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The construction industry is still in a dire situation. Production in the housing, public utilities and civil engineering sectors fell significantly in 2012 and further contraction is expected for all three sectors in 2013. Happily, there is good news too: it seems that Greece and other Southern European countries have stepped back from the brink of bankruptcy, the turbulent financial markets are gradually settling down and share prices increased substantially in 2012. The Dutch construction sector has been through a difficult period, but Elco Brinkman expects 2013 to be their toughest year since the start of the crisis, unless the government radically changes its policy.

A period of recession is always marked by rigorous cost cutting, reorganisations and business closures. This applies especially to the most competitive sectors which feel the highest price pressure. These are typically the bulk market sectors, where there is surplus capacity and companies are forced to work at cost price or even lower. Happily, there are also plenty of businesses that have been able to grow and turn a profit, despite the difficult times. Such companies often prove to have extraordinary competence in one or more areas, enabling them to stand out from the competition and cash in on their added value.

Despite the recession, the theme of sustainable construction is still important to producers, contractors and clients. This bulletin includes a number of articles that nicely illustrate the prominent international position of the Netherlands in this area. In the same light, the open innovation programme 'Building Integrated High Tech Systems' (BIHTS), in which SGS INTRON plays an important role, is a good example of cooperation between the government and the business community (see the article in this bulletin). SGS INTRON is also putting its special expertise to good use helping a Greek contractor who is participating in a tender for a major construction project in Kuwait (Doha Link). Our knowledge and experience of the use of durable concrete structures in the Middle East was particularly appreciated. However, we do think it unfortunate that no Dutch or other Western European contractor (or combination) is participating in the tender for this spectacular project.

SGS INTRON wishes all its business relations and the construction industry in general a healthy and successful 2013!

**GERT VAN DER WEGEN**

## BEST WISHES TO THE CONSTRUCTION INDUSTRY!



"Everybody is desperate for better times. But when will they come? In 2013 we can expect hundreds more bankruptcies and at least ten thousand extra redundancies, unless the cabinet starts stimulating the construction industry instead of restricting it, and so helps to push the entire Dutch economy in the right direction. The politicians in The Hague need to take action fast," says Elco Brinkman, chairman of Bouwend Nederland.

"The construction industry is heading for its worst year since 1945. This is revealed in the recent and particularly sombre prognosis produced by the Dutch Economic Institute for the Construction Industry (EIB). All hope for the short term recovery of the construction sector is lost if the government continues with its present policy plans. In fact, I anticipate that 2013 will come to be recorded as an absolutely disastrous year. It is of vital importance for the sector that the cabinet translates its general policy plans into concrete measures."

"What we are seeing now is that the construction sector is holding back the entire economy, and without the right political action it will continue to do so. This is to nobody's benefit. If the government takes the right measures, the construction industry could become the driving force behind the economy. Happily, starters in the housing market now have access to more flexible mortgages. But more is needed. The rise in rental prices needs to be tied to the new landlord levy, land prices need to go down and the cuts in infrastructure spending need to be undone. A real stimulating measure is the introduction of the low VAT rate for maintenance work; this measure has already more than proven itself. Homeowners should also be able to deduct the costs of making their homes more energy efficient, simultaneously helping to meet the climate targets."

# CONCRETE POLICIES NEEDED NOW IF THE CONSTRUCTION INDUSTRY IS TO RECOVER

BY ELCO BRINKMAN CHAIRMAN OF BOUWEND NEDERLAND

## MADE-TO-MEASURE SOLUTIONS

"The construction sector has now suffered four years of economic crisis. The speed with which the present cabinet was put together led us to hope they would soon come with plans to help our industry, and though some of their policies are fine, others certainly are not. The EIB figures confirm this. Good policies are one thing, but many of the measures they have announced have not yet been sufficiently fleshed out. To get production moving, this cabinet has to explain what its concrete plans are as soon as possible, both with regard to the infrastructure sector, the housing market and, most importantly, the rental sector. The citizens, the business sector and investors want to know where they stand before they start investing again. As long as they are kept in the dark they will keep their hands on their wallets. The result is that the continuing uncertainty contributes to the slow pace of economic recovery. Furthermore, some of the unintentional negative impacts of the policy will need to be repaired. The perspectives for the medium term look better, but it is the short term that we are concerned about at the moment. In other words, the government plays an important if not crucial role in determining how much longer the crisis will last."

## NEW BUILDING A NECESSITY

"This applies to both the privately-owned sector and the rental sector, although there is an extra concern with the latter. Currently, the corporations are scrapping building and maintenance plans worth billions of euros because the increased rental prices have failed to compensate for the government's new landlord levy. Of course, this is a ridiculous situation in a country where that same government is calling for 75,000 new homes to be built every year. The EIB analysis



opens the possibility of a scheme whereby rental increases reflect the height of the landlord levy. This is the direction we need to move in to get housing corporations investing again. This is why the housing minister, the corporations and the construction industry need to talk, and soon. The alternative is a political battle that will only be to the detriment of the industry. Construction companies will start laying off personnel in the near future as projects are cancelled, or will go bankrupt due to the general suspension of new building activities. In fact, these layoffs are unnecessary, because Minister Blok of Housing has already promised to modify the plans if these cause financial problems for the corporations. It is time to put a stop to all the squabbling."

## INFRASTRUCTURE SPENDING CUTS

"The infrastructure spending cuts will also cost another 3000 jobs and tens of millions of euros. The structural cuts to

infrastructure spending of €50 million per year were supposed to strengthen the 'social agenda', in other words soften the effects of the limitations to the unemployment benefit period. However, there is nothing social about this agenda as far as the construction and infrastructure industries are concerned: big projects are nowhere to be found and so more than 3000 employees will lose their jobs. That will lead to €7.5 million in extra unemployment benefits per year. This can only be absorbed by a marked increase in unemployment premiums for construction and infrastructure companies. In fact, the premium costs will increase by 25 per cent! Quite simply, this means even more painful job losses in the sector responsible for building and maintenance in the Netherlands. Our slogan is 'The construction industry builds it'. But to do that we need more supportive government policies. Everybody will be a winner once we can start building again."



# ROADMAP SUSTAINABLE CEMENT

BY ANDRÉ BURGER AND PIETER LANSER CEMENT & CONCRETE CENTRE

Concrete is by far the most common building material. The world uses some 10 billion cubic meters of concrete per year to construct durable homes for society at large. However there is a catch. The general consensus is that 5% of the human-caused CO<sub>2</sub> emissions worldwide are related to the production of cement. But the Dutch would not be the Dutch if we did not do things very differently here. The figure for the Netherlands is 1%, or a factor 5 better than the world average.

On 24 October 2012, the Cement & Concrete Centre (Cement&BetonCentrum) in Amsterdam presented its roadmap to sustainable cement in 2050. Some forty critically inclined guests participated in this meeting and debate, including representatives of the business community, the government, NGOs and the scientific community. And of course SGS INTRON was there too!

## THREE RESPONSIBILITY CIRCLES ARE DISTINGUISHED IN THE CEMENT INDUSTRY.

The inner circle is the smallest and describes the industry's own area of responsibility. The cement industry itself expects to decrease the carbon footprint left by cement in the Netherlands by 10-20% in 2050 via process and production optimisation. Some of the participants in the debate thought this target insufficiently ambitious and asked if more were possible. The question is: how much is enough? What is reasonable and what is overambitious? And how do we achieve it? The carbon footprint of all cement used in the Netherlands is only 1% of the total human-produced CO<sub>2</sub> emissions. This is thanks to our copious use of blast furnace cement. The market's faith in this low CO<sub>2</sub> cement is based on sustainability research performed by the (then called) INTRON in the early days of its establishment. In this case, the term 'sustainability' is synonymous with 'durability'. Thanks to this blast furnace cement, the Netherlands is a world leader in low-impact cement and concrete.

