

eureka

Issue 17

Autumn
2012

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THE MAGAZINE FOR THE MATERIALS HANDLING PROFESSIONAL

Sustainable logistics

Simple steps for cutting carbon emissions.



Avoiding surprises

An update on H&S regulation.



Warehouse safety

Much more than just a tick in a box.



Antarctic Adventure

Cat® Lift Trucks puts unique solar powered vehicle through its paces.



eureka issue 17



"It was Archimedes who observed that the power of levers could be used to move the entire world." This publication is named after his famous exclamation of 'eureka!', literally, 'I've found it.'



The magazine for the materials handling professional

Welcome to the Autumn 2012 edition of **eureka!**

With summer gone, now's the time to get back into the routine, but perhaps also to start thinking outside the box. In this issue, we bring you plenty of ideas to set that process in motion.

The imperative to go green has never been greater, and there is overwhelming evidence to show that significant carbon savings can be achieved in the logistics fleet. Top logistics company DHL shares how it's improving CO₂ efficiency by over 40% through capacity and route optimisation. Turn to **page 4** where *Gay Sutton* gives a roundup of this and other cost effective carbon saving ideas for smaller companies.

One of the dominant themes in this issue is health & safety. With many changes taking place across Europe, it's all too easy to inadvertently fall foul of 'red tape'. On **page 7**, *Ruari McCallion* reviews safety legislation over the past year. Continuing with the same theme, you can find the second part of our series on risk assessment and safety in the warehouse on **page 10**. Here, *Gay Sutton* reveals how some of Europe's best companies are continuously improving and honing their warehouse safety, and demonstrates the importance of positive reinforcement in managing the process.

Finally, on **page 12** *Gian Schiava* updates us on the preparations for Team Antarctica's epic trek to the South Pole on a unique solar powered 'green' vehicle. He takes us behind the scenes as the vehicle goes through its final tests at the Cat® Lift Trucks facilities in Finland and is put through its paces in the country's frozen landscape.

Tell us what you think of **eureka** - drop us a line via our website at www.eurekapub.eu or e-mail us at comment@eurekapub.eu.

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Issue 17 - Autumn 2012

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eureka's commissioning editor is Monica Escutia, a Bachelor of Communications – Journalism. She is a Spanish national and fluent also in Dutch, English and Italian. Having previously edited a variety of international media she has spent the last nine years in the materials handling industry – the first four as a parts sales representative for several European countries, before becoming the EAME Senior Marketing Communications Coordinator for Cat Lift Trucks, based in the Netherlands.

Don't forget to visit the **eureka** website www.eurekapub.eu where you have access to the archive of useful articles and features. You can also post comments and suggestions about the magazine and future articles you'd like to see covered.



Visit **eureka** online!



Sustainable logistics Fleet footed for sustainability

There are a whole range of cost effective initiatives for reducing the carbon footprint of the logistics operation, from capacity and route optimisation and collaborating to share backhaul routes, through to green driving techniques, low rolling resistance tyres, and installing aerodynamic streamlining.

Health & safety Avoiding surprises

Nothing stands still in the field of health & safety. Here, we provide an update of all the regulatory changes that have taken place over the past year, along with information and timings of transitional periods within which the changes have to be implemented.

Warehouse safety Making safe

The second of a two part series on safety in the warehouse reveals how to transform the risk assessment into a safer working environment. Harnessing the knowledge and experience of those on the shopfloor is essential, while using positive reinforcement avoids putting bad behaviour in mind.

Sustainability Mission Antarctica

As Team Antarctica prepares for its epic trek to the South Pole, the ground breaking solar powered vehicle is put through final tests at Cat Lift Trucks facilities in Finland. We follow the vehicle on its journey through the frozen Finnish landscape, and find out what the team and its supporters hope to achieve.

