

Advice and support for biowaste bring system

Landkreis Rosenheim is extending its offer and involving its citizens

Landkreis Rosenheim is extending its bring system in the recycling depots introduced in 2016 as biowaste collection and is involving its citizens in the development of the system by conducting surveys.

With the amendment of the Waste Management Act ("Kreislaufwirtschaftsgesetzes" - KrWG) in June 2012, the term "biowaste" was redefined and, in addition to garden and park waste, now also includes kitchen and food waste. To implement the duty to collect separately all components of biowaste required in the law, at the end of May/beginning of June 2016, Landkreis Rosenheim introduced a new bring system for kitchen and food waste from households in the recycling depots. The citizens of the Landkreis thus have the

possibility of disposing of their kitchen and food waste collected in bags and containers in the recycling depots.

To inform the citizens about the introduction of the bring system for kitchen waste in Landkreis Rosenheim, the Landkreis ordered various measures to strengthen its PR work and these were implemented by bifa Umweltinstitut GmbH:

1. Press releases
2. Information flyers
3. Presentation boards
4. User survey on handling of the bring system at the start and end of the pilot phase

Through a second survey in May 2017, extension of the collection to the entire Landkreis was supported and



from the surveys, important knowledge was also recorded for further development of the bring system.

Ultimately, by extending the scheme and accompanying it with PR work, a continuous increase in the recorded quantities in the Landkreis was achieved.

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District heating for Ulm University

New district heating agreement for the science city of Ulm

In the summer the new district heating supply agreement between the University of Ulm and Fernwärme Ulm GmbH (FUG) was concluded for 25 years. Following a feasibility study for the federal state Baden-Württemberg in 2015, bifa continued to be involved as the adviser of Ulm University in the contract negotiations.

With a heat delivery of 115 million kWh per year, Ulm University is the largest customer of Ulm's heat supply company FUG. With the new agreement, the base load supply of 36,000 kW is extended to full supply of Oberer Eselsberg with 45,000 kW. The university operates a central utilities plant facility at Oberer Eselsberg and from there, it delivers the district heating and cooling to the individual loads. In addition to the university hospital and the Bundeswehr military hospital, the science city on Oberer Eselsberg includes the university, institute of technology, Daimler research centre, Science Park I and II and the affiliated Institutes jointly funded by the federal state and business.



Renewal of the main pipe to Oberer Eselsberg will require new investments by the heat supply company and thus adjustment of the district heat price. Following the study, the supply was negotiated between the parties to the contract in 2016 and 2017. Through the conduct of the negotiations and investment participation of the partners, clear savings were achieved for the heat customers.

The supply now selected guarantees an ecological solution and uses the generation plant in Ulm with a very low primary energy factor. As a result, no

additional fossil energy sources are consumed and with this solution substantial risks for the university in the form of investments in its own generation plants are now a thing of the past. Within the scope of the study and the contract negotiations, risks such as EEG reallocation charge exemption, change in fossil energy source prices, investment risk with change in construction costs and high responsibility for the operation of complex generation plants were included in the assessment for the alternative gas turbine solution. Ultimately, supply from the ecological power plants of FUG in Ulm takes into account the energy and climate protection targets of the Baden-Württemberg state government and the City of Ulm.

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Event

Visit us from
18.10. - 19.10.2017 at the
Kommunale in Nuremberg

Defence against unwanted microorganism growth

Developing alternatives to protective measures used to date

Their extraordinary adaptability enables microorganisms to intensively populate practically all areas of the environment. Around half the biomass that exists worldwide is made up of microorganisms. Unlike plants or animals, however, they only become visible in a masse. It is rather the metabolic performance they achieve that is noticeable: More than 70 % of the 130 billion tonnes of biomass produced by plants are re-decomposed by microorganisms during the course of the year. This desirable metabolic

performance in the natural cycle is, however, not limited to natural habitats. Microorganisms frequently also populate the processes and products created by humans and even people themselves.

25 to 30 % of all human medical diagnoses and treatments, 50 % of veterinary medicinal products and 30 % of plant protection products in Germany are used solely as defence against unwanted infections.

