

# Waste streams containing precious and special metals

## Consolidation, temporary storage, degree of recovery

Special metals such as neodymium or indium especially are not recovered from waste or only to a very limited extent. There is also still potential for more recovery of precious metals contained in waste.

This has several causes. There is still no industrial scale recycling method for several special metals in Germany. The concentration or total quantity of the metals installed in end-of-life products or components is often so low that collection or separation from waste streams is currently not economically viable. There are also information deficits in some cases regarding use of the metals and their separation, especially among recovery companies.

The objective of the bifa research project funded by the Federal Environ-

mental Agency is to develop concepts for controlling suitable waste streams, which enable increased recovery of selected precious and special metals relevant from an environmental policy perspective.

To achieve this, new types of logistics concepts and options for the intelligent organisation and design of material and information flows are to be developed for selected waste streams. The temporary storage of waste containing special metals, for which industrial processes are still in the development phase, is to be specified in greater detail and checked with regard to the legal position. Using the example of selected waste streams, an ecologically optimum degree of recovery is to be estimated. Practical players along the recovery chain will be involved with



four workshops and then proposals will be drawn up for implementing the concepts in recycling practice.

The law firm avocado and the optimisation and operations management research group of Augsburg University of Applied Sciences (HSAOps) are assisting bifa with the project. The project work will be completed in March 2018.

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# Redelegation of waste management tasks

## Project information and support in Landkreis Berchtesgadener Land

The effects of the German federal waste and recycling management law ("Kreislaufwirtschaftsgesetz" - KrWG) pose new challenges for waste management in Berchtesgadener Land, especially in the extensive separate collection of biogenic waste in accordance with § 11 KrWG. The rural district Landkreis Berchtesgadener Land has decided to introduce the biobin and to redelegate waste management tasks for residual waste. This decision is based on a county council (Kreistag) resolution passed in 2016.

When selecting external consultants to provide project support and information for the conceptual and implementation phase, the Landkreis chose the consultant engineers AU Consult from Augsburg in cooperation with bifa. First a concept will be drawn up for the redelegation of waste management tasks and then discussed and further developed together with municipalities,

towns, cities and markets within the district. This is to be achieved through information events with the stakeholders. From this, a concept will be drawn up for the takeover of the recoverable material depots, which form the backbone of recoverable material collection in the rural district Landkreis Berchtesgadener Land. Further, a concept will be worked up for introducing the biobin and the charge calculation will be adjusted to the new structures. The results are incorporated into waste management and charge bylaws. Finally, services that are to continue to be provided by the municipalities, so-called existing services, will be defined and safeguarded contractually. All concepts worked up will include a concept for PR work during the project period. The project support is to be provided in 2017 and 2018 through to 2019.

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## Event information

Waste industry - broadening the horizon - is Germany still top?  
2<sup>nd</sup> Talk im Technikum  
28 March 2017, from 13:30, Augsburg

Anniversary Event:  
25 years' bifa  
28 March 2017, from 18:00 Uhr, Augsburg



## Dear Readers, Dear bifa Partners and Clients,

After it was founded in June 1991 by the Bavarian state government at the initiative of the Swabian Chamber of Commerce and Industry (IHK Schwaben) and with the active support of the State Secretary A. Zeller, the first chairman of the supervisory board, the then "Bavarian Institute for Waste Research - Bifa GmbH" commenced its operative activity on 1 March 1992 - spending the first six weeks in rented rooms of the IHK in Stettenstraße in Augsburg's city centre. In addition to the two founding directors, Prof. Hutzinger and Prof. Baum, who fulfilled this function in addition to their full-time jobs, and the secretary, Ms Hentschke, the undersigned writer of this text was an "employee at the dawn of the institute". Please excuse him therefore, if this editorial is written from an unusually personal perspective.

Our present-day location was not chosen randomly. Apart from the adjacent construction site of the Augsburg waste recycling facility, at that time today's "environmental mile" was quite literally a green field. And so we set about designing and implementing the buildings and infrastructure for bifa in its then position as a non-university, exploratory research orientated scientific institute. Our first "roof over our head" was a modular building, which we moved to at the beginning of May in a spirit of optimism and raring to go. Two years later the first permanent (laboratory) building was completed

and at the end of 1996, the then Minister-President Dr. Stoiber officially opened our present day building together with the "Technikum" (technical centre) - now called the "Josef-Vogl Technikum". We spent the entire construction period gradually developing the content and substance of our work, by essentially working on publically funded research projects.

At that time our focus in content terms was on "classic waste management", for example, issues related to thermal waste treatment, waste charges and organisational forms of the waste industry. Some of the employees who joined us during this development phase are still with us and many now have senior positions. At the end of this successful phase, Prof. Hutzinger resigned and was followed by Dr. Matthews, a representative from the waste management industry who, together with Prof. Baum, ran bifa until 2004. With this appointment the intention was to initiate a paradigm change: away from being a mainly generally funded scientific institute to an applications-orientated R&D facility, which as far as possible is economically independent. With the introduction of the German recycling and waste management law at the latest, issues extending beyond classic waste management became increasingly important for us and we began to examine outlying waste management topics with increasing vigour.