Events Calendar

Date, Event, Location, Website	Overview
18,19,20 September 2012 Post Expo 2012 Brussels, Belgium. www.postexpo.com/index.php	The International Exhibition and Conference for the World's Postal, Parcel and Courier Industry. POST-EXPO provides the most significant opportunity the postal, parcel and express industries have to debate current issues and form business relationships on a global scale. 2012 will be the 16th international conference and exhibition for postal technology, equipment, services and innovation. POST-EXPO is a world-class event that attracts over 3,500 attendees from the World's postal industry and related businesses, with at least 85 countries represented each year.
9 – 10 October 2012 Logistics Link North Doncaster, UK. http://north.logisticslink.co.uk	Northern England's leading logistics exhibition is back in a warehouse environment! Logistics Link North is back in Doncaster in a brand new warehouse venue, giving you an unmissable opportunity to test and compare some of the industry's most innovative products and services in a warehouse environment. The show is brimming with new ideas to help you cut costs and improve your operations and will give you the best opportunity to conduct an end-of-year efficiency audit for all your warehouse and logistics processes.
21-23 October 2012 Supply Chain World Europe Madrid, Spain. www.supplychainworld.org/europe	Join fellow supply chain professionals at Supply Chain World Europe in Madrid to learn, share and network with this year's top notch speakers. The conference has been designed to provide an optimum mix of notable keynotes, concurrent sessions, and networking opportunities.
19-22 November 2012 Manutention 2012 Paris, France. http://en.manutention.com/	Manutention 2012 provides a comprehensive offering, dedicated to companies' internal logistics in all forms: logistics platforms, warehouses, factories, workshops for all sectors (agri-food, textiles, chemicals, pharmaceuticals, industrial goods, etc.); services, distribution and transport; and numerous manufacturing sectors that require intralogistic services and equipment.



Fleet footed for sustainability

Carbon emissions from the logistics fleet can add significantly to the corporate carbon footprint.

Gay Sutton takes a look at some of the most effective initiatives for reducing the environmental impact of pickup, delivery and freight operations.



The imperative to go green has never been greater, nor the options for reducing the carbon footprint of the logistics fleet more diverse. And it's by looking at the ongoing product testing and roll out of green initiatives at some of Europe's best companies, that we can begin to understand what works, the type of savings that can be made, and where the latest research is headed. What then can smaller companies learn from this?

Global logistics giant, Deutsche Post DHL, operates in over 220 countries worldwide, its DHL Express division alone employing a fleet of 285 aircraft and 31,000 vehicles. According to Global Head of Network Management, Joerg Andriof, the single most effective way for reducing the carbon footprint has been by continually working to optimise fleet usage through capacity and route.

"Global logistics giant, Deutsche Post DHL, operates in over 220 countries worldwide, its DHL Express division alone employing a fleet of 285 aircraft and 31,000 vehicles."

The simple principle behind capacity optimisation is that by filling a van, truck or plane to capacity, the CO₂ emissions per kg of product can be reduced significantly. Once the DHL forecasting system predicts the volume of shipments the company is likely to be asked to carry, the Capacity Management System plans the most appropriate mode of transport for the distance involved, the route it should take and

how it should be handled. It then schedules the shipments onto multimodal transport, including rail, to achieve maximum capacity and fuel efficiency.

The company is always looking for ways to improve. Prior to 2010, for example, smaller loads travelling between Hong Kong and Koper in Slovenia were sent by air to Hamburg and then trucked to their final destination. By consolidating them with other freight into a single container they now go directly to the port of Koper, cutting transit time and increasing CO₂ efficiency by over 40%.

It is, however, for the yellow and red vans that DHL is known. "On the road pickup and delivery side," Andriof said, "we optimise the route, and even aim to reduce the number of stops required per trip to reduce the need to turn the engine on and off." The latest Pickup and Delivery Optimisation programme is currently being rolled across the business, and this takes into account elements such as distance travelled, service commitments and traffic data, as well as conditions that are unique to the individual trip such as detours and unplanned bookings. The system then provides the driver with the best possible route and delivery/pickup sequence.

There are many capacity and route optimisation solutions on the market and they undoubtedly deliver results. However for smaller companies who simply don't have traffic in both directions one option is to consider collaborating with other companies to share backhaul routes - either carrying →



Read more about DHL's environmental policies.

1. The aerodynamically designed Teardrop trailer.

→ phenol is now covered by a STEL.

This is just a sample of the changes introduced by the Directive and it is not surprising if it all brings on the threat of a headache. And it doesn't end there: labelling regulations are changing as well. The European Regulation on Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) aligns existing EU regulations to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), a United Nations system designed to identify hazardous chemicals and provide information through standard symbols and phrases on packaging labels, and through material safety data sheets. The CPL regulations themselves came into force in January 2009 but a small degree of relief is at hand: as with pretty much all EU legislation, there is a transitional period. While the deadline for substance classification was December 2010 that for mixtures is June 1, 2015, so operators have a chance to become fully acquainted with them before they are fully in force.

