

Reorganisation of sewage sludge recovery

New disposal priorities and obligations

Amendment of the Sewage Sludge Regulations ("Klärschlammverordnung" - AbfKlärV) was the subject of political and technical discussions for over 10 years. They have now been in force since October last year and they have brought far-reaching changes for all everyone involved.

While the Sewage Sludge Regulations to date only covered the spreading of sewage sludge on farming or horticulturally used land, the requirements of the amended version now apply to all soil-related recovery or reuse of sewage sludge, in particular in agricultural recovery (recultivation) and supply to and through mixed and compost producers.

For precautionary reasons, with the new version the legislator would like to end soil-related recovery of larger sewage works (2029 > 100,000 total number of inhabitants and population equivalents (PT), from 2032 > 50,000 PT) and obligate the operators of these plants to recover phosphorus from sewage

sludge and sewage sludge ash after staggered transition periods of 12 and 15 years respectively. Soil-related sewage sludge recovery continues to be an option for sewage works ≤ 50,000 PT.

The objective of the amendment is also to harmonise various legal areas. The new Sewage Sludge Regulations themselves now only contain a few explicit test parameters, but refer to the parameters under the Fertiliser Regulations ("Düngemittelverordnung") and the Federal Soil Conservation and Contaminated Site Regulations ("Bundes Bodenschutz- und Altlastenverordnung").

The work of the sewage sludge producers and local administrative authorities increases. Sewage sludge producers must keep a register, in which the data of the sewage sludge recovery are documented. The local administrative authorities must draw up a spreading and placement plan for sewage sludge, sewage sludge mixtures and sewage sludge compost. Electronic data processing options are to be used for this.

Award as KUMAS flagship project

Supply of a new housing development area with industrial waste heat

The low-temperature network in Meitingen was a prize winner at the official presentation of prizes to the KUMAS flagship projects on the premises of the Swabia district. It received the most votes by far. Not only the environment, but also the citizens benefit from the implemented concept.

The first construction phase of the "cold network" in Meitingen has been largely completed since the end of

last year. The market town operates the local heating network to supply a new housing development area with around 125 residential units located near the plant. From the spring of 2018 the first building in the housing area will be supplied with heat. To this end, SGL Carbon GmbH will provide waste heat in the form of hot water at around 31 °C free of charge all year round. The waste heat will then no longer have to be removed via a cooling system. The waste heat is increased to the required level by heat pumps in the housing area. Due to the high temperature level of the waste heat all year round, the heat pumps operated very effectively. Combined with a daily storage capacity as a buffer, they can also be operated with energy flexibility. The new housing units built will be supplied with heat at a competitive price, which does not



The new specifications affect the disposal market. The partial extension of the range of tests and reduced analysis validity make soil-related recovery of municipal sewage sludge significantly more expensive. Energy recovery thus becomes more attractive as a disposal path.

Since 2006, bifa has operated the Bavarian Sewage Sludge Network, an online offer for electronic implementation of the mandatory notification and delivery note procedure for soil-related recovery on behalf of the Bavarian State Environmental Agency ("Landesamt für Umwelt") (<https://www.klaerschlamm.bayern.de>). Adaptation of the offer to the new specifications is in preparation.

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cause any additional CO₂ emissions. In addition to the conceptual approach and special technical features of the project, for the first time it has been possible to reach a long-term contractual agreement over 20 years between a production company and a municipality as an investor in the heating network and as a supplier of heat customers. The bifa Umweltinstitut developed the project together with its cooperation partners Ratioplan, SGL Carbon Group and the market town of Meitingen and implemented the project in the new housing area as part of the project management on behalf of Meitingen.

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Event

Visit us at the IFAT in Munich, from 14 – 18 May 2018, Hall A4, Stand 147/246.

Interfering and foreign matter in biowaste

Abfallzweckverband Augsburg and AVA GmbH have biowaste examined

Increasingly stringent requirements are being set for the products from biowaste treatment. Among other things, the Biowaste and Fertiliser Regulations ("Bioabfall- und Düngemittelverordnung") provide for increasingly reduced levels of foreign constituents in compost fertiliser.

The foreign constituents include wastepaper, cardboard, glass, metal, thermoplastics and other plastics larger than 2 mm screenings. The other plastics prove to be particularly problematic, as their share of biowaste is increasing nationwide and ejecting them constitutes a challenge for the treatment technology. >>

Also in this issue:

The next climate protection steps

Energy use plan for Unterschleißheim

Page 2



Dear Readers, Dear Partners and Customers of bifa,

two years ago you were able to (or had to) read the following sentences written by me here on the occasion of the 17th Bavarian Waste and Landfill Days: "In the recycling economy it seems the only topics left are the Recoverables Law and maybe framework legislation. For the so-called turn of energy policies, electromobility appears to outstrip all other topics. As understandable and reasonable this may be in the view of individual active players, we are increasingly at risk of losing sight of the true objective of a sustainable society." Let's be honest: has anything changed? The "Recoverables Law" ostensibly started as a great success, became the minimum consensus "Packaging Law", the framework legislation continues to be in limbo. For the turn of energy policies, the coalition agreement includes a declaration of intent to close the intention-action gap for achievement of the climate goal 2020 as quickly as possible.