Of course there is always room for improvement, but not that much in this case, and the costs of even more CO<sub>2</sub> reduction will be high. Society has to decide whether it is willing to bear these costs.



Left André Burger, right Pieter Lanser

The second, middle circle is where the cement industry collaborates with its clients and its clients' clients in the construction industry. In this area we have a shared responsibility. The Cement & Concrete Centre believes that the carbon footprint of the built environment, including the materials used, could be decreased by 50% in 2050. This could be achieved without any substantive increase in the 'total costs of ownership'. It will entail making optimum use of the properties of the finished product, concrete, such as strength, rigidity, fire resistance, low intrinsic CO<sub>2</sub> footprint, thermal mass, etc. This will require cooperation between the supplier, the concrete technologist, the concrete engineer, the architect and principal, and even the contractor. And expertise too. For many years now, the sector has looked to SGS INTRON for this expertise. INTRON has been involved in the execution of Life Cycle Assessments (LCAs) for concrete since 1998. The highly acclaimed LCA concrete database was in fact designed by INTRON. This concrete database (now managed by the Dutch Building Quality Foundation (SBK) within the framework of the environment paragraph in the National Building Decree) helped supply the Netherlands with 'Environmentally Relevant Product Information (MRPI)' from the construction supply industry in accordance with NEN 8006. SGS INTRON is now also building the LCA calculation

models for the CUR B88 committee. The chairman of Stutech, Dr Gert van der Wegen, was one of the driving forces behind Stutech/Stufib study cell 61 'Sustainability of concrete'. SGS INTRON contributed a lecturer to the Concrete Association course 'Calculating sustainability in concrete', namely Dr Ulbert Hofstra. The Cement & Concrete Centre strongly believes in cooperation in the concrete chain. This is why they are participating in CSR Netherlands' 'Concrete Chain Sustainability' Green Deal. SGS INTRON is a highly valued partner in this chain.

The outer and final circle may well be the most important. However, the cement industry itself has little or no influence on this area of responsibility. This is the domain of developments in the external environment. Consider that the steel industry were to disappear from Western Europe, or that slag-free ore smelting techniques became predominant. The cement industry would suddenly find itself without blast furnace slags. A similar scenario could also be conceived for coal fly ash from coal-fired power plants, another important raw material in cement production. Imagine that the European government were to make carbon dioxide capture compulsory (regardless of the costs). This could result in carbon leakage, which is a euphemism for the departure of the energy-intensive industries from Europe.

The Cement & Concrete Centre estimates the potential effects of these scenarios at something like 50%. There is nothing we can do about it. This tide will simply wash over us.

The best chances for the cement industry in this context lie in cooperation with parties in the construction chain; with expert advisors and decision-making civil servants. We are following the development of carbon neutral cements with much interest. Unhappily, we have not yet seen any signs of a major breakthrough and so we will have to be content with small steps forward. We are totally committed to this development, but at the same time we keep our feet firmly on the ground. And we expect the same of SGS INTRON





# INCINERATOR BOTTOM ASH AS A CONCRETE AGGREGATE

MORE INFORMATION: GERT VAN DER WEGEN [GERT.VANDERWEGEN@SGS.COM](mailto:GERT.VANDERWEGEN@SGS.COM)



phase, or expansion will occur in the hardened concrete. MIBA aggregate is potentially alkali-reactive due to the presence of glass fragments. This problem can be avoided by using the right type of cement (CUR recommendation 89).

## CONCRETE PROPERTIES

The CUR VC89 committee decided to commission extensive research on mixtures whereby 20% V/V gravel and 20% V/V sand + 20% V/V gravel were replaced with equivalent fractions of MIBA aggregate. Both mixtures and the reference concrete contained 320 kg/m<sup>3</sup> CEM I 42.5N and had an effective water-cement ratio of 0.50. No relevant influence was discovered on the workability and/or decrease in workability, the air content or the water dispersion properties when the 20% V/V of sand and/or gravel was replaced by MIBA aggregate. The strength development of these concrete mixtures is displayed in Figure 1.

Figure 1 reveals that replacing 20% V/V of gravel with 4-32 mm MIBA aggregate results in a decrease in compressive strength of approx. 10%. The replacement of 20% V/V sand + 20% V/V gravel with equivalent MIBA aggregate fractions results in a decrease in compressive strength of approx. 20%. An important observation is that the ratios between splitting tensile strength/compressive strength and elasticity modulus/compressive strength were the same for each of the three tested concrete mixtures. This means that under a given compressive strength, concrete with MIBA aggregate has the same splitting tensile strength and elasticity modulus as the other mixtures tested. The properties described above can be off-set by compensating the effect of the weaker MIBA aggregate with a lower effective water-cement ratio. Concrete mixtures with MIBA aggregate with partial

replacement of both sand and gravel show higher creep and shrinkage than the reference concrete. This is important for applications whereby these properties are critical. With regard to durability, the carbonation rate proved lower and resistance to frost-thaw cycles (road salt) was better in the mixtures with MIBA aggregate. The resistance to chloride penetration, however, was significantly lower (approx. 35% greater diffusion coefficient). However, this problem can be avoided by choosing the right type of cement. The presence of glass and metallic aluminium in the MIBA aggregate entails a potential risk of destructive expansion. This was tested with both 20% V/V and 100% V/V replacement of gravel and sand + gravel with equivalent fractions of MIBA aggregate. No excessive expansion was observed.

## REUSE OF MIBA AGGREGATE

Blocks of the above three concrete mixtures were crushed in a jaw crusher after a hardening period of nine months and the 4-32 mm fraction was separated from them with sieves. New concrete mixtures were produced using these 4-32 mm fractions whereby the gravel fraction was completely replaced. The development of the compressive strength and the splitting tensile strength was more or less the same in each of the three concrete mixtures with recycled concrete aggregates. The quality of concrete aggregate produced from concrete containing 20% V/V MIBA aggregate is thus equivalent to that of traditional concrete aggregate.

## CUR RECOMMENDATION

CUR recommendation 116 stipulates that maximum 20% V/V of the gravel or sand + gravel may be replaced by MIBA aggregate in reinforced concrete. The replacement percentage in non-structural concrete is maximum 50% V/V. For the present, MIBA aggregate may not be used in prestressed concrete because of the risk of tension corrosion occurring in the prestressing steel. MIBA aggregate may only be used in concrete up to strength class C30/37. Environmental classes XA2 and XA3 are not permitted. Cement with a high resistance to chloride penetration (CEM III/B or CEM II/B-V) is required for environmental classes XD and XS.

