



# check it!

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**MPA NRW**  
Materialprüfungsamt Nordrhein-Westfalen  
TESTING – SURVEILLANCE – CERTIFICATION

The newsletter of the Materialprüfungsamt NRW

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Norbert Plappert, Nicole Liratsch and Heribert Rauchberger (front, from left to right) were honoured in Duesseldorf for their improvement suggestions – back: Dieter Goedecker, leader of the task force "Technical innovation" at the MPA NRW

## Advantages also for our clients

■ ■ ■ The Land government highly appreciates improvement suggestions made by employees of the Land administration. Once again the MPA NRW contributed many of the ideas that were awarded a prize by the Land.



It was a great day for Heribert Rauchberger, Norbert Plappert, Nicole Liratsch and Dieter Wehbrink: On 26 October the employees of the organisation of the Land administration MPA NRW were awarded deeds and prizes for their improvement suggestions by the state secretary Dr. Jens Baganz (small photo: On the right) in the ministry of economic affairs. In fact, the minister for economic affairs, Christa Thoben had intended to express her gratitude and appreciation personally but then had to travel to Berlin to attend an urgent appointment.

Every year the "Idea management NRW" awards improvement suggestions made by the Land's employees. The awarded suggestions

are chosen by the "Decentralised Committee for Idea Management in the Ministry of Economic Affairs, Small and Medium-Sized Enterprises and Energy of the Land North Rhine-Westphalia". The Land's employees are awarded considerable bonuses in acknowledgement of their suggestions. For the first time the ceremonial appreciation of the best suggestions took place directly in the ministry of economic affairs.

Of course the company also benefits from the ingenuity of its employees. This was pointed out by the manager of the MPA NRW, Jens-Peter Steuck in a ceremonial in-house meeting that took place a few days earlier. He acknowledged the employee's commitment concerning the development of improvement suggestions and was happy to say that this year's suggestions from Dortmund were once again rated in the winning places by the "Idea Management NRW".

The improvement suggestions are collected and supervised by the in-house task force "Technical Innovation" that has noted a considerable increase of suggestions for years. Most of these

suggestions also bring improvements for the clients of the MPA NRW by reducing test periods or simplifying procedures.

The suggestions by Nicole Liratsch and Dieter Wehbrink (see page 7) are an example for this: In 2008 they suggested the construction of appliances for the continuous measurement of compressive strain relaxation. And this year they developed their suggestion further with the idea of a software-aided test analysis. This would improve its precision and increase the testing capacity. All in all this would significantly reduce waiting periods for the clients.

## Forum Hardness

On 23 and 24 March 2010 the Forum Hardness will newly take place in the MPA NRW

Dieter Schwenk, graduate engineer  
Tel.: (0049) 231. 4502-440

## ■ Pressure from above

■■■ With its new testing equipment the MPA NRW can as of now make a realistic simulation of the stability under load of sewage pipes.

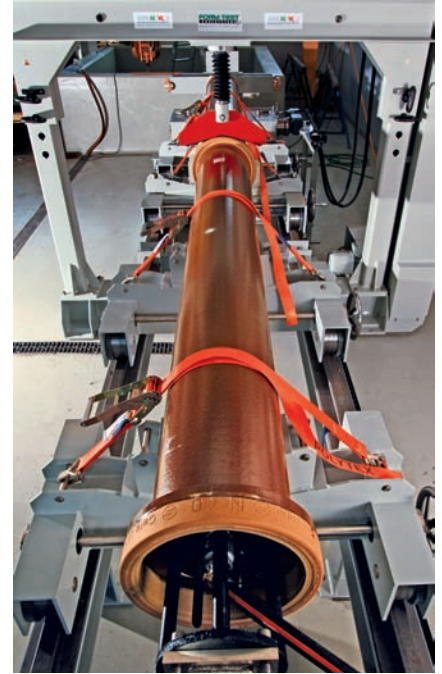
The communities must save money; therefore facilities of the municipal infrastructure have to have a high durability: Sewage pipes have to safely lie in their subterranean sand and gravel bed for decades without leaking. With its new testing equipment the MPA NRW can now realistically test the functional reliability of pipes, sleeve joints and other joints of concrete pipes, concrete polymer pipes and clay pipes. Here it has to be proved whether they can withstand stress caused for instance by road traffic.