On the topic of the recycling economy it states: "[we want] to further develop product responsibility, i.e. manufacturers must pay greater attention to durability, reparability and reusability." Noble goals, only how are they to be achieved? Take a look at the forthcoming 19th Bavarian Waste and Landfill Days and see for yourself.

Everyone is keen to take up the cause of the abstract term sustainability. But as soon as it becomes specific and they are affected themselves, this becomes far more difficult. We will only achieve true progress together and not against each other. We want to purposefully implement this idea in our projects and our success – I believe – proves us to be right. Read the report on the "Flagship project" and judge for yourself!

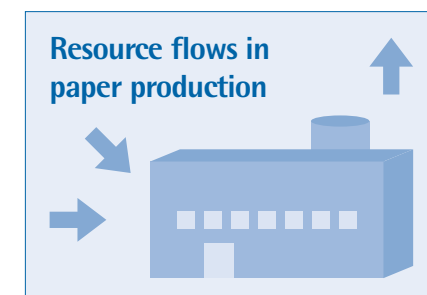
W. Rommel

Yours Wolfgang Rommel

Cooperating with paper factories

Potential for networking material and energy flows

Page 3



Award as KUMAS flagship project

Supply of a new housing development area with industrial waste heat

Page 4



Project team at the prize presentation.

>> These plastics include, e.g. films and bags. To fulfil the legal requirements it is imperative to remove the foreign matter.

Biowaste is a valuable raw material, when it comes to the provision of organic fertiliser, the recovery of plant nutrients and the substitution of peat. At the same time, it is important that the compost from biowaste meets all the quality standards of the sales market. Increased foreign matter levels prevent use of biowaste compost as a soil improving product.

At its site within the city area of Augsburg, Abfallverwertung Augsburg GmbH (AVA) operates a biowaste fermentation plant in which the biowaste from the area of the Abfallzweckverband Augsburg (AZV) is recovered. The members of this waste association are the public waste disposal organisations, i.e. the city and district of Augsburg and the district of Aichach-Friedberg. Biogas, high-quality compost and liquid fertiliser are produced from the biowaste. The interfering and foreign matter sorted out during prepara-

tion of the biowaste are disposed of. bifa Umweltinstitut is examining the biowaste for interfering and foreign matter levels on behalf of the AZV Augsburg and AVA GmbH in a broad-based sorting analysis. In total, more than 80 random samples from the whole AZV area will be taken in four seasonal campaigns at different vegetation and weather phases and analysed separately. A representative selection took place according to statistical aspects to enable reliable and meaningful extrapolation. Uniform distribution of individual samples during the course of the year ensures that seasonal effects are completely represented. Due to the size of the examined biowaste quantity and large number of individual samples, very good representativity will be achieved. The constituents of the biowaste are sorted into more than 22 categories in the sorting analysis. In addition to plastics and metals, here the focus is also on other foreign materials such as textile and hygiene products and nappies. The analysis started in the autumn of



Delivered biowaste before sorting.

2017. Two campaigns have been implemented to date (autumn and winter). Two further campaigns (spring and summer) will take place by the autumn of 2018, before the evaluations are performed by the end of 2018. The intention is for the results to be used to better characterise foreign and interfering matter in biowaste with regard to their type and origin, so that measures can be derived for reducing the interfering and foreign matter levels in biowaste.

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The next climate protection steps

Energy use plan for Unterschleißheim

The topic of energy has long since been addressed by the town of Unterschleißheim. After the town of Unterschleißheim, as a pioneer of district heating from geothermal energy, passed the first political resolutions regarding this in 1999, in 2003 it began supplying the grid with its wholly-owned subsidiary Geothermie Unterschleißheim AG (GTU). With this act, it helped renewable energy to emerge from the infancy stage, especially in the Southern Germany region.

A further important step towards achieving climate protection goals and implementing the turn of energy policies was taken with the preparation of an energy use plan.

The energy use plan summarises the results of the evaluation of Unterschleißheim's energy infrastructure in a prepared and legible form. It is an important planning instrument to purposefully coordinate development of renewable energy, to push ahead with optimisation of heat use and to

promote energy saving and efficiency measures and to bring them together in an integrated overall concept.

The conceptual consideration showed that, when developing the measures, the town of Unterschleißheim should concentrate on the following points, to achieve further advances in handling energy and to make a contribution to climate protection. The developed measures can be divided into two areas:

Areas in which the town can implement measures directly:

- > Control, accounting and reduction of consumption in municipal properties
- > Creation of the basic conditions for development of renewable energy

Measures that the town can help to create indirectly:

- > Support for the development and use of renewable energy
- > Support for creating and improving awareness and for energy saving

Starting from the areas described above, measures were developed and worked up. The greatest options for the town to act for climate protection and to develop renewable energy lie within the area of the district heating network and adaptation and extension of the producer situation for district heating.