Fuller information can be found in documents numbered EH40/2005 Workplace Exposure Limits.

Lift trucks – driver training

It is still the case that the largest proportion of reportable workplace accidents involves lift trucks and this is an area that seems to be constantly under observation. In February 2010, the UK's Health and Safety Executive (HSE) held a stakeholder event for over 100 people to discuss the way forward for the effective implementation of L117 (Approved Code of Practice and guidance for ride-operated lift trucks) and HSG6 (Safety in working with lift trucks). As a result of this event, the HSE has proposed to combine, simplify and update these two existing publications. While there will not be any changes made to the Approved Code of Practice text, the guidance on training and competence will be clarified. When this new guidance will be published is not yet certain but it may be in Autumn (Q3) of this year.

"It is still the case that the largest proportion of reportable workplace accidents involves lift trucks and this is an area that seems to be constantly under observation."

Warehouse health and safety

"The issues that I come across in warehouse situations have been the same for many years and I think they remain the key challenges

WAREHOUSE HEALTH AND SAFETY



Forklift Operation

- Follow safe operating procedures
- Drive safely and be aware - do not exceed speed limits
- Act responsibly and sensibly
- Do not handle loads exceeding the truck's stated capacity



Housekeeping

- Good housekeeping helps prevent accidents
- Use signs to mark spillages
- Remove debris and scrap materials
- Cover all cables that run across pathways



Safe Manual Lifting

- Keep your back straight and bend at the knees
- Keep item close to your body
- Lift with your legs
- Don't struggle with heavy loads - get help!

for the future," says Lukas Rootman, a partner with international legal firm Nabarro LLP. "Falls from height remain one of the major contributors to fatalities at work. It happens in warehouses when people fall off ladders, step ladders or cherry pickers when collecting items. I have also seen it happen when people fall through sky lights, or off ladders during maintenance activities." Manual handling, such as people attempting to pick up heavy items, also contribute to the statistics, as does poor housekeeping. The **Lean technique of 5S**, which places an emphasis on keeping workplaces tidy, not only contributes to greater efficiency, it also helps to reduce workplace accidents; if items are not left lying around, then people are less likely to fall over them.

"Falls from height remain one of the major contributors to fatalities at work. It happens in warehouses when people fall off ladders, step ladders or cherry pickers when collecting items."

"I will also include the occasions when stuff topples over onto people – when, for example, boxes have been stacked too high, or inappropriately," he continued. Incidents involving lift trucks running into people, knocking things over or dropping items, also help to keep fees rolling into legal offices. The widespread use of temporary labour, including agency staff, can help to keep payroll costs down but can see other expenses rise, if appropriate measures are not taken. "The main actions that can be taken to deal with the



Download the EH40 Workplace Exposure Limits PDF document.



European Regulation on Classification, Labelling and Packaging of Substances and Mixtures.



L117 - Approved Code of Practice and guidance for ride-operated lift trucks.

common issues relate to training, instruction, competency assessments – for contractors especially – and appropriate supervision. The key to this, as with most health and safety challenges, is founded in effective risk assessments."

All are not equal

Health and Safety laws apply to all businesses but more stringent requirements apply to employers with five or more employees, such as the requirement to have a written health and safety policy, and to record the significant findings of their risk assessment. Larger businesses can cross lines related to storage of hazardous materials, in all innocence – when there is the threat of a fuel shortage or bad weather, for example, it can be prudent to increase stock of gas or oil to ensure the business keeps running. However, it is a good idea to ensure that the increased stockholding does not take the business into an area where more stringent regulations apply. The cost of ensuring compliance with COMAH (Control of Major Accident Hazard Regulations) in terms of procedures and storage facilities can be high, but financial penalties for breaches are even higher.

Warehouse operators and managers have to understand what safety requirements apply to them. While regulations are changing and being updated almost constantly, the resources to ensure compliance are available from appropriate authorities across Europe, and from legal advisors like Nabarro. ■

Article feedback is welcome: ruari@eurekapub.eu



HSG6 Safety in working with lift trucks.



Read the article on 5S techniques in eureka 16.



1. The 5S process encourages tidy workplaces; if items are not left lying around, then people are less likely to fall over them.
2. Falls from height remain one of the major contributors to fatalities at work. It happens in warehouses when people fall off ladders, step ladders or cherry pickers when collecting items.
3. Manual handling, such as people attempting to pick up heavy items, contributes to accident statistics.

