CIRCULAR ECONOMY AND THE RE-UTILIZATION OF CHEMICAL RESOURCES

– what do you need to know?

FOCUS ON:

- Re-utilization of processing aid substances from industry
- The role of distributors in the circular economy
- How to get started and where to find further information

Fecc
EUROPEAN ASSOCIATION OF CHEMICAL DISTRIBUTORS

Kemi & Life Science
– en del af løsningen

INTRODUCTION

Circular economy can help reduce the waste of chemical resources. The world's use of material resources continues to grow and puts pressure on the planet and society. Circular business models, where resources are re-utilized, are crucial to ensure a competitive and sustainable industry and society. Denmark end the EU have initiated action plans which foster innovation and new jobs within circular economy.

This leaflet provides recommendations for distributors and users of chemistry, who wish to be a part of a circular economy and ensure that chemical processing aid substances and chemical by-products are re-utilized. By collaborating closely throughout the value chain, it is possible to reduce the use of virgin chemical substances and to avoid waste. This can be achieved by circulating and reutilizing chemical substances in new applications. Circulated substances can be re-sold through distributors, who have the means and knowledge to facilitate such partnerships.

The recommendations are targeting companies which use but do not consume chemical substances in their production, and thereby might have a potential waste of chemical resources. The recommendations are also addressed towards companies which wish to produce sustainable products and run sustainable production processes by replacing virgin materials with circulated substances.

This leaflet is not a finished script on how to engage with circular chemistry, but does provide insights to an area in development. We invite you to use the leaflet to gain insights and inspiration on how to get started.

WHEN CHEMISTRY BECOMES A WASTE OF RESOURCES

Chemical substances are used in the production, but not consumed in the final product (processing aids) usually end up as hazardous waste for destruction. We can avoid such a waste of resources if these substances are, instead, recycled and reused. In this way, virgin substances can be replaced by circulated substances, which does not only lead to waste reduction, but also to environmental benefits.

RECOMMENDATIONS — FOR MAIN SUPPLIERS OF CIRCULAR SUBSTANCES, AS PART OF THE CIRCULAR ECONOMY

The company I work for use chemical substances which can be circulated after their first use.

STEP 1 Mapping out chemical waste
A good place to start is to examine the type of chemical waste you are generating. Substances used as processing aids are often used in many different applications in various industries. This means there is a large base of potential buyers. It could be useful to create an overview of the processing aids you are using in your production, including volume and flow (daily or periodic use).

STEP 2 Initiate partnerships with relevant market players When committing yourself to engage in circular chemistry, we recommend a cross-organizational collaboration. The initiative can come from various sides; management should be involved. Along with your CSR dep., management can evaluate the CSR value and marketing opportunities of participating in circular chemistry.

STEP 3 Assess the costs before engaging
You will need to assess the need for investment in eventual new technology. Existing costs for waste disposal will probably be reduced, but there might be new costs connected to collecting and preparing the substance for reutilization. Investigate how the substances in your production can be kept separate from one another to optimize your chance of re-selling.

RECOMMENDATIONS DEVELOPED BY KEMI & LIFE SCIENCE WITH SUPPORT FROM THE DANISH CHAMBER OF COMMMERCE

The recommendations in this leaflet are based on the project GEAR (Generation and application of circulated chemical resources), which concerns the possibilities of (re)circulating chemical substances. The project is conducted by the Danish industry organization, Kemi & Life Science, members of Kemi & Life Science, chemical users, Danish Chamber of Commerce with support from the Danish EPA and MUPD funding.

STEP 4 Assess the commercial potential

Another important part is assessing the commercial potential. We recommend partnering up with a distributor, if distribution is not (yet) the core of your business. You will most likely not experience economic growth from day one, but as in the Norwegian process industry, the positive result can be measured over time. You will also need to consider how the substance can be stored until it is re-distributed. Terms of delivery also need to be considered.

STEP 5 Evaluate the rule basis of your current business

Do you have an environmental permit? Get in touch with your local authority regarding a possible change of categorization from hazardous waste to "by-product". It is crucial that the substance is not categorized as waste, if the substance is to be reutilized by another company.

STEP 6 Assess documentation of the circulated substance

Just as when you purchase virgin material, the circulated substance needs to be linked to a specification. Presumably you can base the new specification on the one you received with the original purchase. You will need to consider this:

- When you collect a substance after you have used it in your production, you need to prepare a combined assessment and analysis of the substance in order to document the quality after usage (also after eventual cleaning of the substance following normal industrial praxis).
- Consider whether your usage of the substance may lead to changes in concentration/purity over time. Consider quality test plans.
- The substance will typically need a CLP classification and safety data sheet, when it is re-distributed.
- Compare specifications/purity of the circulated substance with the SDS you received upon the original purchase
- Evaluate, if the circulated substance can keep the original CLP classification, and if there are any conditions - despite no difference in CLP classification – which may have an impact on the e-SDS. Are all the covered uses still valid? Will you need to filter any uses out due to the mapped carry-over from your process?

  Such filtering out could be due to human health and environmental reasons, as well as technical reasons.

It should be emphasized that introducing circular substances requires close collaboration in the value chain.

Would you need to add any uses?
- It may be possible to cooperate with a distributor regarding the communication of safety data sheets.

RECOMMENDATIONS — FOR COMPANIES INTENDING TO USE CIRCULAR CHEMICAL SUBSTANCES

The company I work for can receive and use circular substances.

STEP 1 Assess the commercial potential If you are to switch a virgin material with a similar circular substance, you will obtain a more sustainable product which can be beneficial to your CSR profile. The initiative for such a switch can come from various parts of the organization, but it is important that management and CSR are involved. We also recommend that you work in an interdisciplinary way when implementing such a change.

