Optimum air quality in vehicle interiors

bifa supports the trial and further development of innovative filters

An adult exhales ~40 grams of carbon are therefore equipped with extremely dioxide per hour. In an unventilated vehicle cab the carbon dioxide level would therefore exceed the interior guide value in a short time. Regular air exchange should therefore ensure a healthy, safe air quality inside the vehicle.

Ambient air can contain a large number of constituents that give cause for concern. Apart from dust particles and gaseous pollutants, these also include various bioaerosol constituents (airborne bacteria, fungi, viruses, pollen and various metabolites). The ventilation systems of vehicles

efficient filters, which are intended to prevent soiling of air-carrying components and health risks for the vehicle occupants. Normal outside air only contains small quantities of pathogens, yet a large number of allergy-triggering constituents (pollen, fungi spores, fragments of microorganisms) can be detected in ambient air all year round. In Germany, allergies have a negative effect on the well-being of around 30 % of the population. As air is humans' most important "food" in terms of quantity, the provision of low-allergen air is particularly important for human

health. Vehicles are also operated in different workplaces (agriculture and forestry, waste industry, etc.) with highly increased concentrations of bioaerosol constituents. Filters adapted to such specific tasks can ensure that the vehicle occupants are supplied with safe air in these cases too. bifa is assisting MANN+HUMMEL Innenraumfilter GmbH & Co. KG with the trial and further development of innovative filters, which ensure that vehicle occupants are supplied with high-quality air low in allergens, germs and particles.

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Combi-bin test in the district of Rems-Murr

Technical support for a pilot test on used clothing collection

The council of the Rems-Murr district decided to try out the collection of used textiles by means of the waste paper bin as an "after bin" and high-quality recovery of the collected material for a period of one year in a pilot area with around 40,000 inhabitants.

The amendment of the German waste management and recycling law ("Kreislaufwirtschaftsgesetz" and the used textile market situation have led to an increase in commercial used clothing collections and unclear collection struc-

tures. An increasing number of municipal waste management representatives are therefore deciding to set up their own collection systems. The objectives of the test is to achieve further optimisation of the separate collection of recoverable materials, to achieve income for the collection charge budge and to fight against "wild" used clothing collections.

Apart from the invitation to tender for the service by AU Consult, the district of Rems-Murr engaged bifa to provide support for the pilot test and to evalua-

Recoverable material collection

Efficiency of the systems and deduction of concepts

The question regarding the efficiency of a collection system (ecological, economical, user friendly) is often pushed into the background in the discussion of who is responsible for organising and funding collections.

As part of the further development of waste management concepts, recoverable material collection concepts were drawn up for local authorities in Bavaria and Baden-Württemberg. Pick-up and bring systems under the respective basic conditions were compared. The evaluation of published recoverable material

bin trials was also able to be used. There is no universal, "one size fits all" recommendation for the most efficient way to collect recoverables. Apart from specific regional conditions caused by grown structures, possible cooperation partners in bin trials or recycling and recovery companies must also be involved in the considerations at an early stage. In order to ensure high-quality material recovery, the recovery channels must be examined precisely.

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te the results. The collection quantities, the quality of the material collected and the sorting depth agreed with the service providers contracted to collect the clothing are being examined. The aspect of the effects of the trial on existing charitable used clothing collections also plays a role. A summary assessment will be prepared at the end of the trial and a recommendation will be submitted for possible development of the used clothing collection.

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Bioabfalltüten

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IFAT



environmental institute

All about the biobin

Methods, bins and structures firmly in view

For many years bifa has been drawing up collection and recovery concepts for disposal providers under public law on the material flows for biological treatment. bifa assess the quality of the collected waste, checks its biological recoverability and evaluates hygiene aspects of the methods and products. Furthermore, it also produces feasibility studies for biological treatment plants, especially fermentation plants. With the identification of ecoefficiency reserves, not only on the treatment method level but also for municipal disposal structures, bifa makes an important contribution to improving the ecoefficiency of the whole waste industry and the current waste management discussions about the biobin.