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Dear Readers, Dear Partners and Customers of bifa,

On reading the heading of our title topic, some of you will spontaneously ask: What has defence against unwanted microorganisms got to do with bifa's range of activities? Microorganisms are frequently used in environmental engineering, e.g. in composting, fermentation or even in contaminated site remediation. It is also from such areas that we have acquired our specific know-how, which we now apply very successfully to products and processes. The use of biodegradable materials is becoming increasingly dynamic. As the name says, the intention is for products made of these materials to be degraded by microorganisms to produce substances that are as harmless as possible. But not until the end of their life, not during the use phase. As long

as such a product is in use, growth of the microorganisms responsible for the degrading must be prevented. And this is only one example of how the circle closes: On the one hand, specifically preventing microorganism growth where it is disruptive and on the other hand, deliberately encouraging it where it is useful, plays an indispensable role in meaningful recycling management. It pays to examine this topic intensively. We have the personnel and technical requirements for this as well as experience from many projects! But read for yourself...

W. Rommel
Yours, Wolfgang Rommel

Also in this issue:

Strategies for adapting to climate change

Catalogue of measures for
Bayerische Oberlandbahn

Page 2



Life cycle assessment of carbon fibre reinforced plastics (CFRP)

Life cycle assessment of CFRP
production and use in the
automotive sector

Page 3



District heating for Ulm University

New district heating agreement for
the science city of Ulm

Page 4

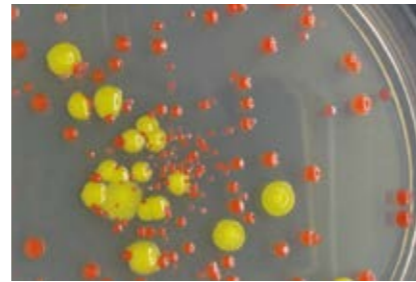


>> Unwanted microorganism growth not only concerns defence against infections: Many production processes and products must also be protected against unwanted effects of microorganisms. This is frequently only achieved by using antimicrobial agents. Their importance can be assessed by the fact that by the end of 2016, the competent approval body for biocidal products had received around 52,027 notifications of biocidal products, of which most are used for disinfection (~49 %), material protection (~29 %) and pest control (~20 %). The large number of biocidal products available is, however, misleading, as the products are spread between 22 product types. In addition, many biocidal agents are currently being subjected to a review: In future, only biocidal products with a low risk potential will be approved for applications. The approvals issued to date have already been cancelled for numerous active ingredients and product combinations and only a few new agents have been developed.

Many users of biocidal products will therefore have to look for or develop

alternatives to the protective measures they have used until now. This is where bifa, with more than 25 years of comprehensive environmental microbiology and toxicology experience in many areas of use, can provide support for users and developers.

As, within the scope of standardised test procedures, most antimicrobial agents can only be tested with a few standard microbes, these findings can only be transferred to the diversity of possible applications to a limited extent. In each individual case, it must be checked whether the substance matrix present in the place of use and the microorganisms that occur there in reality limit the targeted protective effect. It is therefore constructive to isolate and identify the microorganisms that actually occur in the place of use first. Technical processes are frequently only populated by a few microorganism species that are especially adapted to this habitat. Identifying them helps to select potential defensive measures. The microbe isolates acquired should then be used as test microbes for assessing the effectiveness of the protective measures to be tested under conditions



Petri dishes with colonies of bacteria found worldwide on car air-conditioning systems with conspicuous odours and other locations with wet-dry conditions (shower curtains, drains, ...).

that are as close to the actual practical situation as possible. In this way it is possible to identify the best protection option for the respective intended use. Effective suppression of unwanted microorganism growth is also the best way to prevent resistances, which would result in even more sophisticated defence measures. Wherever possible, it should also be checked whether unwanted microbe growth can be limited by adjusting the respective habitat of the disruptive microorganisms, so that the use of biocides can be reduced or completely avoided.

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Strategies for adapting to climate change

bifa and the University of Munich are developing a catalogue of measures for Bayerische Oberlandbahn

More hot days with temperatures above 30 degrees Celsius, milder winters with an average temperature rise of 3 to 4 degrees and the increase in extreme weather events also pose challenges for railways. Climate change is in full swing, its effects can, however, be curbed by taking suitable measures.