## 25 years bifa environmental institute in Augsburg



Also in this issue:

### Transport sector is preparing for climate change

bifa develops adaptation strategy for Bayerische Oberlandbahn

Seite 3



### Everything has a value: Coca-Cola optimises recoverables separation

bifa inspects and confirms the success of the separation of recoverable materials at the Genshagen location

Seite 3





>> Logically, during this time the institute was also renamed as the "Bavarian Institute for Applied Environmental Research and Technology" ("Bayerisches Institut für Angewandte Umweltforschung und -technik GmbH – Bifa"). In retrospect it cannot be denied that our actual development at that time did not fully meet the expectations of our shareholders, and so the writer of this editorial was brought into play, and who has been allowed to manage bifa since 2004. Something he could never have imagined as he stood on the sheep pasture in March 1992 and monitored the setting up of the modular building units. The time from 2004 to 2006 was then a period marked by restructuring. bifa developed from an exploratory-orientated scientific research institute into an R&D service provider, which concentrated on solving the tasks set by its clients and partners.

Today, as "bifa Umweltinstitut GmbH", we are engaged in many issues of technical environmental protection, which have a technical, ecological, economic and societal dimension. Not a simple

path to take, but we are proud and happy that so many of our employees have trodden this path with us and made bifa what it is today, what you all know and hopefully also value. Economically we are largely independent and have now worked successfully on more than 1,000 projects for industry, municipalities, authorities, other institutions and in joint and collaborative project.

Our work is characterised by independence and neutrality and the application of well-founded scientific methods to your specific tasks in current topics. At the same time, we are always ready to tackle new topics. Our most important asset is our experienced employees, who willingly dedicate their skills and efforts to your tasks. We can hardly wait for the challenges you will set us in the future and look forward to our continued mutually successful cooperation!

*W. Rommel*

Yours, Wolfgang Rommel



## Transport sector is preparing for climate change

### bifa develops adaptation strategy for Bayerische Oberlandbahn

*What significance does progressive climate change have for companies in the transport sector and how can they prepare for unavoidable climatic changes? Such questions are being examined by bifa and the University of Munich using the example of Bayerische Oberlandbahn GmbH (BOB), for which they are jointly developing a strategy for adaptation to climate change. The initiative is funded by the Federal Ministry of the Environment.*

Since February 2016, the effects of climate change have been analysed, passengers and employees surveyed, and representatives from industry and politics have also been involved, so that the Meridian brand of BOB can successfully counteract the climate consequences. Meridian rail services run between Munich, Holzkirchen, Rosenheim and Salzburg/Kufstein. An average temperature rise of 3–4°C is expected in this region by the middle

of the century. The associated increase in summer and hot days and extreme weather events has significant effects on Meridian: On the risk side, for example, there is storm damage and the impairment of employees' and passengers' health during hot summers. Yet positive effects are also to be expected, such as fewer technical problems in milder winters or greater demand for leisure traffic due to an extended summer season.

Through interviews and workshops within internal and external experts, measures individually tailored to Meridian were developed, which will be brought together to form a comprehensive adaptation concept by the end of the project in April 2017. The aspects covered range from information management to technical and organisational adaptations and employee protection measures through to adjustments to the services offered



in cooperation with regional transport and leisure providers.

After the end of the project the adaptation concept can also serve as an example for other companies in the transport sector, on how to make themselves fit for the challenges of climate change.

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## Everything has a value: Coca-Cola optimises recoverables separation

### bifa inspects and confirms the success of the separation of recoverable materials at the Genshagen location

*Coca-Cola European Partners Deutschland GmbH (CCEP DE) has virtually closed the recoverables cycle in the production area of its Genshagen location to the south of Berlin and has further refined its already extensive separation of recoverable materials.*

The largest drinks company in Germany presented the results of the pilot project on 12.01.2017 in its Brandenburg location. By means of consistent separation of recoverable materials, developed together with Interseroh, CCEP DE creates optimum preconditions for a high-quality recycling process. To this end, more than 300 containers (previously 80) are available on the site for sorting 50 different recoverable material groups (previously eight).



The independent technical assessment of the recoverable material concept carried out by bifa not only covers the measures on site but also the downstream recovery routes. In addition to the comprehensive container concepts, other factors for success are the accompanying visualisation through a clever colour guide system and the continuous involvement or training of employees.

bifa can confirm that thanks to the very differentiated and homogeneous collection, 99 percent of all production waste is recovered and recycled. The chosen recovery routes ensure comprehensive and high-quality recycling.

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