



1 April 2013 - 31 March 2014

**Domsjö Fabriker**

# Sustainability Report



## We have a lot of things coming up

Much has happened at Domsjö Fabriker over the past year and there is still more to come. The basis of our operations is to produce more products of the tree, as stated in our logo. The more we produce of our present products of the right quality, the more new products we can make from the tree and from our residual waste streams the better our financial results will be. A healthy Domsjö can undertake more continuous reduction of our environmental impact and continue to be a good member of society in the region. It is therefore pleasing to realize that we have set several production records for our various products during this fiscal year.

The overall demand for specialty cellulose has been good but overcapacity of dissolving cellulose on the market has put prices under severe pressure. In a situation like this, it is of great importance that our other products, lignin and ethanol, can contribute to our financial results such that our manufacturing cost is kept competitive and enables us to maintain our market position as a high quality supplier of specialty cellulose.

In our development activities, we are participating in several different and exciting collaborations which in a few years' time are expected to result in new sustainable products from our biorefinery. It takes time for an idea to be developed into industrial production and to be successful, extensive collaboration is needed with both institutes of higher education and other companies. We are, for this reason, active participants in several such networks.

We are aware that our activities has an impact on our environment in various ways and we therefore continuously work on minimizing their impact. One action that we have undertaken to reduce our environmental impact is to close the aerobic part of our bio treatment plant until further notice. This was done in order to minimize the contribution of Legionella bacteria that was growing in our aerobic reactors and were subsequently brought into the bay of Örnsköldsvik.

We have the responsibility to take care of our environment and to ensure our surrounding society that can rely on that we are acting accordingly. To produce and publish this environmental report is a part of our ambition to establish transparency concerning our environmental situation.

Our fiscal year runs from 1 April until 31 March of the following year, so the figures in this report relate to the year 1 April 2013 to 31 March 2014. I hope you find this report informative. If you have any questions, please do not hesitate to contact us.

Lars Winter  
CEO, Domsjö Fabriker



# Domsjö Fabriker, one of the world's few biorefineries

For more than a decade now, Domsjö Fabriker has been one of the world's few biorefineries. For us, the word 'biorefinery' means that we bring forest resources into the factory in the form of roundwood and use the wood to produce specialty cellulose, lignin, bioethanol, biogas, bio-resin, carbon dioxide, etc. In many cases, our products replace other products that are made from oil, a raw material that is not renewable. As one of the first biorefineries in the world, we have paved the way for other companies that are now also beginning to produce various green products, primarily various forms of bioenergy but also specialty cellulose, from forest resources.

## You meet our products in your everyday life

Our customers use our specialty cellulose to make clothes from viscose material, pharmaceutical tablets, sausage casings, thickening agents for paint and food, etc. Our lignin products are used as additives in concrete to give it better properties and in animal fodder pellets while bioethanol is largely made into green chemicals. Bioethanol is also used as a refrigerant in heat pumps. And it's all based originally on spruce and pine trees that, in contrast to oil, are renewable resources.

Our customers may be found virtually all over the world, with the largest proportion actually being in Asia, where about 80 per cent of our specialty cellulose is bought to be used make viscose textiles. In environmental terms, viscose has a major advantage over cotton, as growing cotton usually involves large volumes of pesticides and requires artificial irrigation, which is not needed in our forests. As the earth's population continues to grow, viscose is becoming an increasingly important material to satisfy people's clothing needs. The majority of our forest resources come from Sweden, most of the rest being imported from the Baltic States.

## Development of exciting products for the future

New products are under constant development in our various product areas, with

everything from further developing the processes to finding new applications. To enable us to stay at the forefront of development, we have for a few years now had our own innovation unit: DomInnova. We also have a wide-ranging development partnership with companies and institutes of higher education within the biorefinery cluster that is led by SP Processum.

When Domsjö's specialty cellulose customers make viscose thread, they often mix a couple of different viscose qualities together. During the year, Domsjö has developed expertise to help customers optimise their viscose processes. This will allow them to attain a better processability while at the same time making quality more uniform and reducing the use of chemicals.

Lignin is another area of development and Domsjö has here secured its first patent for many years. The patent is for the process of developing a new lignin product.

Several future-oriented projects are under way to find new products. Together with SP Processum, we are running a project, which has successfully reached demonstration scale, whereby a protein for use in fish fodder is produced. Fish fodder containing protein from Domsjö has been fed to fish in Iceland and the results showed that farmed fish grew at the same rate or even faster compared to fodder based on fodder fish.

Domsjö's bio treatment plant is one of the largest producers of biogas in Sweden and the biogas produced at the plant is partly used to dry our lignin products. In order to make better use of our surplus of biogas, attempts have been made during the year together with different partners to find a use for the gas as vehicle fuel in the local area.

## Biorefinery partnerships

Through this partnership and its offshoots, both in Sweden and in other countries, we benefit from and share experiences with our partners in the field of biorefineries. We are convinced that this will enable us to develop new products and identify new product opportunities more quickly in what has so far been treated as waste or, at best, as energy.