Making safe



In the last issue we looked at how to perform the risk assessment. But turning this document into a safer and more productive warehouse can be a tricky process. **Gay Sutton** reports.

Operating 24 hours a day, 7 days a week, the warehouses of supply chain services specialist Wincanton receive, store, despatch and in some cases pack a huge variety of products for the likes of Procter & Gamble, Asda, Saint-Gobain, BAE Systems and AgustaWestland. Flexibility and change are therefore part of Wincanton's way of life, and managing safety for its 16,500 strong workforce is a continuous and well-honed process. "And it's not just getting safety in the warehouse right," said Lisa McGrevy, SHEQ manager for Wincanton's retail division, "the way the warehouse operates can impact safety and productivity all the way down the supply chain."

While any serious warehouse accident is likely to hit the headlines, the most common causes of injury are slips, trips and falls, and manual handling accidents, followed by striking or being struck by fixed or stationary objects such as forklift trucks, pallets and products. "People often think that as long as they document a safe system of work and provide the requisite training, that will satisfy the safety requirements. It doesn't," said McGrevy, representing the retail and distribution group at the Institution of Occupational Safety and Health (IOSH).

Wincanton follows the Hierarchy of Control methodology which ranks engineering control as the most effective and desirable way of improving safety, followed by the introduction of procedural controls and finally, if none of those are possible, the use of behavioural control. "We always look to eliminate the hazards first and put in engineering controls," she said. "And that might include making physical changes to the layout of the warehouse, putting guards on equipment, or perhaps if the problem is congestion in the goods-in bay we may even

look at removing a couple of bays of racking." Admittedly it's not a solution that will initially appeal to many operations managers, but a full analysis of cost and productivity can show reducing congestion increases productivity.

"People often think that as long as they document a safe system of work and provide the requisite training, that will satisfy the safety requirements. It doesn't." Lisa McGrevy, Wincanton

Global paint manufacturer Jotun, which has manufacturing plants in over 50 countries worldwide, has a similar approach. The manufacturing facilities have been designed to isolate and contain toxic and corrosive chemicals and deliver them directly to the point of use. Fail-safes rather like the petrol pump cut-out, prevent storage tanks being over filled. "We're now working on interlocks for the discharge valve at the bottom of the tank so it will be impossible to fill if the valve is open," explained HSE manager Shailesh Purohit. "What we aim to do is address the underlying cause rather than the direct cause, which may be an operator forgetting to close the valve."

The most effective way to improve safety is to develop controls and processes using the knowledge and experience of those who will need to operate them. After all, new equipment or theoretical safety processes that don't work in practice, or make a task arduous and difficult are never likely to be used. A safety committee is most effective if drawn from all disciplines on site, including materials handling, logistics, admin, operations, security and regular contractors led by the site manager



1. Designing in' failsafes, such as automatic pump cut-off to prevent tank over fill, are an effective step to improving safety.



Read about Wincanton's award winning Health and Safety programme.

and supported by trained safety personnel. "Often, small groups are then given projects to take away and work on," McGrevy said. "They will look for the best ways to resolve individual issues and then bring the results back to the safety committee for action."

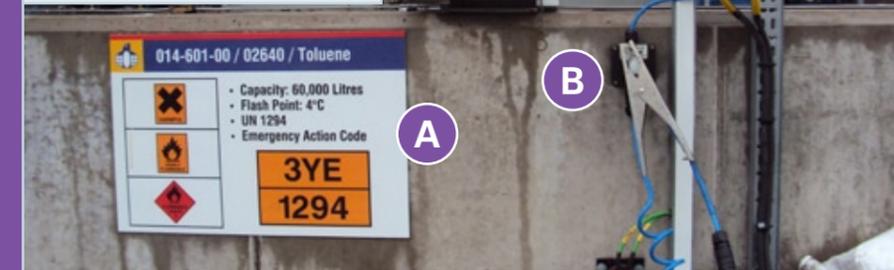
"The most effective way to improve safety is to develop controls and processes using the knowledge and experience of those who will need to operate them."

Another initiative that companies sometimes use is the suggestions box, and this not only taps directly into shopfloor knowledge, but also increases the buy-in to change. "At one company I visited recently," said Roger Bibbings occupational safety adviser at RoSPA (Royal Society for the Prevention of Accidents), "the workers were subject to vibration from grinding the rough edges off forms that had been cut from sheet metal. The company had effective processes in place to reduce exposure, but the workforce suggested investing in a laser cutter which would remove the need for dressing the work afterwards." The workforce was tasked with producing a business case for the cutter, which cost £160,000 and not only improved safety but also increased productivity.