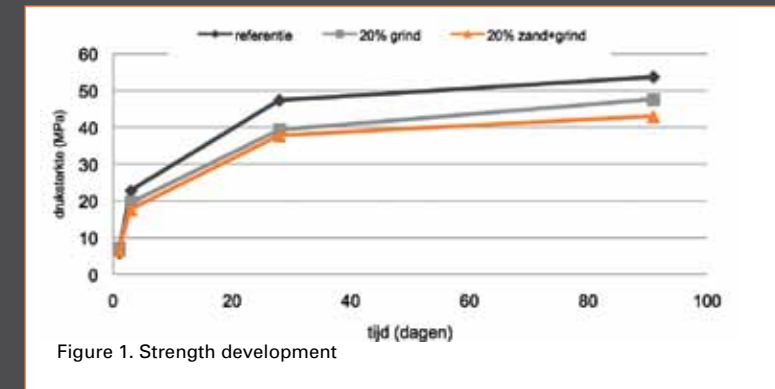


Figure 1. Strength development

## CLOSING REMARKS

The CUR recommendation is based on extensive laboratory analyses, but the results have not yet been sufficiently tested in practice. However, this is soon to be resolved, as a number of producers have started using MIBA aggregate in their concrete products, whereby they will initially focus on prefabricated concrete products.

MORE INFORMATION: WIL KLARENAAR [WIL.KLARENAAR@SGS.COM](mailto:WIL.KLARENAAR@SGS.COM)

SGS INTRON and the Dutch Waste Management Association (VA) have drawn up analysis instructions for determining the metal fractions in Municipal Incinerator Bottom Ash (MIBA). MIBA is a residue of waste incineration in a Waste-to-Energy plant (in Dutch AEC, formerly AVI). MIBA contains a large proportion of reusable metals such as irons, but also valuable aluminium, copper and lead. It is of great importance that these metal fractions are determined with a widely accepted and reliable method, not only to accurately determine quality and quantity, but also for the purposes of the Green Deal. The Green Deal is a set of agreements between the waste management industry and the government concerning MIBA quality improvement and sustainability.

The aim for 2017 is to be able to use 50% of MIBA as building material, while the figure for 2020 is no less than 100%. One condition that is certainly feasible is the improved separation of metals. Thanks to new developments, the recovery of rare metals may also become an option, making MIBA reprocessing an even more interesting proposition. The analysis instructions were made available to the members of the VA in late 2012. The instructions include uniform methods for determining the various metal fractions. Because MIBA is a very heterogeneous material, the sampling of the various waste flows plays an important role. The next step in the development of the analysis instructions is to precisely record the reliability of the measurement methods and to share the various experiences of the participants. To this end, the VA has commissioned SGS INTRON to analyse the distribution of the measurement results across the various industrial laboratories (in collaboration with the VA's members), as well as SGS INTRON's own lab. This means that a fully developed method for determining, with a given reliability, the amount and composition of the various metal fractions in MIBA will become available this year.



# DESIGN TOOL FOR MAKING CONCRETE GREENER

MORE INFORMATION: ULBERT HOFSTRA [ULBERT.HOFSTRA@SGS.COM](mailto:ULBERT.HOFSTRA@SGS.COM)

Concrete is an important building material that has a major impact on environmental profiles at the building or project level. More sustainable and 'greener' concrete could be of major importance here. But how do you improve the environmental profile of concrete? The CUR B88 'Green Concrete' committee was established to provide tools to help designers of concrete and concrete products to do this. Phase 1 was recently completed: a design tool has now been created with which designers, concrete technologists, construction engineers and structural engineers can calculate for themselves the effect of variations in origin, mode of transport, production method and composition on the environmental profile.

## ENVIRONMENTAL PROFILE OF ONE CUBIC METER

The CUR B88 committee has gathered together the expertise of all the stakeholders: the Cement and Concrete Centre (Cement&BetonCentrum), producers of concrete mix (VOBN) and concrete products (BFBN), engineering firms and end users (Rijkswaterstaat, part of the Dutch Ministry of Infrastructure and the Environment). "You can use this design tool to calculate the environmental profile of one cubic meter of concrete, whatever the application," explains Ulbert Hofstra of SGS INTRON, the project leader. "In phase 2, which will start in 2012, we will integrate the applications in the design tool. This will enable users to calculate the effects of possible interventions, making the design tool more suitable for practical situations."

## VARIATION CALCULATIONS MADE SIMPLE

Even in its present shape, the design tool is an important step forwards. "A lot of people have shown interest," notices Ulbert Hofstra. The tool was presented to a packed hall during the joint meeting of Stutech and Stufib. There proved to be a useful connection with a recent study of concrete sustainability measures by Stutech and Stufib. Thanks to the design tool, the results of that study will be able to be calculated using a standardised method. But an equally important

advantage is that the tool makes it easy for designers to perform the calculations themselves. "They are no longer dependent on LCA (Life Cycle Assessment) experts carrying out the study," explains Hofstra. "They can calculate a wide range of variations themselves. For example, what are the effects of using concrete aggregate instead of gravel? Or what happens if we source the raw materials from a quarry in Belgium instead of Norway? It is important to mention that we have adopted the environmental profiles in the National Environment UK Database as much as possible for calculating the standard parameters. Results produced using the tool can thus be compared with an environmental profile on the basis of an LCA. Moreover, we have built in various checks: the program gives a warning if you create a concrete that does not meet the European requirements."

## NOT AN LCA, BUT COMPARABLE

The design tool is similar to the LCA, but with a simpler structure. The user is 'restricted' by certain limits. A new LCA will often be required in case of deviations from the standards. If, for example, you wish to work with a new raw material, then you can request an environmental profile of that raw material via an LCA and incorporate this profile in the tool. The flexibility of including new environmental profiles is already available, but of course depends on these profiles being available (or being drawn up). The design tool is updated regularly via the National Environmental Database and can be ordered via: [www.cur.nl](http://www.cur.nl).



# CARBON FOOTPRINT AND LCA: SIMILARITIES AND DIFFERENCES

MORE INFORMATION: BOB ROIJEN [BOB.ROIJEN@SGS.COM](mailto:BOB.ROIJEN@SGS.COM)

The Carbon Footprint Assessment (CFA) and the Life Cycle Assessment (LCA) are both designed to quantify the environmental impact of a product or process. SGS INTRON uses both instruments. A CFA focuses on an organisation's greenhouse gas emissions, while an LCA involves calculating the environmental profile of a product, among which the contribution to climate change. At first glance the CFA and LCA are comparable instruments. But are they? Here follows a summary of the main similarities and differences.



Because an LCA links an environmental impact to a well-defined product or service, it is an excellent tool for comparing or reducing the environmental impact of these products or services. The CFA is an ideal instrument for quantifying the environmental impact and the improvement potential at the level of the individual business.

The LCA is the more complete tool for measuring environmental impacts, because it measures multiple environmental effects, such as ozone layer degradation and raw materials depletion. The advantage of this is that it can provide insight into whether reducing the output of greenhouse

gases is detrimental to other environmental effects. The focus on climate change is what makes a CFA easier to interpret and thus more accessible to the wider public.

Another difference follows from the system limits, such as the choice of life cycle phases and the inclusion of overhead processes (such as office space). Traditionally, an LCA examines the entire life cycle of a product or service. Although LCAs generally only include the processes involved up until the product leaves the factory, the general consensus is that the results of the analysis should be able to be applied to the entire product life cycle.



On the other hand, the environmental impact of overhead processes is in principle excluded. This is not the case with the CFA, which focuses on those emissions that are directly attributed to the producer. These are called scope 1 and 2 emissions in Carbon Footprint jargon and overhead processes are part of these. The scope 3 emissions are the emissions of processes earlier and later in the chain. These often have a facultative character, depending on the goal of the CFA. For example, if you wish to achieve the highest tread on the CO<sub>2</sub> performance ladder, you will need insight into the scope 3 emissions.