**Realistic testing of sleeve joints**

According to the requirements prescribed by standards and other technical regulations pipe joints have to prove their functional reliability under shearing force or deflection and stress due to increased internal pressure. "In these cases the pipe joints must not show any leakage", explains Hans Foerster, graduate engineer. The new testing equipment is about eight metres long and offers the possibility of realistically testing the water tightness of two entire pipes that are connected with one another under shearing force or deflection. So far the MPA NRW has not had the possibility of testing entire pipes.

Clients now have a double benefit: They receive their results faster and they can have the certainty that the built-in pipes will behave exactly the way it was found out in the laboratory of the MPA NRW.



**Room for two clay pipes: The new testing equipment in the MPA testing laboratory.**

## ■ Harmony in Europe

■■■ This year the testing laboratory for fire tests of the MPA NRW in Erwitte will also offer EGOLF training courses



**EGOLF unites the testing laboratories for fire tests in Europe**

The standards concerning the reaction to fire of building materials have been harmonized Europe-wide – the European testing laboratories for fire tests have also united to the EGOLF, the "European Group of Organisations for Fire Testing, Inspecting and Certification".

One of the organisation's main tasks is to ensure a uniform procedure in the implementation of tests and in the assessment of their results from Sicily to Lapland. For this aim EGOLF training courses are carried out. These have partly been

developed by the experts of the MPA NRW. "We thus underline our competence in the sphere of testing the reaction to fire of building materials", says the head of the department "Reaction to fire of building materials" of the testing laboratory for fire tests in Erwitte and chairman of EGOLF Technical Committee TC 1 "Reaction to fire", Hendrik Rademacher.

For five years the EGOLF courses of the MPA NRW have taken place at the testing laboratory for fire tests Erwitte. So far 157 participants from 36 European testing laboratories for fire have taken part and have received a certificate at the end of the course. Not only employees of European testing laboratories are welcome, but

also experts from industrial laboratories. The courses are held in German or English.

Doesn't the implementation of these courses by the MPA NRW benefit competitors against whom it has to stand its ground later on the European market? – a question to the expert Rademacher: "At first sight it looks like it. But in the end the tests ensure that there is a Europe-wide uniform standard and therefore all results are comparable. However, our know how and the technical equipment of our testing laboratory are still vital for our clients." And with that the MPA NRW does not fear to be compared with other testing laboratories.

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## ■ From “very small” to “very big”

### ■ ■ ■ | Testing services

The MPA NRW is an accredited testing laboratory for the spheres

- electric parameters, temperature, humidity
- Material testing machines, hardness testing machines, prestressing jacks, pendulum ram impact testing machines, manometers, special material testing appliances
- Measuring instruments for tensile and compressive force, hardness reference blocks, indenters.

The testing services comprise individual tests and supervisory tests. Tests are carried out for the following branches of industry, among others: Automobile industry, building materials, steel works, plastics, chip-manufacturing, production of disposable nappies, drilling rigs, bridges.

The testing team in clockwise direction from above left: Josef Wegner, Wolfhard Schiffer, Arnold Unteregge, Helge Reinold, Wilfried Bangert, Ernst Ohlrich. Missing: Harald Mueller and Manfred Muschal.



■ ■ ■ The MPA NRW offers its clients comprehensive testing and calibration of the compressive and tensile forces of material testing machines.

From the drilling rig to the nappy manufacturer – this would be how a popular paper would casually describe the field of activity of Ernst Ohlrich and his team. The graduate engineer is head of the outdoor staff of the department “Testing and calibration of material testing machines”. Among others, the accredited testing laboratory of the MPA NRW supervises measuring instruments that determine the compressive and tensile forces that act upon materials or connected materials.