Small- & medium-sized companies can receive economic aid for engaging in developing a circular economy. Contact the Kemi & Life Science secretariat to get advice on financial aids.

STEP 2 Map out where it is possible to switch to circular substances
You need to ensure that the circular substance is not categorized as waste. The substance can be categorized as “by-product” or perhaps as “recycled-” or “reused substance”. THIS IS IMPORTANT, as it constitutes the condition for your options!

As with the purchasing of virgin materials, you need to check the specification related to your application needs along with the CLP classification and the safety data sheet with respect to exposure scenarios.
Be aware that the means of delivery might be different for the circular substance and check out upfront, how this might work out for you.

You can partner up with a distributor to explore already available and potential future circular substances on the market.

HOW CAN YOU AS A DISTRIBUTOR GET STARTED WITH CIRCULAR CHEMISTRY?

The circular economy and reutilization of chemical resources will become an important market for distributors and all players within the chemical sector. This requires new competences within the companies, new types of and closer collaboration across the value chain, transparency and flexibility from all sides.

Pay special attention to ensure that the circular substances you are purchasing are not categorized as waste. They can be categorized as “by-products” or as “recycled” or “utilized resources”. If this is not the case, you need to seek approval as a collector of chemical waste with/without approval of subsequent treatment as well as a registered transporter of waste.

As with the distribution of virgin substances, you need to verify specifications, CLP classification and safety data sheets and compare these to the needs of re-users.

Pay special attention to the question whether the means of delivery differs from the delivery of virgin substances. This also concerns logistic solutions that might be challenges in new ways. Check out, whether this works for you and your customers.

USEFUL SOURCES:

National Government’ strategy on circular economy
https://mfvm.dk/miljoe/strategi-for-cirkulaer-oekonomi/

Miljø- og Fødevarestyrelsen Circular economy and ressource efficiency
https://mst.dk/affald-jord/affald/cirkulaer-oekonomi-og-ressourceeffektivitet/

EU Commission on circular economy:
http://ec.europa.eu/environment/circular-economy/

Norwegian Industry 2019: The Ring closes, Possibility study on circular economy in process industry https://www.norskindustri.no/siteassets/dokumenter/rapporter-og-brosjyrer/mulighetsstudie-sirkular-okonomi-i-prosessindustrien.pdf

Kemi & Life Science webpage, incl. guidance from the project on circular options for chemical substances.
www.kemioglifescience.dk

National order on waste BEK nr 224 af 08/03/2019
https://www.retsinformation.dk/Forms/R0710.aspx?id=207367

REACH https://eur-lex.europa.eu/legal-content/DA/TXT/?qid=1447165123284&uri=CELEX%3A02006R1907-20150925

APPENDIX:

WHAT ABOUT WASTE LEGISLATION AND REACH?

The waste legislation in the EU and at national level(s) takes as a starting point to reduce the amounts of waste and to dispose of them in a safe manner. Waste should be kept separate and be handled safely to eliminate risks for people and the environment. It should be ensured that waste ends up at the right place.

REACH aims to protect human beings and the environment, but related to the *use* of the substances. It is, therefore, required by REACH to communicate information on safe uses to the users via safety datasheets and exposure scenarios. Such a request is not incorporated in the waste legislation.

REACH Article 2.2 stipulates a clear boundary between chemical and waste legislation: “waste ... is not a substance, preparation or article”. This indicates that REACH does not apply to waste as defined under the waste legislation. There are, however, also interactions between REACH and waste legislation.

If companies are to re-utilize a circular substance, then it is crucial that it will not be defined as waste. The “by-product” definition originating from the waste legislation (§2 in the national order and Article 5 in the EU WFD) can be of help here. When a utilized processing aid substance meets the definition of a “by-product”, the processing aid substance will not be considered as waste, but as by-product. Then REACH/CLP will still apply to it.

For a circular substance this may be fulfilled - for example – when a processing aid substance becomes well separated during the process, thus minimizing carry-over effects of other substances from the process, when the substance quality is checked by standard analysis, when it may eventually be distilled (normal industrial praxis), when it fulfills technical requirements/specification for other relevant application processes and when there are real outlets. See also the guiding opinion from the Danish Environmental Protecting Agency on the Classification of Substances a.o. from industry as waste or no waste (by-product).

Pay attention to §4 in the national legislation on waste: “The municipal authority decides whether a substance or an article is waste”. A good dialogue with your supervising authority will, therefore, always be needed.

Looking for more information? See the guidance from the project at KLS’ web page.

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Distributors and members of Kemi & Life Science and Fecc are crucial enablers when it comes to managing chemical substances in the circular economy.

The European Association of Chemical Distributors (Fecc) is the voice of the chemical distribution industry in Europe. We represent roundabout 1,600 companies from all parts of Europe, many of which are family-owned small- and medium-sized enterprises (SMEs). With our unique position in midst all chemical value-chains and as link between producers and downstream users of all segments, we strive to make the circular economy happen in practice.

You can read more on **www.fecc.org**

Follow us on social media

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@LifeKemi

KEMI & LIFE SCIENCE in short
Kemi & Life Science is a unique trade community and a network for distributors and producers of chemistry and ingredients for food and healthcare and also for other companies, which use and deal with chemistry and ingredients in a professional way.

You can read more and download brochures from the webpage:
www.kemi-og-life-science.dk

Fecc takes sustainability very seriously: our supplier Les Grandes Imprimeries will plant one tree in the Amazon Rainforest for every order placed. In collaboration with ZERO DEFORESTATION Association.

DANSK ERHVERV

Fecc EUROPEAN ASSOCIATION OF CHEMICAL DISTRIBUTORS

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