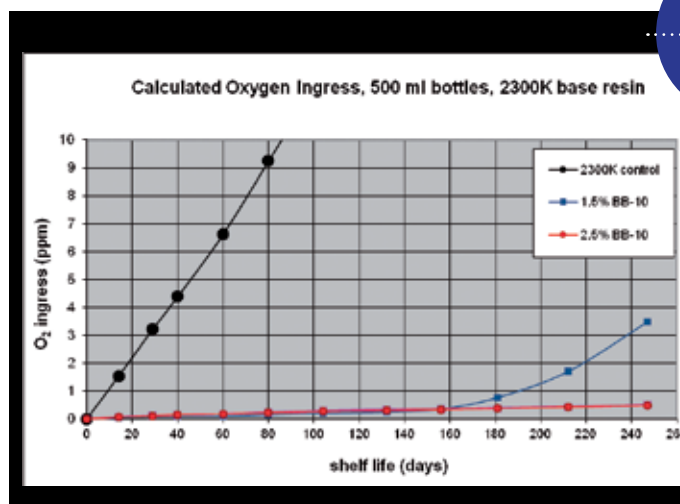
In light of the deficiencies in previous technologies to create an oxygen barrier in PET, Auriga Polymers R&D Labs set out five years ago to develop a superior oxygen barrier polymer for monolayer blends. The goal was to produce an oxygen barrier more chemically compatible with PET, reduce bottle haze and increase the ability of the barrier to absorb oxygen, thereby improving the shelf life of PET packaging.

In order to minimize bottle haze and improve clarity, the desire was to create small areas of oxygen barrier material in the PET preforms. When the preforms are stretched into bottles during blow molding, the barrier material is stretched into long, narrow “platelets”. The more chemically compatible the oxygen barrier polymer is with PET, the smaller the resulting platelets in the bottle wall. Importantly, smaller platelets scatter less light so they result in a package that is more clear and attractive.

**Figure 2** illustrates the shelf life information generated by our experiments. The concentration of oxygen is given in ppm vs. time in days for a series of 500 ml bottles. As you can see, the concentration of oxygen increases much more rapidly in the ordinary PET bottle without our barrier polymer. The bottles with the barrier achieve a much slower rate of increase in oxygen concentration, leading to a significantly longer shelf life. Consider fresh orange juice with a limit of 5 ppm of allowable oxygen: an ordinary PET bottle would reach its shelf life in 60 days or less. The bottle that contains our BB-10 barrier shows less than 1 ppm of oxygen even after 6 months. This increase in shelf life allows brand owners to be confident that the product will remain fresh until sold.

Auriga Polymers has successfully commercialized the BB-10 oxygen barrier polymer as OxyClear<sup>®</sup> Resin. Meanwhile, our team is busy working to improve bottle clarity, shelf life, and reduce any negative impact of the technology on the PET recycle stream.

What ideas do you have for increasing PET’s share of the consumer packaging materials market? Do you see limitations that could be addressed to increase the use of PET? Please share your ideas!



**Figure 02**

**Figure 2:** Calculated oxygen concentration in ppm as a function of time for a series of 500ml bottles with no oxygen barrier polymer (2300K control) and for the same bottle with 1.5%, 2.0%, and 2.5% by weight of added oxygen barrier polymer “BB-10”

# IVL Activities



IVL companies, in cooperation with Bangkok Breast Cancer Support Group (BBCs), held a "Breast Cancer Training Session" for female employees and the wives of staff. The session helped to raise awareness of breast cancer and gave basic instruction on how to conduct self-examination. Nurses from a local hospital also attended. Every participant was also examined by a nurse. Indorama Ventures donated 55,000 Baht to assist BBCs purchase of a fusion pump.



The "Utility Team," a QCC team from Indorama Polyester Industries (Nakhon Pathom) won the QCC outstanding award for 2011 from The Association of QC Headquarters of Thailand No. 25 under the Ministry of Industry. The team will represent Thailand and present their project at ICQCC'11 at Yokohama, Japan.



Mr. Ashok Arora and Mr. Somdech Chaisurin, representing IPI-R, gave 5,000 Baht to Ms. Aummarin Puakrod, an employee who got affected by the flooding in 2011.

Indorama Polyester Industries Pcl (Rayong) held "IPI Safety and Environment Day 2011". The objective is to help employee to be aware of the safety in the workplace and the environmental preservation. There were also games to provide knowledge and entertain employees.