The range of application reaches from “very big” to “very small”. Drilling rigs are stabilized by huge chains, suspension bridge constructions are carried by tensioning ropes, and disposable nappies have Velcro or other fasteners that keep them leakproof and tight. When being manufactured or used, ropes, chains or nappy fasteners are subject to forces that have to remain constant within a defined scope. In order to ensure this the manufacturers need material testing machines that monitor the predefined stability under load during manufacturing or use. If the product condition or tensile forces change during manufacturing this can not only result in a security problem but also in a cost problem – take chip-manufacturing for example: “If the robots pressed the components onto the boards with more force than originally preset”, says Ernst Ohlrich, “you would have a claim of many thousand euros very fast due to broken boards.”

The MPA NRW has a leading position in the testing and calibration of material testing machines – and that since its formation in 1947. The assignment of Ernst Ohlrich and his team grows continuously – more and more quality management systems of the manufacturing companies demand the testing

of the material testing machines at least once a year. The alignment to the European market has also resulted in new clients for the testing laboratory – among others also the operators of drilling rigs off the Norwegian coast.

The testing team consists of eight persons with a back office team of four that coordinates the entire testing logistics and the business trips from the office in Dortmund. Competition is becoming stronger. What is special about the services of the MPA NRW? – a question to Ernst Ohlrich. “We are independent. We do not produce testing instruments or sell products that have something to do with material testing machines.” The yellow control card issued by the MPA NRW after testing and showing the ascertained results is regarded as a quality certificate by the client. “Another point is,” adds the head of the outdoor staff, “that the entire company MPA NRW stands behind our testing laboratory. We are a part of this comprehensive testing competence – and our clients perceive this as such.” The MPA NRW is the only testing laboratory that can offer its clients a gapless test of compressive and tensile forces from 1 newton up to 20 meganewton. Thus they can cover any client requirement from the chip to the drilling rig.

This also has something to do with the testers’ professional competence: After their engineering studies they run through 18 months of qualification in all departments of the MPA NRW in order to become acquainted with all materials and their properties. This is not normal in this branch.

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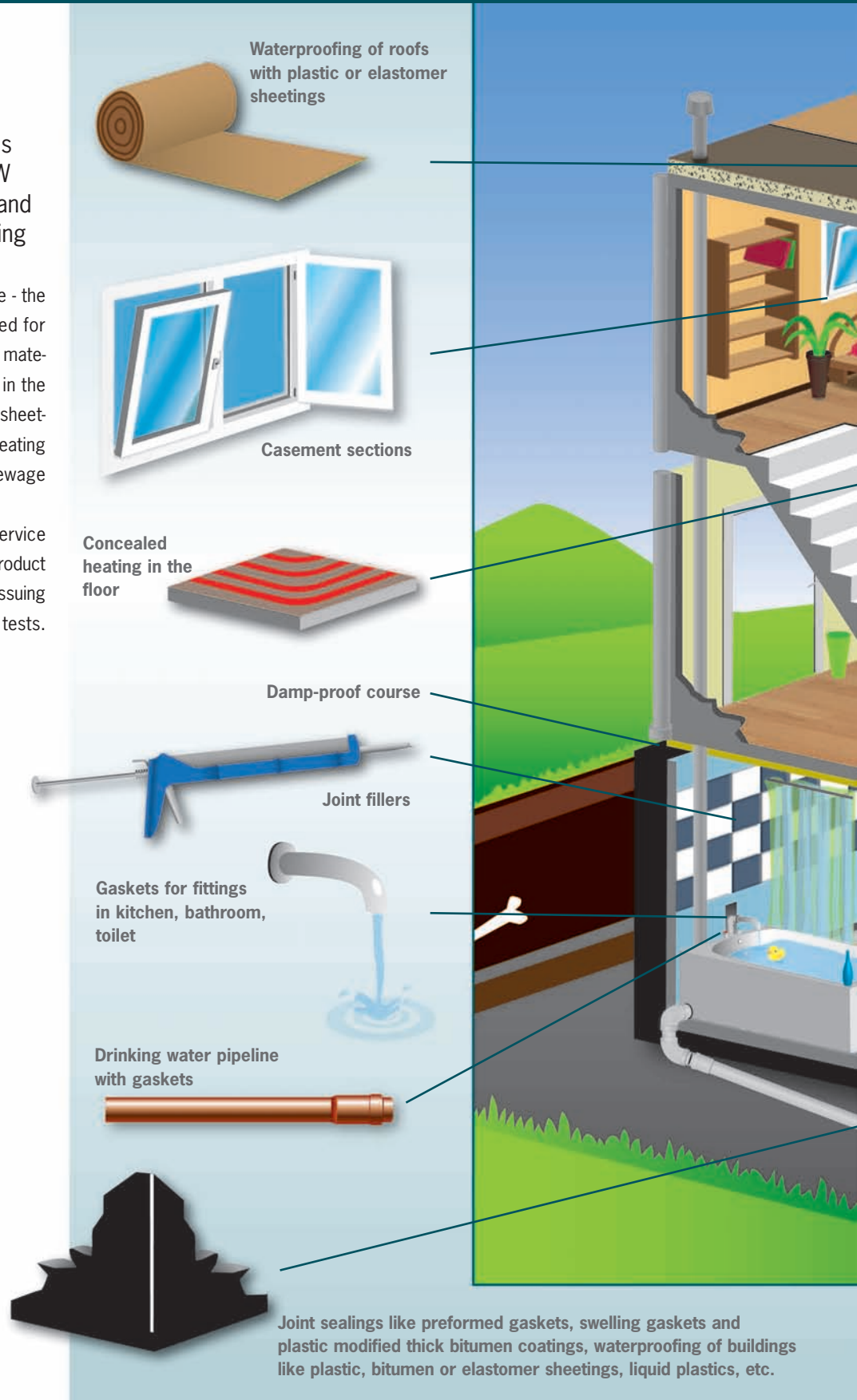