The scope 3 emissions in the CFA are the point where both instruments meet. In order to assess the scope 3 emissions, suppliers and other partners in the chain need to be able to declare the emissions of greenhouse gases related to the life cycle phase under their responsibility. As this is usually connected to the amount of a certain product or service, the relevant party's Carbon Footprint also needs to be correlated to the amount of product or service. In other words, the required output resembles that of the LCA.

Often, when an LCA is performed on a product, only minor additions will be required to calculate the organisation's Carbon Footprint as well. The reverse situation is somewhat more complex, because determining the environmental impact at the product level usually requires dividing the total environmental impact over a number of products and services and an LCA also requires information on other environmental effects.



# INNOVATIVE MASONRY HELPS WALLS BREATHE

MORE INFORMATION: RON LEPPERS [RON.LEPPERS@SGS.COM](mailto:RON.LEPPERS@SGS.COM)

Brick walls have been built in the Netherlands and abroad for hundreds of years. There are various ways of pointing these walls, but pointed they always are. This speaks for itself... or does it? Consultancy Manager Ron Leppers of SGS INTRON graduated as a structural engineer on a masonry system consisting of glued bricks with open perpend (vertical joints) and its effect on the structural and physical properties of the wall, in particular rain penetration. "We concluded that leaving joints open is quite feasible, as long as you take a number of precautionary measures."

## OPEN PERPENDS

Gaps and cracks occur commonly in walls. So why not an open joint? "If you make the joint narrow enough, say three to four millimetres, then raindrops will not penetrate," Ron Leppers discovered. "They always touch the surrounding bricks and are absorbed immediately. However, the bricks used have to have a certain degree of absorption capacity. The bricks only become saturated after prolonged rainfall, when the excess water will run down the inside of the wall. However, the same occurs with traditional, fully pointed walls. The only difference may be that slightly more water is discharged in the open joint system. This is why the choice of insulation material in the cavity is important: it may not be too sensitive to damp. Furthermore, if you make sure to place a breathable and water-repellent membrane between the insulation and the outside wall then water penetration will not be a problem."

## BREATHABLE RAINCOAT

Exterior walls used to be load bearing structures, but this is no longer the case. "You can compare the exterior walls of today to a raincoat: they are there to protect against sun, wind and rain," explains Leppers. "A brick wall with open perpend is like a breathable raincoat." This is an important advantage, the SGS INTRON consultant now knows from experience. He was so enthusiastic about the new concept that he decided to apply it in his own newbuild house. Even though it is now fifteen years ago that his own research and a practical follow-up project at TU Eindhoven demonstrated that it is possible to build solid masonry with good physical properties while leaving the perpend open, the construction industry is still reluctant to adopt the new technique. Architects are often very enthusiastic about the robust, sleek look of a facade without joints, but the plans typically remain on the drawing board because the contractors are uncertain about the risks.

## PURE BRICK

In 2008, Ron Leppers' plan to build a house with open perpend brings him into contact with the Belgian manufacturer Vandersanden, who a year earlier had introduced the product 'Zero', an innovative jointless masonry solution which has since been marketed successfully in Belgium. The Zero brick has a cavity along the top which allows the traditional bricklaying method to be used, with the same mortar and the same tools. "Bricklayers prefer the traditional method to bricks and glue. Bricklaying with Zero bricks does require a slightly different technique, but the result is as striking as it is lasting." Leppers enthusiastically describes his new home, which still attracts curious viewers even today: "The masonry with open joints is different and new. Most of the visitors love the look of the unpointed, full-brick facade. The open joints also offer us other,



more practical advantages. For example, the walls dry much faster than walls with pointed joints, because the open joints ventilate better. And common problems with pointed walls such as cracks and ugly white bloom are avoided too."

## ENTHUSIASM AS INNOVATIVE FORCE BEHIND ZERO BRICKS

It sounds like a good story, but the market still has a lot of doubts. Vandersanden regularly hears questions like 'Is the wall strong enough?', 'Doesn't water get into the open joints?', 'What do you need to take into account during actual construction?' and 'What kind of detailing is needed for a good result? With Ron Leppers leading the team, SGS INTRON is the ideal partner to help them answer these questions: "Vandersanden has commissioned us to conduct laboratory research into the structural and physical properties of the masonry with Zero bricks. Every brick is different, that makes it a complex, but also interesting project. We have the expertise to convincingly explain how the system as a whole works and to translate this into the application in practice: a wall with open perpend in a traditional building. The theoretical knowledge I gained during my graduation project is still applicable today. Moreover, we have the requisite high-tech equipment, such as a test installation for performing rain tests. We use this to expose walls of Zero bricks to different amounts of water and angles of rain to simulate heavy showers. We also test how much mortar is required to achieve sufficient strength. We draw up a complete overview of the product's performance by conducting a range of tests and measurements and we help Vandersanden with the further development of the product. We have found each other in our conviction and enthusiasm. In my opinion this is the most important basis for innovation and success."

# SGS INTRON LEACHING RESEARCH RESULTS IN AMENDMENT TO SOIL QUALITY REGULATION

MORE INFORMATION: ULBERT HOFSTRA  
[ULBERT.HOFSTRA@SGS.COM](mailto:ULBERT.HOFSTRA@SGS.COM)



## STAATSCOURANT

Nr. 6111  
29 maart  
2012

Officiële uitgave van het Koninkrijk der Nederlanden sinds 1814.

Regeling van de Staatssecretaris van Infrastructuur en Milieu van 22 maart 2012, nr. IENM/BSK-2012/38254 tot wijziging van de Regeling bodemkwaliteit (actualisering verwijzingen normdocumenten en technische aanpassingen 2012)

At SGS INTRON we are often ahead of the developments. Sometimes, our research even causes government legislation to be changed. An example is the leaching behaviour of rubber granulate.

The technical properties of artificial grass fields and their substrates are improved by the application of rubber granulate in both the top layer (filling material) and the bottom layer (a mixture of lava and rubber granulate). The application of building materials in Dutch soil is regulated via the Soil Quality Regulations and so the rubber granulate must conform with the limit values described in these regulations. One of the requirements of the Soil Quality Regulation concerns allowable mineral oil content. The mineral oil content is determined using a prescribed and universal measurement method following extraction of the material with an organic solvent. All compounds that are extracted in the C10-C40 boiling range are designated as mineral oil.

Normally, building materials do not contain mineral oil components, so that the maximum allowable content of mineral oil in building materials such as concrete, granulates, etc. is not quickly exceeded. Building materials that do normally contain mineral oil, such as rubber and asphalt, do often exceed the limit. However, the mineral oil fractions are safely contained in the material matrix and probably pose little risk to the environment. But this has to be demonstrated first.

That's why SGS INTRON conducted additional research at the request of a rubber granulate industry producer to determine whether their application involved environmental risks due to the mineral oil content. The assessment of the environmental risks focussed on determining the risk of mineral oil leaching from the rubber granulate and the consequences of this.

The existing standardised leaching test method was adapted to make it suitable for the purposes of this research. Granulate from both truck tyres and car tyres was tested.

The research proposal was submitted to NL Agency beforehand in order to ensure that, if the prescribed criteria were met, then an amendment to the Soil Quality Regulations would be considered. The predetermined criteria were discussed with the National Institute for Public Health the Environment (RIVM), which body was responsible for the independent assessment of the research.