Biowaste treatment: Without further pretreatment, waste collected via the biobin is not equally suited for all treatment methods. The material and energy potential of low-structure biomaterial and food waste can be best used in fer-

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represented at the IFAT with its own ful trade fair visit and would be pleased trade fair stand. This year we will be to welcome you to our stand in Hall B3, presenting our latest projects and offers to you under the motto Technology. Materials.Strategies.

What lies behind this triad and why our stand design includes fish, a bicycle chain and pipe: we will be pleased

mentation with biogas utilisation and subsequent material recovery of the fermentation residues. Biomaterial with good physical structure, such as plant material rich in lignin and cellulose, can be readily degraded aerobically by composting. Highly woody constituents with low aerobic degradability are best used in energy recovery processes. If a fermentation stage is installed upstream, material and energy use can be intensified ecoefficiently in existing composting plants in the form of cascade use. If fermentation and composting plants are managed well, there are few environmental differences between these alternative treatments. In the case of fermentation processes, the environmental performance of individual plants can be improved significantly by establishing technical solutions to reduce emissions - which are often already provided for in new plants – and by expanding heat use or sale. If the plant is operated according to good technical practice standards.

Since it was founded, bifa has been at the trade fair. I wish you a success-

171.270.

to tell you all this and more in person Yours, Wolfgang Rommel

Enjoy your read!





Furthermore in this issue: Friedberg is shaping the energy future

bifa draws up an energy use plan for the city of Friedberg



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partial/fully enclosed com->> posting and continuous fermentation are advantageous compared to cotreatment of biomaterial as part of the residual waste in the waste incineration plant.

Introduction of a biobin: Ecology and costs in the balance

bifa investigates the ecological, economic and legal effects of the introduction of separate household biomaterial collection in the so-called "white" districts (= districts without biobins) in Bavaria, Baden-Württemberg and Rhineland Palatinate.

Apart from the regional settlement structure, the attractiveness of existing collection systems and planned organisation of biomaterial collection, PR work also contributes to the successful or failed implementation of a new collection system. Analyses of the recoverable material potential in residual waste and investigation of the collection system used to date provide the basis on which basic data

can be derived for collection quantity, quality and composition of the biobin.

The additional costs for a municipality associated with the introduction of the additional biobin collection and container system are offset by cost reductions for the collection and disposal of a reduced residual waste flow.

Life cycle assessment: From the view of the life cycle assessment, if the whole biowaste disposal structure is considered, in most cases the introduction of separate household collection and sub-



sequent fermentation of the collected biomaterial tends to result in fewer but systematic environmental advantages compared to a collection structure without the biobin. The greater the quantity of biomaterial collected the clearer the environmental advantage becomes. When organising the collection, control instruments are to be provided, which cause high exploitation rates to be realised in households and ensures that a high degree of single waste type homogeneity is achieved.

In the discussion of the economic and environmental cost-benefit ratio or the economic reasonableness mentioned in German waste management and recycling law ("Kreislaufwirtschaftsgesetz"), consideration of the respective basic local conditions is always indispensible. However, until now, legal decisions have not vet provided any conclusive formulation of the reasonableness limit and none is expected in the near future.

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Public participation – for the success of the turn of energy policies?

Workshop on the role of public participation in urban energy renewal

Within the scope of the BMBF "Lokale Passung" ("local fit") project, at the end of last year, bifa and the Ludwig-Maximilians University in Munich invited more than 20 experts from the city administrations of Munich and Ulm as well as municipal utility companies and housing associations to exchange experiences: In which phase of the ideas generation, planning and implementation process should the public be involved and in what way? How do decision makers not only receive an insight into the needs of different groups of the population but also, how can ideas be included for *further implementation?*

In the view of the workshop participants, the perspectives of the public are often included in the planning process inadequately and too late: In most cases, only organised interests ("lobbyists") are reached, with no representative cross-section of those affected, so that general questions such as benefits for the general public are neglected. In

many cases the windows for participations are also limited, i.e. they are limited to short, formalised phases, in which planning and design proposals are already in an advanced stage. This can be frustrating, so that the consequence is that participation in public consultation procedures worsens steadily.

