DHI SOLUTION

RESOURCE RECOVERY FROM WASTE STREAMS

Waste – a resource, not a burden

As society becomes wealthier, the quantity and complexity of waste is increasing. At the same time, the pressure on natural resources and the environment is also growing. Therefore, there's a rising need to conserve and recover resources from waste and properly manage residual waste in an environmentally safe and sustainable manner. We have the requisite experience to assist with all aspects of the evaluation of recovery potential from waste streams.

INCREASING PRESSURE ON NATURAL RESOURCES

Resource efficiency is an important challenge in the European Union (EU) and globally. Societies are consuming resources as if there were five planet Earths, but there's only one. As such, we need to use and reuse resources sustainably, to recover resources from waste streams and to ensure that residual waste is close to zero. This trend is reflected in current waste management development, waste policies and regulations worldwide, where the following priority order of management options prevails:

Optimisation of sorting reduces the amount of shredder waste and can help achieve diversion from the landfill

- Prevention of waste
- Preparation for reuse
- Recycling
- Recovery
- Final disposal

INSIGHT INTO WASTE MANAGEMENT

Waste management is constantly affected by legislative, economic and other changes or improvements. Legislations are changing, waste treatment fees/taxes are escalating and the price of natural resources is on the rise. In view of the changing scenarios, it'll become increasingly important for you to seek alternative waste management options and to extract valuable resources from your waste stream. We not only possess a sound knowledge of the EU waste

SUMMARY

CLIENT

- Waste producers
- Waste treatment and disposal facilities
- Public sector
- Consultants and contractors

CHALLENGE

- Increasing pressure on natural resources and growing need to recover resources
- Inadequate or cost-ineffective waste management methods in the past or present, causing poor resource recovery
- The need to view waste as a resource rather than a burden

SOLUTION

- Obtaining and using more detailed information on waste composition and waste properties
- Estimating resource recovery potential from waste by the use of technical, economic and environmental analysis including Life Cycle Assessment (LCA), risk and technology assessment
- Planning and implementing increased source separation, treatment and upstream measures
- Planning and implementing urban and landfill mining operations

VALUE

- Reduced pressure on natural resources
- Lesser quantities and higher quality of waste
- Potential cost-savings by reuse, recycling of materials and/or energy recovery from waste
- Reduced environmental impacts

legislation, but we also have many years of experience with the characterisation and classification of waste and soil.

We're experienced in working with many materials, including:

- residues from MSW and HW incinerators and power plants
- construction and demolition waste
- contaminated sediments
- phosphogypsum
- shredder waste
- mining waste
- red mud
- other industrial waste types

Sampling of shredder waste to determine the recovery potential

Our in-depth knowledge of, and insight into the properties and behaviour of materials in the environment place us in a leading position when it comes to the evaluation of resource recovery potential from waste.

EVALUATION OF RECOVERY POTENTIAL

In order to evaluate the recovery potential, we can help you compare the current management options for your material in question, along with alternative solutions. This evaluation may often be threefold and involve technological, regulatory and market aspects. Thus we can assist you with:

- identification of the need for further development of existing recovery technologies and development of new technologies for the waste stream in question
- establishment of a basis for assessing the market potential for existing and alternative technologies
- identification of issues hindering the development of the market for new technologies
- identification of regulatory and economic barriers for recovery and conditions promoting resource recovery from waste

USE OF MATERIAL-SPECIFIC DATA

We can map the current waste management situation, including a characterisation and classification of the waste stream in question. In so doing, we can help you gain a better knowledge of the recovery potential of your waste stream and assess potential cost savings. In our test laboratory, we can also perform a number of relevant tests on your specific material and provide the following services:

- Planning of sampling and sorting activities
- Field work, such as sampling and sorting
- Sorting and processing of waste – in-house at DHI (including sieving, crushing, grinding and shredding)
- Testing of material – in-house at DHI (for example, determination of release properties and leaching behaviour)
- Chemical analysis in cooperation with international laboratories

We use the derived material-specific data in order to:

- identify problematic substances in relation to recycling or resource recovery
- assess material composition and leaching properties against limit values (for example, utilisation or landfilling)
- model the environmental impact of different management alternatives

Thus, based on your data, we can advise you on the optimum management solution for your specific case.

STRATEGIC COOPERATIONS

We've had a leading role in key network projects on resource recovery (for example, from shredder waste, wastewater and treatment sludge). Furthermore, we're actively involved in projects for mining waste facilities and recycling/reuse of construction waste. Our services are based on the results of numerous research and development (R&D) projects, often carried out jointly with other national, European or international R&D institutions and private companies. Our cooperation with key players enables us to provide you with the most recent information on technological developments.

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