Recover solvents and save money

Today, solvents can have more than one life. The German company OFRU Recycling produces distillation systems for solvent recovery. C2 met Denis Kargol, general manager of the Babenhausen based company, to talk about the advantages of recycling solvents.

Plant for the recovery of solvents made by OFRU

C2: "Which kind of solvents can be recovered using your systems?"

Denis Kargol: "Our systems are suitable for a lot of solvents including nearly all flammable varieties. Alcoholic examples include ethanol, isopropyl alcohol or n-butanol, with ketones we are speaking about acetone and methyl ethyl materials, and in the ester category ethyl acetate would be a good example."

"Then there are the aromaticitys, with toluene and xylene being the most important. Typical solvents used in pack printing, flexoprinting or converting are ethyl acetate, ethanol, acetone and isopropyl alcohol (IPA), but in gravure printing it would be toluene. Of course there are a number of other industries that we serve including the colour and lacquer, metal and plastics, and the chemical industries."

C2: "Do the production processes used with the solvents or the way in which the solvents were contaminated affect the recovery machinery used?"

D. Kargol: "Yes, dependent on the area of usage the recovery plant has to be calibrated in different ways. Every solvent will react differently to temperatures of pressures, depending on the amount and kind of the dirt particles it is mixed with. If solvents that are mixed with printing inks, that for example contain nitrocellulose, are recovered the plant needs to have special safety devices."

C2: "Which methods are used in your plants to recover the solvents?"

D. Kargol: "We are recycling the solvents using distillation processes and we have built plants that use this technology for more than 30 years."

C2: "How does the distillation process work?"

D. Kargol: "Distillation means that we are separating the volatile constituents from the non-volatile components by adding heat. Afterwards we are condensing the solvent, which is now in gas form, by cooling it down. The contaminated particles remain in the plant in the form of mud or a concentrate, which can be taken out of the plant, say, once a day."

C2: "What advantages does recycling solvents offer your customers compared to disposing of them?"

D. Kargol: "Our customers are reducing their hazardous waste from solvents by about 90%. The yield we are getting by recycling solvents is enormous and these solvents can be used again right away. The cost for disposal and buying new solvents shrink to about 10% of the former value and the storage and handling of the solvents is significantly reduced as well. Self-recovered solvents are always there

Denis Kargol

'on-demand' and our customers are saving a lot of money. The cost of operating a distillation plant is marginal compared to the possible savings. We calculate running costs of about 5 Eurocents for one litre of solvent."

C2: "Does the recycling alter the quality of the solvents?"

D. Kargol: "The reclaimed material mostly has an excellent quality that fully meets our customers' demands. The quality of the distillation is dependent on whether volatile substances, which are passed forward from the polluted substance during distillation, are a problem or not. The separation of solids and liquids through distillation is very efficient and the result leaves nothing to be desired."

C2: "What differences between original solvents and recovered materials are there apart from that?"

D. Kargol: "They mainly differ in the kind and number of the individual components in the substance that has to be regenerated. When talking about substances that contain one or a few ingredients only little is changed and only seldom do we have to modify new solvents. In very complex solvents that contain a lot of different lacquers the lacquer and solvents mix. This changes the composition of the regenerate."

"A good example of this is the lacquers and the 40 component solvents that are used in the automotive industry. Most of our customers are using solvents with up to four components and, with that number, the differences to the original product are negligible."

C2: "Topics like sustainability and recovery of materials are becoming increasingly important in our society. Has OFRU Recycling noticed a growing interest from the industry in these subjects?"

D. Kargol: "Yes, environmental protection is a really important topic. I would say that the disposal of solvents is regulated pretty well in Germany but in much of the rest of Europe it is still under development. In countries and regions outside Europe there is a huge backlog in demand."

"Companies from those countries are really interested in our environmental technology, which is great for us. Our sales are growing on a worldwide scale. Our customers are now aware of the importance of acting in an environmentally responsible manner, while at the same time saving money. The recovery of solvents makes sense in every way." ■