# Material balance

## Raw materials

- Timber 1.2 million m<sup>3</sup>sub
- Chemicals
  - Sodium hydroxide 31,300 tonnes
  - Hydrogen peroxide 11,700 tonnes
  - Sulphur 5,400 tonnes

## Thermal energy

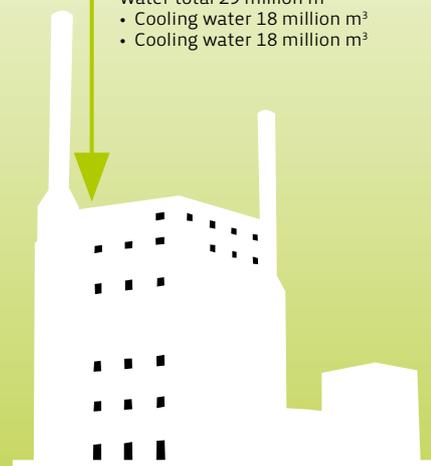
- Total 1,270 GWh
- Recovered liquors 1,190 GWh
- Biofuels 30 GWh
- Sulphur 40 GWh
- Oil 10 GWh

## Electrical energy

- Total 240 GWh

## Water

- Water total 29 million m<sup>3</sup>
- Cooling water 18 million m<sup>3</sup>
- Cooling water 18 million m<sup>3</sup>



## Production

- Specialty cellulose 195,000 tonnes
- Bioethanol 15,000 tonnes
- Lignin 80,000 tonnes
- Biogas 11,000 tonnes
- Bio-resin 6,000 tonnes

## Emissions to water

- COD 14,000 tonnes
- Suspended solids TSS 930 tonnes
- Nitrogen 230 tonnes
- Phosphorus 24 tonnes

## Emissions to air

- Sulphur dioxide 220 tonnes
- Nitrogen oxides 350 tonnes
- Dust 110 tonnes
- Carbon dioxide
  - Biogenic 50,000 tonnes
  - Fossil 2,000 tonnes

## Waste

- Utilised/recycled 4,800 tonnes
- Landfill 580 tonnes
- Hazardous waste 230 tonnes

The figures relate to 01/04/2013 until 31/03/2014



### Emissions to water and air

Water is drawn from the Moälven river and used in the process in many ways. Domsjö's water requirements correspond to around 7 per cent of the river's average water flow. The waste water from our process, as from the whole Domsjö Industrial Estate, is treated in several stages before being released into the Moälven river. Emissions to water consist primarily of oxygen-depleting substances, as well as suspended solids, nitrogen and phosphorus. Emissions to air consist mainly of sulphur dioxide, nitrogen oxides, dust and carbon dioxide.

### Withdrawal of environmental permit application

In September 2011, an environmental permit application was submitted to the Land and Environment Court concerning production of specialty cellulose, bioethanol, lignin and dimethyl ether (DME). Following the decision not to proceed with the plans for a gasification plant for DME, the prerequisites for the permit had changed and the application was withdrawn. Work has been going on during the year to adapt the application to our present situation with the aim of submitting a new application during 2014.

### Closure of the aerobic purification stage effective

As a consequence of problems with Legionella, which the Swedish Institute for Communicable Disease Control concluded in all probability originated from Domsjö's bio purification plant, the company applied to The County Administrative Board at the end of 2012 for permission to close the purification stage in question. The application was approved in the form of a prohibition to operate the aerobic stage. The consequence of this closure is partly an increase in emissions of oxygen-depleting substances (COD) into the Moälven river, and partly some problems with odour.

Tests on water from the Moälven river and Örnsköldsvik Bay (all the way out to Skommarhamn on Nötbolandet) show that levels of Legionella have fallen considerably following the closure and levels in water discharged from the bio purification plant are so low that they can not be measured. The odour problem has been reduced during the year, while the higher level of COD emissions remains.

Two information meetings were arranged in September to which 1,200 local households were invited, both to tell them what action had been taken and to answer questions about the factory and the environment. The odour was the main issue at both meetings. The acute problems with odour from the bio purification plant have been resolved and work is under way to reduce the odour from the factory.

### Emissions to the Moälven river to be reduced

During the spring a conference was arranged at Domsjö to discuss how emissions from the bio purification plant to the Moälven river can be reduced. Experts from Sweden, Finland, Holland, Canada and India took part. The conference resulted in an action plan with a number of check points. Waste water from all the factories on the estate is led to the bio purification plant and how each individual flow influences the purification effect has been analysed. This has resulted in a new operation strategy at the bio purification plant which has already led to an improvement. A study is currently being made to determine what further improvements can be made.

### Nitrous gases an area for improvement

Problems sometimes arise with emissions of nitrous gases, which appear as orange-coloured smoke. This occurs in connection with scrubbing in the vaporisation process when nitric acid and organic substances react with each other.

### Steam requirements

Most of Domsjö's steam requirements are met by firing liquor residues in the recovery boilers. The rest of the energy is produced by Övik Energi from the incineration of biofuels, bark, wood chips, bio-resin and biogas. During the year 1,167 GWh were consumed, 99.4 per cent of which was generated from various biofuels.

