

DEFINITION OF WASTE / END OF WASTE CRITERIA INDUSTRIAL ORGANIC SOLVENTS

GENERAL GUIDANCE PREPARED BY ESRG

Purpose of this Guidance

The European Union's Green Agenda and its focus on resource efficiency and the Circular Economy, has placed a new emphasis as to how waste should be better managed. While the ideals of recovery and material recycling have been high on the environment agenda for some years, the urgent need to address climate change and decarbonise emissions means recycling activities have received an unprecedented boost in their benefit to society.

However, recycling materials brings with it a responsibility to see waste treatments are managed properly and that the outputs from such activities from both a practical and legal perspective do not present a new risk to the environment or human health. Hence making the transition from waste to non-waste, often referred to as End of Waste, must be carefully considered and planned for, and will include the necessary scrutiny by regulators. The idea of End of Waste stems from definitions as to what comprises a waste, a term that has no precise legal understanding, but centres on the intention or need to discard something.

ESRG members have been responsibly recycling industrial solvents for many years and have great experience in managing a hazardous waste stream to produce high quality recovered outputs meeting customer and legislative requirements. ESRG studies have demonstrated how the use of recycled solvents reduces the CO₂ burden and has provided guidance to the sector in respect of End of Waste.

Increased emphasis on recycling means regulators and other authorities have taken a fresh interest in waste treatment procedures and wish to see industry lead on establishing the appropriate controls as to when something ceases to be a waste.

This guidance provides a wider understanding of the issues and is designed to help solvent recyclers, their customers, and regulatory authorities. In particular it aims to establish best practice principles for managing waste solvents and wishes to avoid the introduction of complex, bureaucratic, tailored solutions for each individual solvent substance that would otherwise render the recycling process practically inefficient and so costly that it would encourage the adoption of cheaper non recycling methods with an obvious loss of utility, for example burning to recover energy.

Introduction and Background

The need to determine conditions for waste recovery treatment operations that result in a non-waste status output, commonly referred to as End of Waste (EoW), have been set out in a general manner in the Waste Framework Directive (WFD) 2008/98/EC. Experience shows that both the interpretation and delivery of the requirements have not been met in a consistent manner across all the EU Member States resulting in high profile test cases in the Courts. There are many reasons for this, some of which are described below.

The adoption of the EU's Green Agenda 'Fit for 55' plan, provides a strong focus on achieving resource efficiency with its 'Circular Economy Policy'. Delivery of this has resulted in a new emphasis by Member State Regulators' to ensure fully recovered substances meet the guidelines of becoming non-wastes and to reflect the legal principles contained in the WFD, notably Article 6, as amended by Directive (EU) 2018/851.

This situation has resulted in many Member State Regulator's seeking to determine new criteria for EoW for each output substance. While this may be a well-meaning intention, when faced with limited resources and the required experience to achieve the desired objectives, it can soon become an unworkable process.

Regulators need responsible recyclers to contribute their wide experiences to help achieve EoW objectives in a reliable and consistent way. Because for solvents this naturally involves interfacing chemical and waste law with operational and product quality practice, this has to be a joint effort.

For the recovered solvents industry, ESRG a recognised European trade association, has historically provided EoW guidance via its website This paper helps redefine the process.

European Union waste legislation has evolved through a number of iterations of Directives first set out in 1975, leading to the current WFD (EU) 2018/851. This amended an earlier parent Directive 2008/98/EC and expanded upon the management concept of recovery and disposal of wastes. To support the Green Agenda the WFD describes the important principle of End of Waste by setting out certain guiding criteria The overall aim of the WFD can be best summarised by the official wording:

“This Directive lays down measures to protect the environment and human health by preventing or reducing the generation of waste, the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use, which are crucial for the transition to a circular economy and for guaranteeing the Union's long-term competitiveness”

Earlier versions of the WFD had focused on managing waste primarily to ensure waste treatment was properly managed and accounted for, and where necessary such operations were appropriately permitted. Definitions are key factors designed to ensure the laws can be properly implemented, but unfortunately there have been numerous cases in respect of legal interpretations, particularly as to when something ceases to be a waste, that have had then to be put before national courts and often subsequently referred to the European Court of Justice. End of Waste (EoW) uncertainties can easily place both the waste industry and its regulators' into costly conflict and result in a loss of utility.

