

Axion Recycling Newsletter

WELCOME to the latest issue of the Axion Recycling Newsletter. This month, find out about loSys's devices for waste plastic separation and sorting, WRAP's invitation to tender for recycling services to businesses and catch up on forthcoming conferences

WEEE. Are you sorted?

Organisations who are planning to sort waste electrical and electronic equipment (WEEE), will be gearing up for the enforcement of the new WEEE directive in July 2007. Efficient sorting of dismantled components; demands accurate identification techniques. Plastic parts in particular need to be identified and sorted by different polymer types, as well as the existence of a range of chemical additives. Recyclers who are able to sort WEEE components according to polymer type will gain a level of competitive advantage but as Axion found, it is not that straight forward. Axion conducted a study in collaboration with the Hampshire Natural Resources Trust, sifting through 1,500 plastic casings from various electrical items. Keith Freegard, Director of Axion, explained that identification of different polymers proved to be difficult because although some manufacturers label plastic items according to polymer type, many do not, in particular the lower cost items, and very few give markings about the additive chemicals used in the polymer.

Once the polymer type has been established, if additives contained within the plastic can also be identified, further sorting can be carried out. Recyclates made from WEEE plastics sorted by polymer type and additive content can then be reliably sold on to manufacturers. As Keith explained "It is important to be able to identify additives banned under the RoHS (Restriction of Hazardous Substances) legislation to enable plastics recyclers to guarantee the composition of their finished products to prospective buyers."

Axion have trialled a number of devices used for identifying polymer types and additive content. Axion were particularly impressed with the equipment supplied by German company loSys and have become UK agents for them. The loSys devices have been designed for use in industrial environments. As Keith notes "some of the devices we trialled had clearly been developed for use in laboratories with perhaps some modifications to allow industrial use. The loSys devices were robust, portable and had clearly been designed to do a job in an industrial environment."

Axion trialled the loSys mIRo device, using NIR infrared technology to sort polymer types. The NIR devices work by shining a particular wavelength of infrared light onto the surface of the polymer. Different polymers absorb different amounts of infrared light and so a unique characteristic pattern of infrared light for each polymer type is reflected back into the device, enabling identification. The device compares the results with a stored database of polymer types and identifies the closest match together with a confidence of accuracy score.

In order to identify chemical additives in polymers, Axion trialled a simple hand-held 'Sliding-spark' device, the



loSys's SSS3-FR device



Read out from the SSS3-FR

SSS3 -FR. loSys's sliding spark machines identify additives in polymers by utilising two electrodes within a hand 'gun'. The gun is placed on the surface of the polymer and the trigger pulled. Inside the head of the gun, a spark passes between the two electrodes. As the spark travels over the surface of the polymer, it vaporises a small fraction of the polymer surface. Changes to the colour of the spark, caused by vaporised chemicals, are detected and used to identify the presence of halogens such as banned brominated flame retardants and heavy metals such as cadmium and lead.

As Keith comments: "These technologies would be very useful to companies sorting WEEE in the UK. They would allow more complex sorting and therefore, greater financial return. For example, a company stripping down old television casings could use a sliding-spark device to identify the presence of bromine and chlorine. Those casings could then be removed and collected separately."

If you have large quantities of WEEE plastics to dismantle, sort and separate the loSys devices could be just what you are looking for. For further details, contact Keith Freegard tel: +44208 567 1425 email: kfreegard@axionrecycling.co.uk

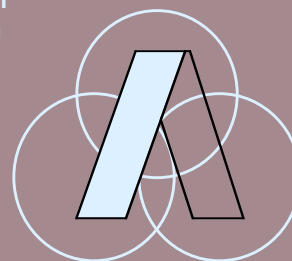
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WRAP invites organisations to provide a recycling service to small and medium sized enterprises.

WRAP is looking for organisations who can provide recycling services to small and medium sized enterprises. Having developed a series of good practice models for the delivery of recycling services, WRAP has issued an invitation to tender to test these models and is looking for organisations across the country to carry out their 'SME Recycling Demonstration Trials'.

There are 4 models that WRAP would like to test:

- a multi material recycling service for a range of SMEs but primarily offices;
- a comprehensive recycling service for the glazing sector;
- a container glass recycling service for hospitality businesses;
- a cardboard and paper collection recycling service for SMEs (offices, retail and hospitality businesses) based in city centres.

Axion was involved in the development of the good practice models and may be able to assist you in developing a new project. Axion would be happy to discuss potential projects with any organisation that may be interested in submitting a proposal and may be able to provide help with the preparation of tender submissions. Call Roger Morton on +44 (0)161 426 7731

The closing date for applications is **Tuesday 14 November 12.30pm**. For further details of the tender opportunity, contact Natasha Allen at WRAP email: natasha.allen@wrap.org.uk.

Download the invitation to tender at http://www.wrap.org.uk/wrap_corporate/tenders/sme007_sme.html

Conference Season

Keith Freegard will be speaking at two major conferences in the near future. On 5th December he will address the 'Japan and Europe recycling techniques - poles apart?' conference at the Innovation Technology Centre in the Advanced Manufacturing Park, Sheffield. The conference will centre on the findings of two separate DTI Global Watch Missions to Japan and central European and Sandinavian countries. Global Watch missions comprise small teams of UK experts who carry out 'fact-finding' missions overseas, examining leading technologies and their implementation. Experiences and data are shared to the benefit of both organisations and entire industries. Keith will report on lessons learnt in Japan regarding plastics recycling from waste electrical and electronic equipment (WEEE).

For further details contact **Hannah Wardon 01709 766 445** or e-mail marketing@renaissance-sy.com.

In the new year, Keith will address 'Polymers in Electronics 2007', a conference organised by Rapra Technology in Munich, Germany on 30th – 31st January. In the light of recent RoHS (Restriction of certain hazardous substances) legislation and the forth-coming WEEE directive, the conference aims to showcase new technologies and innovations in polymers, including new materials and manufacturing processes, necessary to the advancement of the industry. Participants will have the opportunity to learn about new developments and discuss the future of polymer manufacture with key players in the global polymer market. Keith will be discussing polymer recycling and reuse from WEEE. Rapra are offering 'early bird' discount registration before 30 November 2006. For further details log on to www.polymerconferences.com



Staff Focus: Nasir Moosa

Process Engineer Nasir Moosa is the latest addition to the Axion team. Graduating this year from UMIST with a first class Masters in Chemical Engineering with Industrial Experience. During his course Nasir spent a year working for ExxonMobil at their Fawley refinery

Employed by Axion as a project engineer in its consulting division, Nasir is working on a range of small and large scale process trials, and assisting with project management of a number of different developments for Axion clients.

Nasir is a keen rugby player and plays for Heaton Moor Rugby Club.

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