In order to determine the leaching of the total mineral content, the leaching of aliphatic and aromatic hydrocarbons was determined separately. The calculations took account of the maximum allowable environmental impact of both specific groups of hydrocarbons,



as well as the current maximum allowable contents of mineral oil in surface water. The laboratory results were then used to calculate the effects in field situations. These calculations took account of the average precipitation and daily drainage water volumes in the Netherlands.

On the basis of this leaching analysis, SGS INTRON was able to demonstrate that only very minor amounts of mineral oil leach into drainage water from rubber granulate and that the various mineral oil fractions do not exceed the Maximum Allowable Risk values (Maximale Toelaatbare Risico - MTR) for surface water.

The result of the research is that rubber granulate is no longer restricted by mineral oil content limit values from of the Soil Quality Regulations. This exemption for mineral oil in rubber granulate was recently published in Government Gazette Nr 6111 of 29 March 2012. See box for the paragraphs in question.



# SGS TEST CENTRE ONE OF FIVE CORNER-STONES IN INNOVATION PROGRAMME NEW ENERGY AT AVANTIS

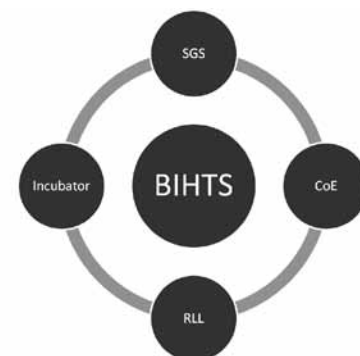
MORE INFORMATION: JOHN BEEKMAN AND HARRIE JANSSEN JOHN.BEEKMAN@SGS.COM HARRIE.JANSSEN@SGS.COM



of Heerlen, LIOF, Zuyd University of Applied Sciences, the City of Aachen, RWTH Aachen University and SGS were all able to launch activities at Avantis. Alongside SGS's research and test centre, BIHTS will also include a centre of expertise, a voucher scheme to stimulate innovation (LIOF), further expansion of the Wijk van Morgen (Neighbourhood of Tomorrow) 'real life lab' (Zuyd University of Applied Sciences) and a High-Tech Systems Incubator for start-ups. Five BIHTS service centres that together form a single network, a rich breeding ground for innovation and the development of applications in the field of new energy.

## TO MEASURE = TO KNOW = MORE CONSUMER CONFIDENCE

As the world's largest testing institute, SGS was the ideal partner to help establish this research and test centre. In fact, SGS had already been involved with BIHTS for more than one and a half years, with senior advisor Harrie Janssen as their intermediary: "SGS's research has revealed that European users are particularly concerned about the reliability of data. The current data available on solar panels and heat pumps, for example, are mainly based on calculation models and can deviate from actual performance by as much as forty per cent. In this case, to measure is to know.



Almost forty per cent of the world's total energy consumption can be attributed to heating, lighting and climate control systems. The built environment consumes a huge amount of energy and is responsible for a corresponding percentage of the world's CO<sub>2</sub> emissions. This makes stimulating the transition to new energy, produced by sun, wind, water and geothermal activity, more than worthwhile. The BIHTS (Building Integrated High-Tech Systems) open innovation programme, situated on the Avantis industrial estate near the town of Heerlen, has been designed for this purpose. In the coming years, BIHTS will help transform knowledge and innovative ideas for a sustainable built environment into concrete products and services that will lower CO<sub>2</sub> emissions and strengthen the regional SME sector. SGS is erecting one of the five cornerstones: an international test facility for testing applications in the field of new energy for the built environment.

## FROM SOLAR ENERGY TO COMPREHENSIVE SOLUTION

The activities at Avantis initially focused on solar energy. But ideas and plans for a more comprehensive approach were soon developed after Heerlen proved unable to compete with China as a production location for solar cells. This eventually resulted in the establishment of the BIHTS public-private partnerships. The Province of Limburg and the Parkstad Limburg metropolitan regional council each contributed € million within the framework of the 'regional dialogue fund' (regiodialoogfonds). With this fund and their own investments, the Municipality



After the completion of the Marmaray Crossing project, SGS INTRON has now been asked to participate in a second megaproject in Turkey: the Izmit Bay Bridge (Izmit Körfez Köprüsü). This bridge is the iconic project of the moment in Turkey.

The suspension bridge will be built at the eastern end of the Sea of Marmara, near Izmit and approximately 50 km from Istanbul. It will become one of the longest suspension bridges in the world, with a 1550 meter central span and a total length of 2682 meters.

SGS INTRON has been commissioned by the contractor STFA as their specialist consultant for concrete, durability, full scale trials, paving control, etc. We are supporting STFA during the imple-

# SGS INTRON SUPPORTS STFA IN THE CONSTRUCTION OF THE IZMIT BAY BRIDGE

MORE INFORMATION: BIANCA BAETENS BIANCA.BAETENS@SGS.COM

mentation and in the communication with the 'Client' and their consultant COWI.

The Izmit Bay Bridge connects the northern and southern shores of Izmit Bay in the west of Turkey. It is part of a motorway between Istanbul, Turkey's largest city and Izmir, it's third largest. The motorway is expected to stimulate economic development, employment and infrastructure development in the west of the country.

NOMAYG JV was awarded an EPC contract to build the new 400 km long motorway from Gebze (Istanbul) to Izmir. The total project is estimated

at 11 billion Turkish Lira (about € 4.5 billion) and the Izmit Bay Bridge is part of this project. The contract for building the bridge was awarded to the IIS-ITOCHU consortium at a price of some €50 million. STFA has been subcontracted to build the substructure for approx. € 200 million.

We are presently involved in the construction of the caissons and the anchor blocks. The caissons, two of 55,000 tonnes (58 x 71 meters), are being built in a dry dock (135 x 85 meters) and will be sunk to the sea-floor as pylon foundations. The entire substructure will require 213,000 cubic meters of concrete.

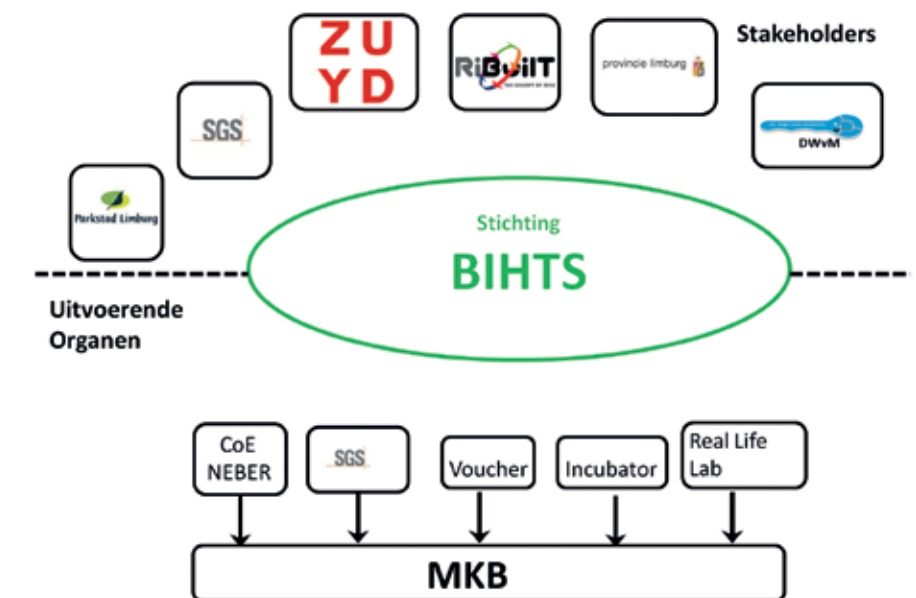
The installations must be tested in their entirety if reliable information is to be obtained on their yields. For example, what does the combination of a solar collector and a heat pump, boiler or CH boiler produce in the way of electricity or heat? This is what we plan to do in our research and test centre: testing and validation of applications and combinations of applications in the built environment."