## All tight!

■■■ In the sphere of “Plastics and Elastomers” the MPA NRW tests many sealing materials and systems used for house building

From the roof to below the cellar plate - the MPA NRW tests everything that is used for waterproofing two connected building materials or building systems on under or in the house: Beginning with the waterproof sheetings on the roof over the concealed heating in the floor up to the subterranean sewage pipes with all their joinings.

Besides the material testings the service offer of the MPA NRW also comprises product certifications, external monitoring, the issuing of expert opinions as well as approval tests.



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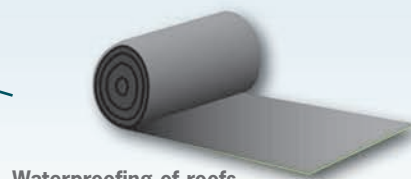
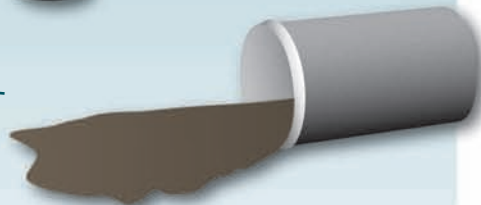


**MPA NRW**  
 Materialprüfungsamt Nordrhein-Westfalen  
VERBUNDLICHE ANSTALT FÜR MATERIALPRÜFUNGEN

Exhaust pipes including gaskets



Waterproofing of roofs with liquid plastics

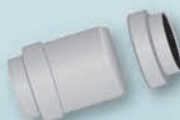


Waterproofing of roofs with bitumen sheetings



Waterproofing of balconies

Gas conduits including gaskets



Sewage pipe including gaskets



**Successful career start at the MPA NRW: Office management assistant Till Sauerwald.**

## ■ A perfect access to the job

■■■ The MPA NRW attaches great importance to a sound apprenticeship. With success: Again and again their apprentices belong to the best at the final examination at the Chamber of Industry and Commerce.

Till Sauerwald's career start could not have begun better: He was one of the best at the final examination for Office Management Assistants at the Chamber of Industry and Commerce for the district Dortmund and after that found a job in his favourite department of the MPA NRW: The young man who enjoys reading and as a citizen of Dortmund supports the town football team BVB now works in the purchasing department. This department was already his favourite during his apprenticeship. "The variety was greatest here." Here he became acquainted with complete order processes and thus received a good overview of the services of the company training him.