### The noise situation

A study of noise sources has been made, sound absorbers that do not work have been replaced and a few more have been installed. Domsjö now satisfies the 50 dBA night-time limit and work is continuing to further reduce noise levels.

# Environmental events during



# Health & Safety

## Fewer accidents but more zero injuries

Compared to the previous year we had fewer accidents but more zero injuries. Two serious accidents occurred. They have been investigated thoroughly and action has been taken to prevent them occurring again. Our goal is for all our employees and others working inside the industrial estate to feel safe at work. One important element of our work on safety is that even incidents that might cause accidents are reported and rectified.

## Absence due to illness

Total absence due to illness rose from 2.59 to 3.66 per cent during the period. It was unfortunately an increase in long-term sick leave that had a negative impact on the figures. To avoid long periods of sick leave we now work actively on early rehabilitation. The Health Index, i.e. the number of employees without a single day of sick leave during the year, was 54, slightly lower than the previous year.

## Health and wellness training an important part of well-being

The Domsjö Contest is a health and wellness initiative that means that participants exercise for half an hour a day and every month hand in a summary of their activities after which prizes are awarded. Domsjö employees have free access to Brux Exercise Centre and swimming workouts. All employees are offered a health check-up called a Domsjö Profile within five years where they are given advice on diet and exercise.

# Domsjö Fabriker in society

## Domsjö gradually employing new people

Domsjö plays an important role both directly and indirectly as one of the region's employers. A large number of employees will be retiring next year and new employees are gradually being hired to ensure that older employees' competence can be passed on in time. 88 new people have been hired over the three years from 2011 to 2013.

Around 400 people work at Domsjö Fabriker, 75 per cent of whom are employed under collective agreements and 25 per cent are white-collar workers. We are striving to increase the proportion of women, which today stands at 18 per cent.

## Trainees, work experience places and summer jobs

Domsjö actively supports Umeå University's Process Operator study programme. We will have a need to employ well-educated process operators for several years. This means among other things that we receive students to acquire work experience during the programme and offer a trainee year for graduates.

In order to help unemployed young people to get into the labour market, Domsjö has become involved in Swedbank's "Young Jobs" initiative. Three young people came to the company for three months to gain work experience through the initiative in 2013, thereby increasing their possibilities for employment or becoming interested in going on to further studies. During the same year, more than 50 young people were given holiday work or summer substitute jobs. Several education programmes include work experience placements and during the year we offered placements to both upper secondary school students and those studying Umeå University's Process Operator programme, as well as a number of other post-upper secondary courses.

## We actively support education

A large number of professions are represented at Domsjö, many of them with a technical orientation. It is therefore important that

today's school students take an interest in technical subjects in order that they can in future find work with us or with one of Örnsköldsvik's other companies that specialise in technology. We are involved in and support the municipal college of technology KomTek, Nature and Technology Days as well as The Forest in School activities. We also welcome both study visits and students on placements..

## Domsjö in the media

Domsjö makes relatively frequent appearances in the media, which is important for us when it comes to presenting our business and its importance, both within our own industry and within the local economy. We are therefore always open and accessible to the media, and of course also to the general public.

## Sponsorship

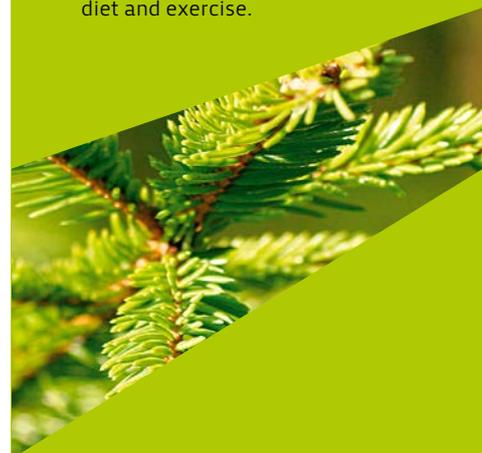
Domsjö's sponsorship aims to enhance the company's image as sustainable and innovative, with a high level of responsibility and social engagement. Sponsorship must benefit both Domsjö and whoever is being sponsored. During the year Domsjö has been the main sponsor of Örnsköldsvik Gymnastics Club. A number of local sports clubs are supported to a lesser extent, and there is some cultural and humanitarian sponsorship.

## Indian ambassador visited Domsjö

India's ambassador to Sweden, Mrs Banashri Bose Harrison, visited Domsjö in December (see the photograph above). She was given information about what we do and was taken on a guided tour of the factory. She was very interested in our operations and in learning more about Sweden.

## Education in values

Over the course of the year all our employees have received education in the values that apply in the Aditya Birla group. The significance of the values, Commitment, Passion, Seamlessness, Integrity, and Speed, was discussed alongside what they can mean in our day-to-day work.





# 110<sup>th</sup> 1903-2013 JUBILEE

## **Celebrated with a Family Day**

Domsjö celebrated its 110th jubilee with a Family Day in May. The theme was exercise and the programme contained activities for all ages; A short orienteering course with real punch stations was for example on offer for children (see the photo to the right). About 400 children and adults took part. A jubilee banquet was held for all employees in the evening.



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