## SIGHTS SET ON BECOMING A LEADING EUROPEAN TEST CENTRE

John Beekman became the director of the new research and test centre at Avantis on 1 November 2012. He wishes it to become a leading European centre in the field of testing and certifying new energy applications in the built environment within five years. "Here too, SGS will reaffirm its reputation: if SGS has tested it, then you can trust it. In the future, we want governments and industries to know us as the preferred institution for the development of standards and testing methods." Beekman is confident the mission will be successful.

He has ample experience in the national and international industrial standards sector. This includes seven years for TÜV, among others as director of TÜV USA, and he was active in the German energy market for five years as a sales director at Bureau Veritas. Moreover, a European Union

target will come into effect as of 2018 which aims for all newbuild projects to be energy neutral. "This automatically entails that buildings will need to produce energy." Until the facility at the Avantis site is completed, the testing and certification activities will take place at SGS INTRON.





# TWENTY EIGHT TYPES OF ASPHALT IN NATIONAL ENVIRONMENTAL DATABASE

MORE INFORMATION: ULBERT HOFSTRA [ULBERT.HOFSTRA@SGS.COM](mailto:ULBERT.HOFSTRA@SGS.COM)

The next edition of the National Environmental Database will contain accurate environmental profiles of twenty eight of the most commonly used types of asphalt in the Netherlands. The asphalt industry has clearly got things well organised.

## GOOD REFERENCE LEVEL

There was as yet no environmental profile for the asphalt used in the Netherlands in the National Environmental Database. Before drawing up an environmental profile you need to perform a Life Cycle Assessment (LCA), which is an assessment of the environmental impact of a building material in all of its phases, from the extraction of the raw materials to recycling of the used product. The first question that needed to be answered was: how do you conduct a LCA of asphalt? In autumn 2011, NL Agency commissioned SGS INTRON to determine realistic standards and a method to this end. On the basis of these standards, during the past year SGS INTRON has performed twenty eight LCAs on commission by VBW, Bouwend Nederland's bituminous constructions team. The aim: to build a reliable reference level for asphalt in the National Environmental Database. Individual asphalt producers who want to distinguish themselves from the competition with regard to sustainability can then request a separate LCA for their particular product.

## KEY FACTORS

Alongside the factors raw materials extraction and transport, SGS INTRON also included the processes in the asphalt factory and the recycling potential in the LCAs. "We used the purchase data of the various asphalt factories to trace the origin of the raw



materials," explains senior advisor Ulbert Hofstra. "Important new data we gathered included the origin and means of transport of the raw materials and the possibilities for recycling. The fact that asphalt largely consists of recyclable materials helps to improve the environmental profile." The LCA also involves sensitivity analyses and centre of gravity analyses. The means of transport was revealed to be a significant issue: transport by ship is much better for the environmental profile than transport by truck. But once you know which factors have the greatest influence on your environmental profile, you also know where you can concentrate your efforts to improve it.

## NATIONAL ENVIRONMENTAL DATABASE NOW ALSO USED FOR CIVIL ENGINEERING PROJECTS

As of December 2012, the Dubocalc environmental assessment programme, used as standard on major projects by

Rijkswaterstaat, will also source data from the National Environmental Database. In addition, the national building decree stipulates that, as of 1 January 2012, an environmental profile of building materials must be submitted with every application for an 'All-in-one Permit for Physical Aspects' (omgevingsvergunning) for newbuild projects (surface area > 100m<sup>2</sup>). Civil engineering projects are not yet required to submit an environmental profile. However, Rijkswaterstaat does include environmental profiles of building materials in its considerations when awarding these projects. This is now standard practice in major projects and will soon be standard in all projects. The expectation is that all clients in the civil engineering sector will follow suite. This means that manufacturers of these materials need to ensure that their products score well in the National Environmental Database. The asphalt sector is already prepared.

Inspections of engineering structures do not only require expertise and the right equipment, but also extraordinary measures to gain access to them.

Take the damage inspection that SGS INTRON performed on Neerbossche Bridge in Nijmegen last summer. To be able to access and inspect the underside of the northern span of the southern bridge, SGS INTRON employed one of Europe's largest underbridge units and a work barge with scissor lift. They also needed to organise shipping guidance to ensure that the ships and inspectors did not hinder each other.

## LIGHTWEIGHT CONCRETE BRIDGE

Neerbossche Bridge was constructed in 1982 as the last in a series of lightweight concrete box girder bridges across the Maas-Waal canal. As late as the 1980s - before the rise of high strength concrete - very long spans were often constructed using lightweight concrete structures. Lightweight aggregates such as burnt clay or sintered fly ash make this concrete about thirty per cent lighter than normal concrete, allowing for longer bridge spans. But lightweight concrete is also less resistant to chloride penetration: the cause of the damage to Neerbossche Bridge.

## REINFORCEMENT CORROSION

Rijkswaterstaat discovered hollow sounding areas on the underside of the northern span of the southern bridge during a periodic inspection. SGS INTRON was commissioned to investigate the cause and extent of the damage and determine the most suitable repair method. Both the underside and the deck of the bridge were inspected (the asphalt had been temporarily removed for scheduled maintenance work). During the first phase, SGS INTRON personnel inspected the hollow sounding areas under the bridge using an underbridge unit. A more detailed inspection of a limited number of bridge sections revealed the culprit: reinforcement corrosion.

## EXTENSIVE INSPECTION UNDER THE BRIDGE

They now needed to perform a more extensive inspection under the bridge

# PERFORMING INSPECTIONS FROM A LIFT ABOVE THE WATER

MORE INFORMATION: MICHEL BOUTZ [MICHEL.BOUTZ@SGS.COM](mailto:MICHEL.BOUTZ@SGS.COM)



using a work barge with a scissor lift. Senior Consultant Michel Boutz: "Using half-cell potential measurements and electrical resistance measurements, in combination with targeted destructive analysis methods, we were able to ascertain that the corrosion did not only affect the hollow sounding areas, but other parts of the bridge too." An open joint between the southern and northern bridge proved to be the cause of water running along the underside of the southern bridge. This had been the situation since construction. Chlorides left behind by road salt were penetrating into the concrete and causing the reinforcement to corrode, concluded SGS INTRON. Michel Boutz: "The information from the inspections and the laboratory analysis revealed how deep the chlorides had penetrated and to what depth the corrosion of the reinforcement had led to spalling of the concrete cover. This delamination is the cause of the hollow sounding areas. The process had not advanced to the stage that the bridge had become unsafe, but it did need to be repaired."

## CATHODICALLY PROTECTED AND READY FOR THE FUTURE

On the recommendation of SGS INTRON, Rijkswaterstaat decided to repair the concrete by means of cathodic protection (after the joint had been sealed of course). Loose concrete will be removed and replaced. The cathodic protection system creates an electric current which stops the corrosion process and will ensure that this lightweight concrete bridge is ready for the future.