A strategically planned development of the district heating system enables this central energy infrastructure to be organised, created and pushed ahead actively.

This is based on a detailed study of the producer situation, taking into consideration different technologies for additional heat production depending on the development goals of the GTU. At the same time, different influencing variables such as the primary energy factor of the heat supply, the annual load duration curve and heat prices must be examined.

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Waste quantity forecasts

Further development of influencing strategic factors

Rhein-Main Abfall GmbH (RMA) is a merger of the independent cities of Frankfurt am Main and Offenbach am Main, the Hochtaunus district and Main-Taunus district, the Offenbach district and the town of Maintal for the coordination and control of waste management measures.

In particular, it has a general disposal mandate for the residual waste produced in the territorial areas of the member authorities. It not only has its own disposal facilities, but also uses contractually secured quotas in the Frankfurt and Offenbach waste CHP plants. A landfill site is available through a cooperation agreement for the disposal of non-combustible waste. To identify early any deviations in the

actual quantity of combustible waste produced for removal and possible free capacities in the fixed disposal quotas booked, each month from the April of the current year, the waste quantity is extrapolated by the RMA. In 2016, bifa was engaged to adapt the methods successfully applied to date to current and new challenges. Together with the RMA, in 2017, the adapted methodology was tested in parallel operation and the annual quantity projections were calculated.

Furthermore, waste management forecasts were produced for 2017, taking into account the altered basic conditions. In addition, a forecast of the medium-term waste quantities for 2018 to 2023 was generated. The last forecast of the waste quantities to be disposed

of by the RMA was drawn up in 2014 as part of the waste management concept. It includes the period up to 2020. The existing forecast for the period 2018 to 2023 is to be used as the basis of medium-term planning.

Through the methodical further development of the quantity extrapolations during the year and a medium-term waste quantity forecast, together with the client, improvements have been made to important influencing factors for future challenges and medium-term planning.

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Cooperating with paper factories

Potential for networking material and energy flows

The production industry operates with high raw material efficiency in its German locations. Significant potential is often difficult to find. Yet working beyond company and industry boundaries still offers definitely interesting opportunities. Production sites of the paper industry, especially paper factories, are a good example of this.

For example, incineration ash from paper factories is suitable for use as a subbase material in road construction or for soil stabilisation. Fibre sludge can replace even more polystyrene and clay in brickworks. Bark and wood waste can be used to produce fuel pellets and fibreboards. The well-controlled processes of paper factories with their large mass flows provide a good basis for achieving reliably high quality in cooperation with the purchasers. The use of regenerative CO₂ from residual material incineration for chemical and biochemical processes or the use of lignin to produce new (eco-) materials offer innovative potential. Paper factories can also be customers for unused residual materials. For example, under certain preconditions,

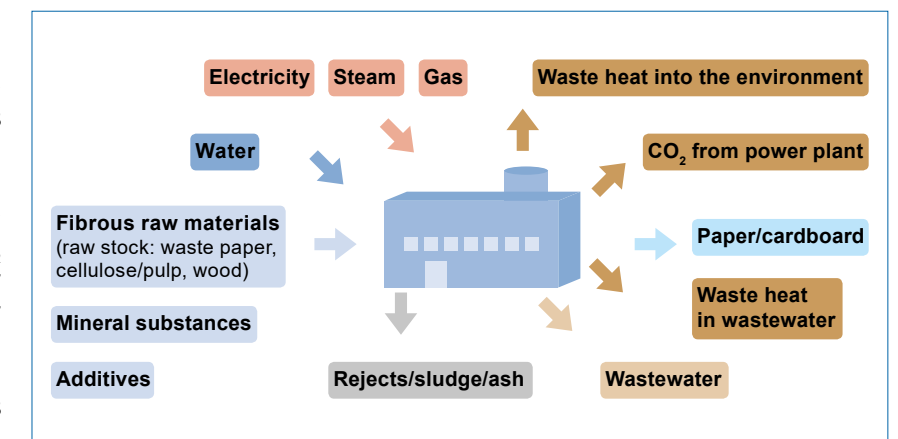
paper waste that could not be reused as material to date, such as service packagings or used paper towels, could be added to the cycle. Special paper products can be made, for example, out of tomato and other vegetable stalks or grass.

Surplus energy from paper production is available as a cost-effective energy source: Waste heat can be used for district heating or for production processes requiring heat, for example, drying. Surplus heat can also be used to produce cold for cooling in office

buildings, data centres or food processing businesses.

In a project of the Bavarian Environmental Pact sponsored by the Bavarian State Ministry of the Environment and Consumer Protection and co-funded and actively supported by BayPapier, together with the Papiertechnische Stiftung foundation (PTS), bifa is currently determining such potential and ways of using them in an even better way.

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Resource flows in paper production (Fig. after PTS)