Bayerische Oberlandbahn GmbH (BOB), which operates the Meridian railway, bifa and the University of Munich de-



termined such measures scientifically. This collaboration was funded by the Federal Ministry of the Environment. The following questions were answered in expert interviews, passenger and employee surveys and workshops: What are the climate trends within the Meridian's area? What effects have the climate trends for passengers, employees and Meridian trains? In which areas should Meridian take action?

The results were presented on 4 July on the Wendelstein Mountain. The brochure "Climate change – adaptation strategies for Meridian" ("Der Klimawandel – Strategien zur Anpassung für den Meridian") was also produced for this purpose (www.meridian-bob-brb.de). It contains 53 specific measures with which BOB can respond to climate change. It includes those

that lie solely within the influence of BOB, but also those in which several local rail transport players have to work together. Several of the measures within BOB's area of responsibility are already being tackled: For example, employees are being trained to handle extreme weather events better, to further optimise communication with passengers in these cases. BOB is also working on a computer information system, which supplies travellers with up-to-date information about weather conditions and if necessary provides information about alternative options.

bifa will soon be providing complete documentation of the research results under: www.klimaanpassung.bayern.

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Life cycle assessment of carbon fibre reinforced plastics (CFRP)

bifa examined the life cycle assessment of CFRP production and use in the automotive sector on behalf of the Fraunhofer IGCV

With regard to climate protection and careful use of raw materials and energy, lightweight construction is one of the most important future technologies in aircraft, vehicle and machine manufacturing. Carbon fibre reinforced plastics (CFRP), which have a substantial potential for saving weight and whose use can therefore be an important lever in reducing fuel consumption are particularly important. However, the production of CFRP is very expensive in energy terms and current production processes still have large material losses in some areas. The high environmental costs of production are counteracted within the scope of vehicle use by weight savings and associated lower fuel consumption.

Against this background, working on behalf of the Fraunhofer IGCV within the scope of the BMBF-funded research project MAI Enviro 2.0, bifa analysed the life cycle assessment of



current and future CFRP lightweight construction methods, including their use in the automotive sector.

The central finding of the work conducted was that, compared to fuel savings in vehicle use, the production of CFRP components offers greater potential for improving the climate and resources balance. The use of renewable energy sources in the manufacture and introduction of new

production technologies, e.g. for fibre and load path-compatible component design, are of particular importance.

Guidelines with energy efficiency, life cycle assessment and cost analyses performed within the scope of MAI Enviro 2.0 are planned for publication in the autumn 2017.

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Change in the waste criterion HP 14

Effects on the recycling industry

With the amendment of the Waste Register Regulations ("Abfallverzeichnisverordnung" – AVV) in March 2016, the criteria for the classification of waste were changed. Some of the numbers of the hazardous properties redefined with the amendment correspond to the old classification (formerly listed as H (hazardous), now listed as HP (hazardous property)). However, significant changes have also occurred with the properties HP 5, HP 13, HP 14 and HP 15.

When classifying wastes such as bottom ash from household waste incineration plants, frequently only the hazard-relevant property HP 14 (hazardous to the environment or ecotoxic) is to be considered critical.

With the passing of Regulation (EU) 2017/997 in June 2017, an algorithm was defined for determining the property HP 14. If the most unfavourable case is considered (worst case approach), based on the total content of toxic elements, this can result in a change in classification from previously non-hazardous waste to hazardous waste, so that careful checking is strongly recommended.

Practical guidelines have been drawn up for various industries (e.g. practical guidelines on the classification of bottom ash ("Praxisleitfaden zur Einstufung von Rostaschen" published by ITAD). These are intended to be used as the basis on which the hazardous properties (HP) of waste are deter-

mined. In these guidelines the total content of toxic heavy metals is used for classification as HP 4 to HP 8 and HP 10 to HP 13. Based on the practical guide named in the example, the fractions of heavy metals soluble in the aqueous eluate and thus considered to be bioavailable, should be used for the classification as HP 14.

bifa is currently conducting factually founded waste classifications according to the new rules for companies in different industries. These also include considerations regarding the best-suited sampling, analytical determinations and comparisons of various practical guidelines and implementation aids.

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