Today as an office management assistant at the MPA NRW he has to deal with tenders, orders and invoices. "I mainly deal with the organisation of the waste containers and containers for reusable materials, the telephone system and the company mobile phones."

Of course he also has to handle routine "but I regularly get demanding jobs which keep me occupied for quite a time until I find a solution." After his A-Levels and civilian service the young man "didn't feel like studying". He wanted to do an apprenticeship first in a sphere where he can develop himself further by later studies. One reason for his successful graduation of his apprenticeship the 25 year old young man sees in the fact "that theory in the vocational school and practice at the MPA NRW complement each other quite well. I could use the things I learned at vocational school in the practical job in my company quite well and could therefore better understand many contexts and processes."

For the MPA NRW "well trained and committed employees who know the company as a whole are a good basis for the success of the company", says Sigrid Woelk who is responsible for the commercial trainees.

### ■■■ | Good start

In average eight to ten apprentices are trained at the MPA NRW every year. As the district of Dortmund also lacks apprenticeship places the company trains more apprentices than needed in order to give the young people a qualified career start.

The MPA NRW trains following professions of the dual education system:

- Material tester
- Building material tester
- Chemical lab assistant
- Physics lab assistant
- IT specialist (application development)
- Office management assistant

Beyond that the MPA NRW offers about 25 internships for pupils and 15 co-op programs every year.

## ■ Water, time and money saved

■ ■ ■ In 2009 the employees of the MPA NRW have once again made awarded improvement suggestions

### ■ Heribert Rauchberger

#### Testing apparatus for leak tests of joint sealings

So far the MPA NRW has not had a testing apparatus to implement the newly introduced functional test for strip formed external joint sealings. The suggestion was to reduce the size of the test sample and to maintain the required test surface and the water tightness test (test if water can run behind). Due to this the tests can be carried out in a normal testing laboratory without additional devices.

### ■ Heribert Rauchberger

#### Retrofitting of a testing machine with dust collector and removal by suction

During the tension tests on samples of gauze glass textures or glass fiber reinforced plastics the materials are stressed to the point of breaking. During this process finest particles of glass fiber or mineral fibers can be set free and inhaled by the laboratory staff. The improvement suggestion comprises a dust collecting appliance with integrated suction.

### ■ Norbert Plappert

#### Determination of crack bridging

Tests of crack bridging according to E DIN 28052-6 have so far been carried out with a universal testing machine of the testing laboratory for plastics and elastomers. For this purpose considerable modifications of the testing machine were necessary. During these modification periods (approx. 17 hours per test piece) the machine could not be used for other tests. The suggestion was to construct a bending machine/device with deformation control with which the tests can be carried out. Due to this the universal testing machine can be used for other tests during this time.

### ■ Eva-Maria Engel

#### Cooling of the laser inscription appliance

The suggestion implies cooling the laser inscription appliance for hardness conversion plates with a closed cooling circuit. So far approximately 0.3 cubic metres of fresh water were used every hour when the appliance was working. The alternative arose due to the installation of a new air conditioner in the building that can cool down the water in the closed circuit.

### ■ Nicole Liratsch und Dieter Wehbrink

#### Compressive strain relaxation, digitalisation of the reading acquisition and processing

The improvement suggestion builds on a suggestion that Nicole Liratsch and Dieter Wehbrink had made last year: Constructing appliances for the continuous measurement of compressive strain relaxation. These 32 new appliances now ensure a higher testing quality reducing the amount of work at the same time. The second improvement suggestion based on this means enlarging the testing appliances with software-aided recording. Thus the measured values are continuously recorded and can be documented irrespective of the test period. This means that the test pieces can be mounted time-independently because no staff member needs to be present at the required moment of measuring. Thus these moments of measuring can also be at night or on weekends. This means the occupancy rate of the appliances can be increased significantly and the time for the job handling is reduced. Moreover the exactness of the measurements is increased as the prescribed moment of measuring can be chosen exactly.