On September 10, 2011, Indorama Petrochem Ltd, together with company cooperative, held free lunch and games for multi-disabled children at Punyanukul School. Mr. Gupta and staff also joined the activity.



Indorama Polyester Industries Pcl (Nakhon Pathom) cooperated with Nakhon Pathom's Labour Protection and Welfare Organization to set up an Anti Drug Center to protect and tackle drug problems in the workplace.

The Center will provide knowledge about and create awareness of drug problems for which all parties must work together to solve.



Bangkok, Thailand - Representing Indorama Ventures PCL. Mr. Satyanarayan Mohta (1st left) Chief Operating Officer of Indorama Ventures joined a farewell dinner for H.E. Shri Pinak Ranjan Chakravarty (center) The Ambassador of India to Thailand on September 8, 2011. The farewell was arranged by the Thai Chamber of Commerce and India Thai Business Association.





On September 17, 2011, TPT Petrochemicals Plc volunteer staff joined the "International Coastal Clean-up Day" to help clean and collect garbage at Mae Rum Pueng Beach.



Indorama Petrochem employees and families joined a CSR activity to release baby turtles and plant mangroves to conserve the environment on the occasion of Her Majesty Queen Sirikit's birthday at the Air and Coastal Defense Command, Sattahip Naval Base, Chonburi Province.



To encourage employees to want to have better health, Indorama Petrochem held the "Be Healthy Be Happy program" This activity was held for three months and employees who lost the most weight each month received a reward of 1,000 Baht. 20 employees joining this activity and the winner in August was Mr. Vira Chansrila from the Mechanical Engineering Department (in the picture) who lost 4.8 kg (6.53% of his original weight).



Mrs. Suchitra Lohia (3<sup>rd</sup> left) and executives donated food and other necessities to over 1,500 people including employees and villagers whose homes were affected by the flood during the visit to Lopburi on October 20, 2011. The donation included life jackets and funds to help those who were suffering.



On October 10, 2011, Mr. Sunil Fotedar (3<sup>rd</sup> left) CMO of TPT Petrochemicals Plc., part of Indorama Ventures, donated 2,000 urea bags to Lieutenant Commander Phairoj Piriyaprapakul (3<sup>rd</sup> right), Fleet Operations Office, in order to use them as water barriers for flood victims.



A traditional OGP Summer Fest was held by Orion Global Pet for all employees and their families on July 2, 2011. There were sports and games and a picnic. Activities were under the theme of the "Middle Ages".





On October 16, 2011, IRPL, led by Mr. P.C. Gupta, and TPT, led by Mr. Sunil Fotedar, together with employees and families, packed 5,000 disaster relief bags and donated items to help flood victims at the Royal Thai Naval Air Division, Ban Chang, Rayong Province. The management, employees, families, and other volunteers reached a target of making 5,000 disaster relief bags ready to be transported by the navy to flood victims in many provinces.



On August 20, 2011, H.E. Ambassador of Thailand Mr. Piyawat Niyomrerk (3<sup>rd</sup> from left) visited the OGP plant and planted trees with management.



On December 9, 2011, 125 employees and their spouses traditionally gathered to celebrate the successful end of 2011 and Christmas. The evening program was performed by the show manager at the Klaipeda Amberton hotel restaurant. Everyone enjoyed the party. In the picture OGP employees are seen dancing together with the famous Lithuanian singer, Mr. Rytis Cicinas.



TPT Petrochemicals Public Company Limited, a subsidiary of IVL, recently played a central role in reducing waste in the community. As much as 11,118 kilograms of waste generated income of around 40,012 Baht for the students and villagers.



Indorama Polyester Industries (Rayong) donated water filter equipment under the project "Drinking Water to Students in Ban Map Ta Phut School" at Map Ta Phut Village School, Tambon Map Ta Phut, Amphur Muang, Rayong.





OGP team group picture made on the celebration of the five-year anniversary of the plant start up.



The PET group at Lopburi contributed 10 scholarships to employee's children as financial support to outstanding students. In the same day, they gave awards and certificates to five employees who have worked for the company for more than 10 years, on March 10, 2012.



Indorama Ventures Polymers Mexico held a retirement ceremony in recognition of employees and on this occasion also invited employee's wives to join the event. In the picture Mr. Pedro Niljera and his wife (4<sup>th</sup> and 3<sup>rd</sup> from right).



UAB Orion Global Pet arranged a "Motivation" training class to develop managers and upper level employees to refresh their knowledge and motivate themselves and their subordinates.