# QUALITY ASSURANCE IN FLANDERS BY SGS

MORE INFORMATION: ANDREAS BAPTIST [ANDREAS.BAPTIST@SGS.COM](mailto:ANDREAS.BAPTIST@SGS.COM)

Deurganckdocksluis NV, established by Vlaamse Havens NV together with the Antwerp Port Authority, has contracted SGS Belgium/INTRON along with its partner SBE to provide quality assurance for the construction of lock gates and bridges for a new sea lock at the Port of Antwerp between the Deurganckdock and the Waasland canal. The five-year agreement dated July 12, 2012, entrusts JV SGS-SBE, in cooperation with a technical team of the Flemish government, to develop a tailored quality assurance system to include a procedures manual and protocols for material and construction inspections of foreign-produced components.



## JV SGS – SBE TO ASSIST IN DEVELOPING THE PORT OF ANTWERP

The project, which started in October of 2011, is currently the largest infrastructure works in Flanders. Although the new lock is to have the same 500 meters long and 68 meters wide dimensions as the Berendrecht lock, the draught will be deeper making it the largest sea lock in the world.

The Port of Antwerp development project, which will require 740 thousand cubic meters of concrete, 12 thousand tons of steel and 55 thousand tons of reinforcement steel for the fabrication of 4 lock gates and 2 bridges, is scheduled for completion within 53 months. This undertaking of paramount proportion will ensure that Waasland Port, the dock area on the left bank of the Scheldt, is built to fulfill a major role in the development of the Port of Antwerp.

The construction of the new lock is necessary to improve maritime access to the economic hub of the Port of Antwerp and the new lock will help to further develop efficient, multimodal and sustainable goods transport, which will benefit not only the Port of Antwerp and Flanders but also Europe. Furthermore, the Port of Antwerp is also a major hub of the EU's new core network of transport, the backbone of the TEN-T network. The European Investment Bank

(EIB) and the European Commission recognize the importance of the Trans-European Transport Network in order to promote sustainable transport, job creation, economic growth and cohesion in the European Union.

## JV SGS – SBE LOCKS IT UP AS THE BEST CHOICE IN BELGIUM

Because the majority of the steel fabrication of lock gates and bridges is to be conducted in Asia, the Flemish government searched for an independent partner to manage the quality assurance and inspections of foreign-produced components in order to verify compliance with current Flemish and European standards and regulations.

It was of top priority that quality and reliability of equipment were ensured in the earliest stages. After careful and thoughtful examination of the world's leading providers, Flemish officials were extremely impressed with JV SGS – SBE outstanding expertise and vast experience as well as recent SGS involvement in the inspection of the lock gates at the Panama Canal. In addition, the SGS global network and ability to deploy resources worldwide made it perfectly clear that SGS was the best choice to assist in the successful completion of this distinguished Belgian project. Officials also recognized the importance of autonomous SGS inspection, verification, testing and certification in building confidence and protecting investment.

## JV SGS - SBE – SBE EXPERT QUALITY ASSURANCE

In the Port of Antwerp development project, JV SGS - SBE quality assurance experts are solely responsible for producing the procedures manual, determining training requirements, overseeing quality control inspections and conducting audits.

A quality control procedures manual created by JV SGS - SBE specialists and specifically tailored for this project will define rigid rules in accordance with international regulations and standards to be followed by manufacturers, constructors, inspectors and trainers. JV SGS - SBE professionals will develop training programs needed to prepare, test and certify new in-house inspectors and periodic supplemental trainings to further educate and preserve the high level of all inspectors at the Deurganckdocklock.

In addition to road-mapping the project with a quality assurance procedures manual and training programs, on-site JV SGS - SBE inspectors will perform quality control examinations and audits of all manufactured components to be included in the construction of the lock gates and bridges.

With this comprehensive strategy, SGS quality assurance will ensure that materials, products, machinery, equipment and industrial facilities are manufactured and maintained in compliance with all specified and mandatory requirements, contractual specifications and quality standards. SGS quality assurance services will guarantee safe and reliable facilities, provide Belgian officials with the certainty that structures, components, materials and systems meet prescribed quality standards and satisfactorily perform throughout the duration of implementation and substantially increase the value of assets.

JV SGS – SBE is particularly proud to accept this essential role in the development of the Port of Antwerp enhancing the overall Belgian port capability and positively impacting the Belgian economy.

# SGS INTRON INTRODUCES

## WILLEM LUBECK JOINED THE TEAM OF SGS INTRON CERTIFICATION ON 1 AUGUST 2012.

He will be working as an Auditor in the asbestos sector. Willem trained as a laboratory technician and also studied for a year at a university of applied sciences. Willem started work in the asbestos sector in early 2003 as an environmental laboratory technician and inspector with RPS Analyse BV, where he was responsible for certifying buildings following asbestos removal. In 2009 he joined RPS's engineering consultancy, where he had the dual position of project leader and trainer. In the function of project leader he conducted asbestos inventories and asbestos risk analyses, while as a trainer he taught the courses for the Certified Asbestos Supervisor diploma (Deskundig Toezichhouder Asbest - DTA) and the Certified Asbestos Remover diploma (Deskundig Asbestverwijderaar - DAV), and provided training in recognising asbestos, monitoring asbestos removal, policy and legislation. After nearly ten years with the same company he decided it was time for a new challenge. He will be joining us as an Auditor with plenty of expertise in this field.



## WILLEM VAN LEERSUM JOINED SGS INTRON AS A SALES ENGINEER ON 1 AUGUST 2012.

Willem graduated in Economic Studies from Rotterdam's university of applied sciences and has been involved in the sales activities of technical companies ever since. His last two employers were BAM and Breijer Bouw, where he was Commercial Manager. The projects he contributed to and/or initiated involved sustainability, innovations, maintenance costs control, finding new forms of collaboration, marketing new concepts and implementing pilot projects. These are uncertain times for the construction industry, but we can transform threats into opportunities, Willem believes. Innovative companies and companies that are prepared to join forces to design integrated approaches - and so limit the failure costs - are the ones to grab these opportunities. SGS INTRON plays a strong role in these processes by supplying its expertise right from the preliminary phase of a project. Willem's own role is to bring the people and companies involved together. Willem is looking forward to the challenge of promoting our expertise in the market, not only in the Netherlands, but in Belgium too. Within SGS, Willem sees enormous potential for collaboration between all the group companies to improve the service to the market, whereby the client's requirements will be key.



## MARCO DE KOK JOINED SGS INTRON CERTIFICATION ON 1 AUGUST 2012 AS SENIOR ACCOUNT MANAGER WITH THE WALLS AND ROOFS TEAM.

He will focus on the certification of roof claddings and insulation materials, the field he has the most experience and expertise in. Marco used to work for a roofing company as technical and commercial expert and as such has gained a lot of knowledge of materials and roofing systems. His practical expertise is backed up by various certificates in this field. Alongside his job, Marco followed a higher professional education programme in construction engineering in the evenings and graduated in 2004. After graduating he went to work for a major insulation manufacturer as Technical Service Manager. He managed a team of technical service consultants, participated in various national and international technical committees and was involved in product certification in various European countries. Part of the work for these committees involved the creation or modification of various national and European product standards. Marco is a valuable new addition to the SGS INTRON Certification team thanks to nearly nine years' experience of certifying insulation materials and his knowledge of roofing materials and systems. He will also be a great new asset for the certificate holders.



## BAS SCHEVELIER JOINED SGS INTRON CERTIFICATION ON 17 SEPTEMBER 2012 AS JUNIOR ACCOUNT MANAGER WITH THE WALLS AND ROOFS DEPARTMENT.