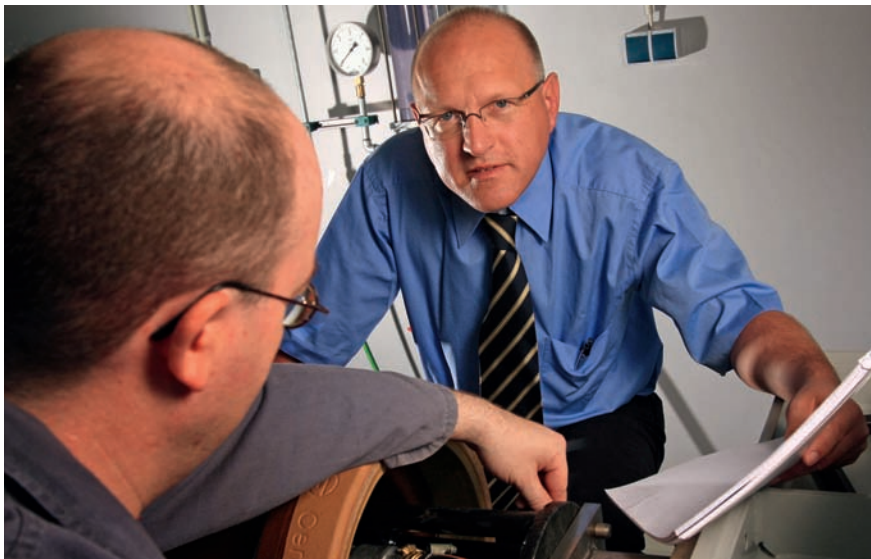


Eva-Maria Engel explains her suggestion to the company manager Jens-Peter Steuck.



The prize-winning improvement suggestions of Nicole Liratsch and Dieter Wehbrink (above) and Heribert Rauchberger (below).





**“No environmentally relevant incident for years” – Juergen Berau, graduate engineer, is the environmental protection officer of the MPA NRW**

## ■ Watcher over exhaust air, waste and waste water

■ ■ ■ Environmental protection is part of the company culture of the MPA NRW. The environmental protection officer is encouraged to stick his nose into every corner.

Juergen Berau says that the job of a company's environmental protection officer is measured against the incidents. From this point of view he has done a perfect job: “We haven't had an environmentally relevant incident here in the MPA NRW for years!” Since 1993 the graduate engineer has been the environmental protection officer of the MPA NRW, so to speak the watcher over exhaust air, waste and waste water.

The general manager of the agency for waste avoidance in Luenen near Dortmund is a person who pays attention to details and gives straightforward answers in conversation. He acts as environmental protection officer like he speaks: At least once a week he comes to the MPA NRW and sticks his nose into every corner. “I look everywhere: Are there fresh oil stains under a testing appliance? Where are the environmentally relevant areas of new testing facilities? Is tested waste material disposed of properly?”

Environmental protection is an essential part of the company culture of the MPA NRW. Juergen Berau has access to the office of the company manager Jens-Peter Steuck at any time because he has been explicitly requested to report any serious incident without delay. This has so far never been necessary although the MPA NRW handles dangerous substances: The environmental protection officer pays special attention to the scrubbing of flue gases in the testing laboratory for fire tests in Erwitte where dangerous substances can develop by burning the test samples.

### Far below the limits

The high standard of environmental protection is the result of the decision of the MPA NRW to organize the company's environmental management system according to the strict demands of the standard ISO 14001. Successfully, as Juergen Berau explains: “We significantly fall below all prescribed limits”. In the meantime the environmental protection

officer has also strongly influenced the attitude of the employees: “Everyone in the MPA NRW is very sensitive concerning environmental protection. I sense this by the questions I am asked when going around the company.” A few years ago the yearly competition of the employees “Technical innovation” produced a prize-winning suggestion of reducing the use of energy in the furnaces of Erwitte: Since this time the company saves several ten thousand euros of energy costs every year and the environment is spared 200 tons of CO<sub>2</sub> and 100 kilogrammes of NO<sub>x</sub>.

### ■ Edition notice

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