In order to get out of this negative spiral, it is necessary to check each project to determine which target group(s) is/are affected and how and to what extent their participation is useful: How strong is public interest? What orgafreedom nisational exists? The participation "how" is based on this: mere information, dialogue or joint orga-

nisation and design. Professional organisation and moderation is key to the success of more complex dialogue formats. Participation by the consultants involved, i.e. engineers, planners, etc. is also important to ensure a common knowledge base and to be able to value the contributions of the public appropriately.



Workshop for exchange of experiences with experts from Munich and Ulm -November 2013, bifa Umweltinstitut

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Friedberg is shaping the energy future

bifa draws up an energy use plan for the city of Friedberg

development of renewable energy are an indispensible building block for climate protection and security of supply for a bifa Umweltinstitut/G.A.S. Prof. Sahdrawing up an energy use plan (ENP) for the city of Friedberg.

An ENP is an informal planning instrument for municipalities. It integrates existing individual concepts, closes existing data gaps and therefore provides an overview of the current and future energy demand and supply situation. By bringing these together, integral concepts and planning objectives are pointed out and a basis is provided, for example, for area use plans, masterplans and project or building plans.

Energy saving, energy efficiency and the In the meantime, both the data survey and the potential analysis have been completed and the heat register (heat demand analysis) has been drawn up *town or city. Since September 2013, the* for the urban area. The data survey of the existing energy demand, the ner project group has been working on existing energy infrastructure and the energy potential is fundamental for preparation of the ENP. The survey collects and evaluates systematically, not only the electricity and heat consumption data, but also the technical infrastructure data (utility networks, energy generation plants, etc.). The preparation of heat demand maps has enabled homogeneous settlement types to be defined within the city area. Broken down into these units, action areas can be defined which are, for example, preferential areas for redevelopment or redensification.

Hygienically optimised collection of biowaste

Bioburden of the collection in the kitchen and on throwing the collected waste into the biobin

chen waste is increasingly being collected as biowaste, which is especially ection containers used become germridden with bacteria and mould. The collection of biowaste without biowaste bags was compare to collection in paper bags, PE bags and biowaste bags vio

bifa also tested whether the type of collection affects the bioburden on throwing the bags in the biowaste bin. The investigation results allow the conclusion to be drawn that the use of ecovio biowaste bags improves the collection of household biowaste considerably from a hygiene point of view.

BASF SE, examined two hygiene issues in the collection of biowaste in households: Hygiene in the collection

In households, water-rich, cooked kit- in the kitchen and on throwing the collected waste into the biobin. perishable. Therefore, bifa examined First we examined how much bactehow fast kitchen waste and the coll- ria and fungi multiply in fresh biowaste. The samples were stored for five days at 25 °C. The temperature is roughly comparable to the room in a kitchen on a warm summer day. Starting from the size of the collmade of the compostable plastic eco- ection container and the average quantity of kitchen waste produced per person and tag, bifa calculated the test duration. The waste was stored once without waste bag in a plastic container and once each with a paper, PE and a biowaste bag made of the compostable plastic ecovio. The surfaces of the collection vessels were also taken into account. The second issue concerned microbial contamination on throwing the biowaste in the biobin. We examined how The study, conducted on behalf of the type of collection (without waste bag or with ecovio bag) affects the airborne germ burden on throwing the collected waste in the biobin.



Based on the analysis of the actual situation, including the heat demand and potential for renewable energy within the city area, future concepts will be developed for Friedberg's energy supply. The starting point for developing these concepts is the formation of scenarios, which are based on key points of a future Friedberg energy policy for the areas of energy saving, energy efficiency and renewable energy. The key points of the scenarios are defined in the city of Friedberg's energy project group. Furthermore, the necessary actions are developed with the involvement of relevant players for implementation. The actions are planned to have been developed by the summer break.

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From all results, bifa deduced that by using ecovio bags to collect biowaste, the risk of infection is reduced, both in households and on placing the biowaste in the biobin.

bifa-Text No. 64 "Hygienically optimised collection of biowastes with ecovio biowaste bags" ("Hygienisch optimierte Sammlung von Bioabfällen mit ecovio-Bioabfalltüten") contains detailed documentation of the background information and relationships. This text can be purchased now from www.bifa.de.



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