On February 23, 2012 PT Indorama Ventures Indonesia arranged the "IVI Safety Awareness for Zero Accidents" and gave awards to 79 employees from HR, SHE, and GA departments to promote and achieve a safe work place.



The Safety and Environment at Work Development Association took participants to visit Aurus Speciality Co. Ltd (a sister company owned by Mr. Lohia) to study and participate in a basic training program called "The control of the boiler" on March 10, 2012

Mr. Somwong Pakchai, Utility Manager and representative of Aurus Speciality Co. Ltd., welcomed the Safety and Environment at Work Development Association.





## ART IMAGINE

### Dear Readers,

We have returned while the weather this season seems a bit hot and humid (in Thailand). We would like to show you some lovely drawings-paintings by our little artists as usual.

This time we went to arrange our "Art Imagine" activity at Ban Nong Fab School, not far from our PTA Plant in Rayong. The painting contest on the theme "Environmental Conservation" that day was fun and full of happy smiling faces, both students and teachers, all afternoon.

It was very difficult to decide who would be the winner because there were so many beautiful pictures. Finally, we selected the winner as shown in the picture. Congratulations to all runners-up who received awards! For anyone who did not get an award, just practice more and more. Our team will never forget to bring you good snacks and milk. After the competition, everyone seemed to be happy and full.

**Address of Ban Nong Fab School-Pakornsongkrohras Road,  
Map Ta Phut, Muang, Rayong 21150**

**1<sup>st</sup> Prize : Mr. Nopparat Tuancha-em**  
Front, 4<sup>th</sup> from left.



**2<sup>nd</sup> Prize : Ms. Kantaporn Duanjam**  
Back, 3<sup>rd</sup> from left.



**3<sup>rd</sup> Prize : Mr. Peerapat Jaranai**  
Front, 3<sup>rd</sup> from right.





(Part 1)

# BRAND as a Tool to Increase Customer Loyalty (and get more sales)

## Part 1

### Ending Brand Confusion

As we have really started to acquire many companies in 2011, and 2012 may well be another continuation along the same trend, we might take time here to understand why branding has become an increasingly important issue. As a fast-growing commodities producer, branding was perhaps not at the forefront of people's minds in the early days, although branding was happening without us realizing it.

Branding is really just the continued practice of creating a unique presence in the mind of customers and differentiating ourselves in order to attract loyal customers, so we can say that our customer service has been building the brand since day one. Every time we make customers happy – with good quality products delivered on time and meeting their needs – then we are building our “brand.” However, as our business moves into relatively new, innovative, areas where the brand name becomes more important, we need to concentrate on creating this universally-known brand that tells not just our customers but anyone who knows our name, that Indorama Ventures is somehow different, a little bit more special, more unique in what we do and how we do it.

There is always a lot of emotion about building a brand. Brand builders will always interview a selection of stakeholders (usually staff, management, suppliers and customers) and ask about how they “feel” about the company before devising the type of brand to be created and promoted. A brand is built by capitalizing on the emotion that comes when we think of the name.

We have four major business lines: PET, Fibers and Yarns (including wool) PTA and MEG. PET, our original business line, was grown for many years under the Indorama Polymers (IRP) brand. Many would say that the Indorama Polymers brand has been built very successfully and should not now be touched. However, IRP is just one part of the Indorama Ventures group – IVL is certainly a lot larger than IRP. So, how should we go about branding IVL?

The risk we take by not establishing one clear and unique brand is customer confusion – if they hear Indorama Ventures is the world's largest Polyester Value Chain producer, will they ask who, then, are IRP, TPT, Auriga and Orion Global? Are they small manufacturers to be avoided? The problem we face is compounded as we acquire businesses that are, frankly, better branded. The large global petrochemical companies invariably use only one name everywhere. The question we have to ask ourselves is, why not build our own, global brand; one that we make as famous as the great names of the chemical industry? If this is a good idea then we need one, all-inclusive name that everyone recognizes and feels happy about.

To create a successful brand we need to be consistent. Many may find being consistent – doing everything in a certain manner all the time – boring and not very creative. People want to see themselves as unique, slightly different, even better than others. But then, there are examples of masses of people who enjoy being branded as equally great and are proud that they have a respected group identity.