Having identified safety improvements, the next step is to implement them and this involves a blend of training and good communication. Keeping instructions as simple and uncomplicated as possible increases the success rate by making the job easier to perform and removes the risk of misunderstanding. At Wincanton, instructors also make sure any training has been fully understood and absorbed by asking trainees to play back what they've learned in a practical way before signing them off.

"Safety is also very much about positive reinforcement – telling people what to do, rather than what not to do," McGrevy said. It's human nature to try doing what you're told not to do, so a list of don'ts merely puts bad behaviour in mind. By contrast, telling forklift drivers to park with the forks lowered, take the keys with them and put waste wrapping in the bag provided is more effective. A very nice example can be seen at one Wincanton site where discarded stretchwrap tubes were a safety issue. A scheme was devised for drivers to write their names on the tubes and place them in the bag at the end of the aisle. "At the end of the week, one tube is picked out and the driver receives a free breakfast. It's simple; it doesn't cost a fortune but has had a huge impact on behaviour."

- A** Clear tank content identification with emergency action codes for the fire brigade.
- B** Static control with automatic detection and cut off of the pumps/ valves if not grounded.



"Safety is also very much about positive reinforcement – telling people what to do, rather than what not to do," McGrevy said. It's human nature to try doing what you're told not to do, so a list of don'ts merely puts bad behaviour in mind."

Perhaps the key word here is behaviour. The SHEQ manager of Wincanton's manufacturing division, Garry Spicer, has worked on the Observation Inventory process for identifying and exploring critical behaviour patterns that affect safety in the warehouse. By identifying behaviour associated with a specific task in the warehouse, he then monitors and quantifies the behaviour of the workers in action. "What you end up with is a list of undesired and desired behaviours," he said. Alongside this, the staff are asked to fill out a questionnaire that gauges their perception of things that contribute to accidents, such as pallets overhanging a walkway, or the use of the correct personal protective equipment (PPE). The end result is an understanding of further adjustments to behaviour that can improve the safety of the operation.

"It's a matter of continuous improvement. In other words, move away from blind rule compliance to genuine risk management."

While small companies cannot put such extensive programmes into operation, much can be learned from these practices. And RoSPA's Roger Bibbings summed up the essence of good safety management. "It's a matter of continuous improvement. In other words, move away from blind rule compliance to genuine risk management - continuous planning and implementation rather than a tick in the box." ■

Article feedback is welcome: editor@eurekapub.eu



Read more about Jotun's Health and Safety philosophy.





Mission Antarctica 2048 passes second test



Visit:
www.teamantarctica.nl
to monitor the mission's
progress.

In the autumn 2011 issue of *eureka* we reported on Team Antarctica's mission to build a solar powered vehicle for their Antarctic trek, and how Cat® Lift Trucks enabled them to do some serious testing under winter conditions in Finland. In 2012, the project was looking again for a helping hand and got it.

Gian Schiava finds out what has been achieved.

A brief history

First, to recap: Dutch adventurers Wilco van Rooijen and Fokke van Velzen together developed a project to build a sustainable, solar powered vehicle to take them from Patriot Hills, a field camp on the Antarctic, to the South Pole and back. Their aim is to use this 2300 km trip to draw attention to the situation in Antarctica. Although currently protected against oil exploration by the environmental Protocol under The Antarctic Treaty, the region is under threat. The protocol ends in 2048 and the big oil companies are getting ready to roll in.

The adventurers want to inspire young people, the decision makers of the future, with the concept of sustainability and demonstrate the practical value of alternative sources of energy. These youngsters, they hope, will then be prepared to fight for the preservation of the planet and to create a world that survives on alternative energy sources.

Wilco and Fokke asked the University of Applied Sciences in Utrecht, the Netherlands, to design and build a prototype car. The first tests, carried out at the manufacturing facility of Cat Lift Trucks in Finland, yielded a great many positive results and gave the project team the confidence to take the next step and build a strong and durable car, to carry the two adventurers on their 2300 km trek.

"The adventurers want to inspire young people, the decision makers of the future, with the concept of sustainability and demonstrate the practical value of alternative sources of energy."