Bas is a recent graduate of the environmental science programme at HAS University of Applied Sciences. He has been involved in the design, implementation and continuous improvement of environmental management systems both in his final project and during various internships. His new job will give him the opportunity to develop and specialise in the field of walls and roofs. Bas will start his career with SGS INTRON Certification, a challenge that he is looking forward to with enthusiasm.





## CERTIFICATION MANAGER ERIK-JAN DE BONT: “QUALITY ASSURANCE IS A CONTINUOUS CHALLENGE”

MORE INFORMATION: ERIK-JAN DE BONT OR MARTIN VAN DER LINDEN  
ERIK-JAN.DEBONT@SGS.COM MARTIN.VANDERLINDEN@SGS.COM

### ARE YOU THE FIRST CERTIFICATION MANAGER AT SGS INTRON?

“No, but the position did come with a new job description. As Certification Manager I no longer conduct audits nor do I carry commercial or operational responsibility. This allows me to focus on one critical task, namely guaranteeing the quality of all SGS INTRON certification activities: product, process and system certification.”

### HOW DOES QUALITY ASSURANCE WORK?

“After an Auditor has completed the certification process and indicated that the client meets all the certification requirements, the Product Manager will assess the audit report. If the Product Manager agrees with the technical component of the audit, then it is my job to decide, on the basis of the entire product file, whether the certificate will be issued. I am also responsible for assessing the qualifications of Auditors and Product Managers. This is important, because if an Auditor does not have the right qualifications, then he may not be able to deliver. Auditors are usually required to have at least the right diplomas and sufficient work experience. We take this a step further in that we also assess whether the candidate can apply their knowledge and skills in practice, i.e. their competencies. Finally, I am also responsible for daily management of the quality assurance system together with Quality Manager Karin Gense-van Zaanen. In consultation with our colleagues, we ensure that all documentation meets the accreditation requirements. We are building an efficient and effective system with simple procedures, so that the quality assurance requirements are clear to all.”

### WHY ARE YOU THE RIGHT PERSON FOR THIS JOB?

“In the first place, I have ample experience in the field of certification. Before I joined SGS INTRON Certification in January 2012, I spent nine years with BMC where I was responsible for the certification of a number of product groups. I was responsible for the entire certification process there, from handling offers to issuing the certificates. And yes, I conducted audits too. I am glad I do not have that commercial pressure anymore. One of the challenges of my job is that there is always a question that needs to be answered. Somebody needs something and we have to work out how to make it possible. You need to approach all these questions with an open mind, and from a healthy distance. My strength lies in the combination of strong analytical skills and the relevant expertise. Colleagues can contact me with any question or problem, even ad hoc questions. I try to find an effective and useful solution together with the asker.”

IN THE SPOTLIGHT



### HAS SGS INTRON MET YOUR EXPECTATIONS?

“Definitely. I have felt at home here from day one. SGS INTRON was, and still is, an organisation that provides quality and an organisation that can help you with issues that nobody else can solve. This is still the case, despite the temporary accreditation issues we had in 2012. These issues had little to do with the quality of individual staff members and Auditors; it was rather an organisational problem. So much is revealed in the measures we took to resolve it.” (See box)

### DO YOU DRAW ON YOUR EDUCATION AS A GEOTECHNICAL ENGINEER FOR YOUR PRESENT POSITION?

“There is only the tiniest link with my education in that I still have product responsibility for a number of certification schemes. After I graduated I went straight into the construction sector. At TNO Built Environment and Geosciences I helped clients with problems involving stone-like materials by developing mathematical models for computer simulations. Later on, my geological knowledge was useful during audits in stone quarries. However, after becoming a Certification Manager, geology is now something I do mainly in my spare time: I live in the Sauerland, a geologically fascinating region.”

### DO YOU KEEP UP WITH THE DEVELOPMENTS IN THE CONSTRUCTION SECTOR?

“Absolutely. I have a strong affinity with the sector. Some say that the construction industry is not particularly innovative. In fact, all the producers are continuously working to improve quality, only out of consumers’ sight. The Certification department has a good overview of this process and it is interesting to follow, albeit now from a distance.”

### DOES THE POSITION OF CERTIFICATION MANAGER HOLD ENOUGH CHALLENGE FOR THE LONG TERM?

“That I am sure of. Quality assurance is and will remain a challenge for me. New certification procedures are constantly being drawn up, accreditation standards change, there

is always something to improve in the organisation and there are always new developments. Take, for example, CE mark accreditation, one of SGS INTRON’s market segments. In contrast to the current guideline,

the European Construction Products Regulation that will come into force on 1 July 2013 requires that the certifying body provide CE accreditation. It is my task to prepare the organisation for this change in time.”

## ORGANISATIONAL CHANGE LEADS TO MORE EFFECTIVE CERTIFICATION

The new role of the Certification Manager is part of an organisational transformation currently underway at SGS INTRON Certification, involving a new and clear separation of functions. During the past years, the sector grew so fast that the organisational system could not keep up. While SGS INTRON Certification had tripled in size, the organisational structure and the allocation of tasks, responsibilities and powers had remained the same. This put pressure on the quality of service provision. As SGS INTRON has very high standards in this respect, which it also applies to itself, the plans for organisational change were given an extra impulse during the past months.

### SEPARATION OF FUNCTIONS

Two new functions have been created; the Certification Manager and the Operational Manager. These functions guarantee more streamlined internal processes and more attention for quality assurance. Moreover, the organisation has become more potent because all involved parties now have ultimate responsibility for their own contribution. All procedures and work instructions in the SGS INTRON Certification quality assurance system have been modified where necessary.

### AUDITORS HAVE ULTIMATE RESPONSIBILITY FOR THEIR OWN AUDITS

An important new change is that Auditors now have full responsibility for their audits. This enables them to work more efficiently and effectively. They conduct the audits, write up the reports and manage non-conformities, all completely autonomously. They have also taken on responsibilities that previously lay with the Account Manager, such as determining preconditions for the execution of an audit and the final assessment on the basis of the certification checklist. After all, the Auditor, more than anyone else, is completely familiar with client’s situation and requirements.

### OPERATIONAL MANAGER: IN CONTROL OF THE EXECUTION PHASE

The Account Managers pass on all tasks related to the management of the execution phase to Operational Manager Martin van der Linden, himself a former Account Manager: “As of August 2012 I have been able to focus completely on my new job: managing the operation here in the office. I manage the activities and coordinate the planning, the Auditors on location, the process support activities and the certification office. When operational issues occur, whatever their nature, it is my responsibility to resolve them as soon as possible, in consultation with the Account Managers and the involved personnel.”

### ACCOUNT MANAGERS: FOCUSED ON CUSTOMER SERVICE

The Account Managers are the client’s main point of contact and they are responsible for project coordination, systems supervision and financial and contractual matters. As they now no longer are involved in the operational side they are able to focus on more direct and better customer service.

## COLOFON

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nl.intron@sgs.com  
www.sgs.com/intron

Dr. Nolenslaan 126  
6136 GV Sittard  
POB 5187 6130 PD Sittard  
The Netherlands  
T 046 420 42 04 / F 046 452 90 60

Venusstraat 2  
4105 JH Culemborg  
POB 267 4100 AG Culemborg  
The Netherlands  
T 0345 58 51 70 / F 0345 58 51 71

FINAL EDITING Uibert Hofstra and Gert van der Wegen  
EDITORS Martine Boutz (Piek tekst & PR), Saskia Kerckhoffs, Suzanne Sideris  
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