Think of the British football club Manchester United. Probably the world's most successful sports brand, each week thousands of individuals turn up to watch them play and become part of the brand, the famous Red Army. These fans don't feel their identity is being subsumed by Man U – they feel proud to be a part of such a successful organization. None of them say “I am part of seating zone A so I am different from seating zone B” but they do say “I am part of Man U.” From the Chairman of the Board to the manager, the team and the fans, all are proud of what they have achieved and the high standards they have set to become the envy of the sports world. Their creativity comes from being part of the success – they sing, chant and feel they played a part in scoring the crucial goal that won the match.

In the next issue, Part 2: It isn't the logo, but what the logo represents.

# How IPI Achieved ISO 50001



**ISO 50001** : 2011, Energy management systems, is a voluntary International Standard developed by International Organization for Standardization (ISO).

ISO 50001 gives organizations the requirements for energy management systems (EnMS). ISO 50001 will establish a framework for industrial plants; commercial, institutional, and governmental facilities; and entire organizations to manage energy. ISO 50001 will help organizations to improve their energy performance, increase energy efficiency and reduce climate change impacts.

**The standard is intended to accomplish the following:**

- Assist organizations in making better use of their existing energy-consuming assets.
- Create transparency and facilitate communication on the management of energy resources.
- Promote energy management best practices and reinforce good energy management behaviours.
- Assist facilities in evaluating and prioritizing the implementation of new energy-efficient technologies.
- Provide a framework for promoting energy efficiency throughout the supply chain.
- Facilitate energy management improvements for greenhouse gas emission reduction projects.
- Allow integration with other organizational management systems such as environmental, and health and safety.

Indorama Polyester Industries Pcl. (Rayong) has successfully achieved ISO 50001 last year, November 2011. (The first manufacturing company in Thailand to get this certification) This achievement could not be done without full support from top executives. First of all,

# ISO 50001

they have to set the policy and the working committee and also announced the Energy Conservation Policy to allow every party in the organization to take responsibility. Set up the Internal Auditor team to be responsible for auditing how the energy conservation has been performed within the organization. After that the consultant company (MITR) would train our staff and provide consultation according to the plan of Thai Industrial Standard Institute (TISI ), Ministry of Industry, commencing from signing ceremony on Monday October 11, 2010 to join the project. Working team from IPI-Rayong had attended the training and counseling under this project and supporting by TISI during January-July 2011.

**The complete process consisted of following steps:**

1. Set up a working team.
2. Evaluate /Assess primary Energy Management situation.
3. Announce the Energy Management Policy.
4. Evaluate the potential for energy conservation.
5. Set target and energy conservation plan including training plan for those involved.
6. Operate as planned and analyze of the target.
7. Internal audit and repeat the evaluation of all management system again.
8. Review by top management.

Other than that, IPI has done a lot more on energy management such as improved internal use equipments to have higher efficiency and consume less energy.

When all improvements and documentation had been completed, application for certification was made to DNV and they sent a specialist from India to do the assessment for certification, which divided into two parts:



## 1.

Two days for documentation assessment (September 29-30, 2011)

## 2.

Actual audit followed each requirement for 5 days during October 3-7, 2011

### Certificate

IPI representative received the award from Mr. Chaibong Kritpholchai (2<sup>nd</sup> from left), Secretary General of Thai Industrial Standard Institute (TISI), on 21 November 2011.







# Innovative Ways to Reuse and Recycle PET

Besides disposing of waste in a responsible manner, PET can also be turned into useful or beautiful objects. Here are some examples of objects that can be made at home very easily using basic tools.

## Bottle Plant Pot

How to make it.....

Step 1



Cut the top part of the PET bottle and remove the cap.

Step 2



A) Take the end of the cloth and pass it through the neck of the bottle.



B) Place this part of the bottle with the cloth facing down in the bottom half of the bottle.

C) Pour some water inside.



Step 3



A) Take some soil and put it on the top.

B) Take the plant and put it into the soil and it's all done.

## Create a Trendy "PET Bottle Lamp" from Waste Plastic Bottles



How to make it.....

Step 1

Cut the bottoms of 12 bottles, about 3 inches from the base.

Step 2

Then make a hole in the middle of a cut-off bottle.

Step 3

Make a lamp body by attaching the bottle parts together, using rivets.

Step 4

Insert the light bulb in the middle of the lamp, then connect it with the socket and it's all done!

You must have.....

- 1 pair of scissors
- 12 PET bottle bottoms
- Rivets
- 1 light bulb
- 1 Light bulb socket
- 1 Manual riveter





# Sardinia

## Sardinia

### home of IVL's plant in Ottana

In 2010, Ottana Polimeri joined our IVL family in a joint venture with PCH Holding S.R.L. At the time, several people were a little surprised that there was any large industry on the Italian island of Sardinia as it is more famous to the world as a tourist island. Sardinia is actually the second-largest island in the Mediterranean Sea (after Sicily and before Cyprus), 100 km from the mainland, and is one of the most ancient bodies of land in Europe, with human visitation dating back to around 6,000 BC.