The next steps

So what has happened since? Based on the results of testing in Finland, a list was drawn up of what needed to be done in order to make the car strong enough for success. Alongside this, one of the most striking changes is that the project is now called Mission Antarctica 2048. This refers to the year in which oil companies may start drilling in Antarctica, an eventuality the project is seeking to prevent. Mission Antarctica is making a strong statement about alternative energy sources and that this continent should remain preserved, by showing the world we can survive with alternative energy sources.

This time, six students from Hogeschool Utrecht and one student from Avans Hogeschool, supported by six students from ROC van Amsterdam, were entrusted with carrying the project on to the next phases of development, culminating in a necessary second test. The project team asked Cat Lift Trucks again →

Main image (previous page).
 The team arrived in Järvenpää, Finland with an extensive test program to work through.
 2. At the time, Järvenpää was experiencing its highest level of snowfall for 25 years, providing a perfect testing ground.
 3. The team responsible for performing the Finland tests.

→ whether they could make use of their facilities in Järvenpää, Finland.

“Mission Antarctica is making a strong statement about alternative energy sources and that this continent should remain preserved, by showing the world we can survive with alternative energy sources.”

The request received a positive answer and a group of five students quickly prepared to go testing in Finland. The focus this time was on the endurance of new electronics and tyres, and identifying the right (read efficient) tyre pressure for the conditions. As a result of the previous round of tests, work had also been done on the steering and suspension, and the adapted components were now to be put to the test. The students also planned to put in a considerable amount of mileage to study how the vehicle would cope under the cold and snowy conditions in Finland.

When they arrived in Finland it turned out that it hadn't snowed this much in 25 years, and for 6 days they were able to conduct an extensive program of testing and driving. All the hard work yielded a great result: the project is well on track for the 2300 km ride at the end of the year. It may seem far away, but the crucial factor is that there is only a small window of opportunity, between December and early February (summertime), when the conditions are good enough to take the trip. Unforeseen delays at the testing stage could easily have led to missing the opportunity.

The daredevils visit Järvenpää

During the testing period, the students received a visit from the two drivers, Wilco and Fokke, who tried the car out for themselves. As originators

of the Antarctica project they were very pleased. “After all the preparation and engineering work, we consider this test in the cold of Finland essential to proceed. We can now safely say we can go ahead with the preparations for the next episode – a final endurance test of driving at least 100 km on a beach at the end of April!” said Wilco van Rooijen.

As their motto is “Dream, Share, Dare & Do!”, they cannot wait until the actual ride, which is scheduled for December 2012 to January 2013. As well as taking part in the beach test, Wilco and Fokke are trying to get as many sponsors as possible on board, who share their goals of protecting the planet by promoting sustainable ways of using energy sources. Progress can be monitored at www.teamantarctica.nl.

Cat Lift Trucks jumped into the breach again

Cat Lift Trucks has once again supported the expedition by arranging shipment of the vehicle to its warehouse equipment manufacturing site in Järvenpää, Finland. On-site support included loading/unloading services as well as the provision of an electrical power supply. Cat Lift Trucks is proud to be supporting this adventure, especially considering the aims of the overall project.

As part of its product development strategy, Cat Lift Trucks is continuously evaluating alternative energy sources for its lift trucks with the aim of reducing carbon emissions to a minimum. The opportunity to give further support project Mission Antarctica 2048 was therefore one that could not be missed.

Early next year eureka hopes to be able to report on this amazing trip at the South Pole. ■

Article feedback is welcome: editor@eurekapub.eu



2

Visit Wilco van Rooijen's YouTube channel, featuring videos showing the development of the vehicle.



Popular beach becomes rugged test area.

On Friday the 27th of April 2012, we saw an unusual scene on the beaches of Bloemendaal, one of the more trendy and hot places on the Dutch shore and where Dutch people go to see and to be seen.

Instead of the usual open topped sports car, the scene was dominated by a rugged vehicle, driven by solar power. The roar was perhaps missing but the sight was nonetheless spectacular. Wilco and Fokke were putting the Solar truck to the test and in particular they were curious about how the car would drive after the decision to drive with a lower tyre pressure in order to avoid getting stuck in the snow. The results are slightly ambiguous; driving went really well and the car had no trouble with traction in the sand (which is comparable to snow), the downside of this decision is that relatively more solar power is necessary to get the car going. Energy consumption was much higher than expected and the car builders now need to consider adding more panels or find ways to use less energy.

The challenge is not over...

3



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