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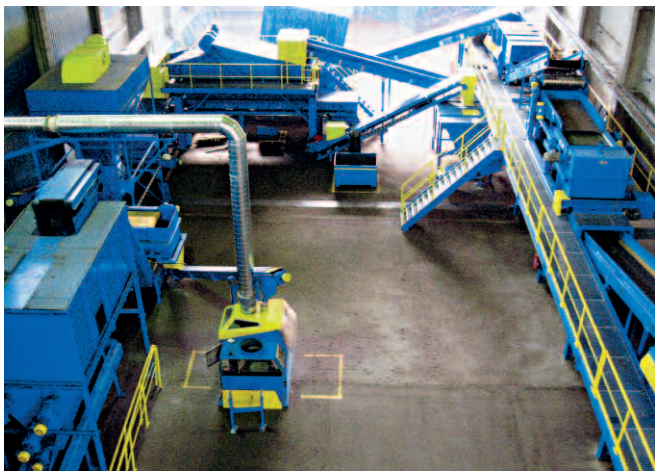
Making the best of RESH

In close cooperation with Wiederkehr Recycling AG, Recomat AG will commission the first RESH treatment plant. The combination of mechanical separation and thermal utilisation in this form is unique.



Pioneer action: Partial view of the RESH pilot plant at Ferro Wohlen.

RESH is a «problem child» of the waste disposal industry. Because RESH (the abbreviation stands for residual material from the shredder) is a conglomeration of plastics, glass, sand, dusts, textiles, leather, wood fibres, cardboard, metals, and even heavy metals, which due to their concentration have to be declared special waste according to the law. Since 1996, the prohibition on landfilling of RESH exists in Switzerland; the material must be delivered to Swiss refuse incineration plants for incineration, or exported. This type of disposal is expensive with up to 350 Francs per ton – with around 50,000 tons per year all over Switzerland, these are costs of over 17 million Francs. The foundation Stiftung Auto Recycling Schweiz (SARS), founded by the Swiss car importers, since 1992 mainly dedicates itself to the task of making an environmentally friendly disposal of RESH possible.

They had a plant designed, which would have disposed of the RESH via thermal utilisation (incineration). The project was cancelled in 2005. From an ecological point of view, the plant was nearly perfect, however, it was missing the appropriate economic foundation: It only could have been appropriately funded by compulsory measures and a Swiss monopolisation of the RESH management. This was equally opposed by the recycling economy under public law as well as the private recycling economy. Meanwhile, the foundation Stiftung Auto Recycling Schweiz has thoroughly checked the project of Recomat AG, and the board committee of the foundation has decided to actively support it.

Depending on the pre-treatment, RESH contains up to 20 percent metals.

In a hall on the premises of Ferro Wohlen, industrial wasteland, which currently is still facing insecure future uses, a plant was installed over the last months, which presents itself as a labyrinth to the layperson. On over 2000 m², four different separation technologies are installed and joined together. The combination of these technologies and the process sequence got an «excellent» in an expertise of the Rheinisch Westfälische Technische Hochschule in Aachen (an internationally acknowledged competence centre for recycling technology). Suggestions for optimisation from the scientists were considered for fine adjustment of the plant. Now test operation has been started. The pilot plant with its many sorting stages first of all provides for a maximum of recyclable metals being sorted

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out and making them available for recycling. After the shredder and the first coarse selection processes, the RESH still contains interesting shares of metallic substances. If RESH, as is currently common, is simply incinerated, these residual metals are finally removed from the cycle of matter. To recycle them as completely and pure as possible is thus a first ecological and economical step towards a reasonable RESH recycling process. In a second step, a substitute fuel (Ersatzbrennstoff – EBS) is won from RESH in further separation and treatment modules. This is subsequently available for energy-intensive industries (cement, paper, etc.). Due to its lower price compared to primary energy sources, this substitute fuel is a conceivable contribution to energy supply alternatives in the long term.

It is also conceivable to operate the RESH plant with energy from substitute fuel.

In Japan, the path through the authorities has already been completed. An import approval for the substitute fuel produced here is present. In Switzerland, the technical and legal foundations and adjustments for a respective use in the local furnace systems are created in further tests – among others with cement works. While currently the new test plant is started up and adjusted step by step, its developer Hansruedi Gutknecht is already engaged with the next vision: «The thought is obvious, that we also use the substitute fuel produced here to generate the electric power for the operation of the plant ourselves and to supply the excess into the network and as district heat.»

Caught on in Japan

Expansion of the Far East strategy: the Wiederkehr Recycling Group recently also opened a branch office in Japan.

Together with the already established SCMR in China, the site Japan offers a new platform for the traditional trade with metals (which is also booming between Japan and China). Furthermore, Japan also has a RESH problem: 600,000 tons of RESH are produced every year. Currently, the material is still deposited (which has already been prohibited in Switzerland and some other European countries) or incinerated. The Japanese automobile industry,

which currently has to fund this disposal, is highly interested in an alternative utilisation. Likewise, the large-scale industry of the country, with its high energy demand, is highly interested in new fuels, especially since the price of coal, which is predominantly imported from China, has significantly increased recently. Test quantities of substitute fuels from the pre-tests in Waltenschwil were already delivered for combustion tests to a large Japanese paper manufacturer. The tests were that positive that the Japanese authorities issued an import and use authorisation within a short term. That means: the Japanese market is also ready for the implementation of a technology for RESH utilisation. Wiederkehr Recycling Japan Co. Ltd. will use plant engineering for RESH treatment developed by the Swiss parent company to offer engineering and consulting services in this area – up to the delivery of complete plants.