In 238 BC Sardinia became a Roman province but by 1479, as a result of the marriage of Ferdinand II of Aragon and Isabel of Castile, the "Kingdom of Sardinia" became Spanish then in 1708, passed into the hands of the Austrians. By 1861 Sardinia joined the newly founded Kingdom of Italy.

The Sardinian railway system was developed in the 19th century by an English engineer and today the island is connected by two different railway operators making it relatively easy to travel. Cagliari, the capital, is an ancient city with a long history, it was the capital of the Kingdom of Sardinia from 1324 to 1720 and from 1798 to 1815. The old part of the city, at the top of a hill, provides a view of the Gulf of Cagliari. Most of its city walls are intact, and feature the two 13th century white limestone towers, St. Pancras Tower and the Elephant Tower. Near the Cathedral is the palace of the Provincial Government. In Castello is the large Sardinian Archaeological Museum. Cagliari has one of the longest beaches in Italy stretching for 13 km.

Popular with tourists is Porto Torres, at the North of the island, thought to have been founded by Julius Caesar. Oristano to the West has the old churches of St. Francis of Assisi, Saint Sebastian and Saint Dominic that are

worth seeing. Sassari, the second largest city, has Monte d'Accoddi: a unique prehistoric monument with a step pyramid construction. Corso Vittorio Emanuele is the main street of the medieval town, surrounded by interesting buildings of different ages. Su Nuraxi, an archaeological site at Barumini is a UNESCO World Heritage Site dating back to around the 16th century BC.

The island has 1,213,250 hectares of woods, more than any other Italian region. For nature tourists, Sardinia has a wide variety of native animals, including the Sardinian Long-eared Bat, the Sardinian Deer and the Sardinian fox. Sardinia has some birds found nowhere else in the world: its own Great Spotted Woodpecker, Great Tit, Chaffinch, and Eurasian Jay.

Football fans will be interested to learn that Sardinia is the birthplace of Gianfranco Zola, OBE, who was manager of West Ham United from 2008 to 2010. He spent the first decade of his career playing in Italy, most notably with Napoli, alongside Diego Maradona and Careca, and at Parma, before moving to English side Chelsea, where he was voted Chelsea's greatest ever player.







# Thai Flood

Thailand had a major flood disaster in 2011. Employees of TPT Petrochemicals Company, a subsidiary of Indorama Ventures Pcl., donated money to buy some necessities and food to help affected people; they also designed a floating raft by using scrap from the plant site, such as empty chemical drums, wood scrap from packaging and steel bars. First of all, they had to clean those empty plastic drums and hold them together with a steel frame and wood then covered the floor with canvas. Some TPT engineers brainstormed the best design to prevent any problem that might occur. The complete raft had been tested by the working team at TPT's fishing pond then transported to Sainoi, Bang Bua Thong district, Nonthaburi Province, where the people had to travel by boat during the inundation. So the float donated to the people there was very useful for women, children and elderly people who needed to travel a short distance or carry some consumable stuff.

TPT employees also realized that the people who lived in the flooded areas had difficulty using toilets so they come up with the design and construction of mobile toilets. The team started to survey what was available at the plant site, such as empty plastic drums and steel bars for the toilet structure and their friends donated some money to buy sanitary wares, doors, roofs and corrugated iron for the toilet walls. At the TPT workshop the team welded the steel structure and fastened together plastic drums to make it float. The toilets were divided for men and women. All parts were then transported to Sainoi, Bang Bua Thong. TPT volunteers went along to install the parts securely together, especially the doors and roofs, before handing them over to the Yamalud Deen Mosque community, Bang Bua Thong district, which remained flooded for more than two months.

TPT employees were both happy and proud to help people who were in trouble. These activities could become part of the company's CSR activities in the future, to relieve people's suffering and return something to the society.

In the last picture, you can see the boys' happy faces, eating sticky rice and grilled pork, cooked by our TPT family.



## Indorama Ventures Employees Builds a Raft and Toilet for Flood Victims







## The clear choice for lasting flavor.

OxyClear<sup>®</sup> barrier resin is being developed to protect oxygen-sensitive foods and beverages, providing shelf life up to 12 months in a crystal-clear container