The matter is further exacerbated because there are few detailed EoW criteria for recovered substances established at the Commission level (e.g. those accepted centre mainly on certain metals and glass materials). Therefore it then becomes for the Member States' to take responsibility for their own national approach to determining other EoW positions, for which there is a potential need for many hundreds of cases. The decision-making process may involve a general or case specific approach, and is often delegated within a Member State to regional or local authorities who are not necessarily properly resourced to make such determinations.

A further significant barrier may arise when a position for EoW is reached in that something is no longer a waste. In this case the ending of waste status usually triggers the reintroduction of chemical substance law through the regulatory frameworks of REACH [(EC) No 1907/2006] and CLP [(EC) No 1272/2008] and these must be considered before recovered outputs can again be placed on the market. These regulations include legal definitions that are not present in the waste Directives and if misunderstood can easily compromise the objectives of further use for a recovered substance.

It is relatively easy to see that with 27 Member States, some with hierarchical authorities and a complex legal situation, that a structured opinion forming process is demanded. However, the consequence of much practice results in a variety of EoW outcomes for the very same waste stream! Significantly, this may result in a loss of resource efficiency and deliver competitive distortions in the marketplace – a situation particularly unhelpful where the trade wishes to export resources across national frontiers.

A number of Member States have set out their own EoW guidance in the form of procedures and standards, but it is clear that across the EU there is a lack of uniformity in the approaches taken.

The Commission is aware of most of these problems as to their significance and has been tasked with proposing solutions, but is naturally reluctant to change the primary waste and chemical laws on which judgements have to be made.

Industry has a responsibility to pursue its own resource efficiency objectives- a key part of the Green Agenda. It can do that by developing its own EoW conformance schemes and sharing those with their regulator who may wish to present a challenge to the approach taken. Industry should therefore follow the principles set out in the Waste Framework Directive Article 6. Importantly and for consistency, the concepts of REACH and CLP place the burden of the related actions of hazard and risk assessment on the manufacturing community as opposed to the State, and in this context the role of a recovery or recycling operation means it too is classified as a manufacturing activity.

The conditions for EoW are set out in Article 6 of the WFD:

“1. Member States shall take appropriate measures to ensure that waste which has undergone a recycling or other recovery operation is considered to have ceased to be waste if it complies with the following conditions:

- (a) the substance or object is to be used for specific purposes.*
- (b) a market or demand exists for such a substance or object.*

- (c) the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and*
- (d) the use of the substance or object will not lead to overall adverse environmental or human health impacts.*

The criteria shall include limit values for pollutants where necessary and shall take into account any possible adverse environmental effects of the substance or object.”

These conditions are a form of outline guidance and need developing to adopt an approach and associated risk-based assessment process comparing recovered vs virgin materials. Conditions 1 (a) and 1 (b) are relatively straightforward for a solvent recycler to demonstrate, for that is the essential purpose of the business. Usually there is vast sales evidence that both demand and markets exist for the related original and recycled substances

But it is largely within points 1 (c) and 1 (d) that may lead to different interpretations and a conflict of opinion. The European Court of Justice has consistently ruled that it takes a holistic approach to deciding on waste law and its components, meaning all four points above must be considered together.

Points 1 (c) and 1 (d) can be satisfied by seeing that the waste collection and treatment operations are appropriately permitted according to waste law and the treatment operation has Member State validation under the Industrial Emissions Directive (2010/75/EU) applying Best Available Techniques (BAT).

Differences in composition between virgin and waste solvents can be managed through recognition that substances may individually be complex, but virgin solvents are invariably made from well understood and defined chemical substrates in recognised manufacturing procedures defined in the EU/JRC Organics Best Reference Document (BREF) and industry substance specifications are widely available, and REACH /CLP defined.

Recycled materials may be derived from a well understood and clear appraisal of pre-use and condition of a waste stream, but in the waste industry some loss of information flow is inevitable, so solvent recyclers must rely on chemical analyses as the basis of validation of their treatment procedures set out in the WASTE BREF.

Each input solvent waste is required to be classified using the coding and methodology set out in the European Waste Code (EWC). The EWC is a list of waste types, established by the European Commission Decision 2000/532/EC.

It should by now be clear that to draw up individual chemical specifications for a recycled solvent would be an endless and impractical way of approaching the certainty needed to meet EoW points 1 (c) and 1 (d) and would lead to many different outcomes across the markets. This leads to a need for identifying a solution to the problem.

The ESRG Way Forward

The basis of the ESRG solution is to recognise that in order to be placed on the market the virgin solvent had originally and first to be REACH registered (or exempted). In order to prevent duplication of regulation, REACH does not apply to wastes, but the legislation requires that information flow on wastes is provided to those collecting and subsequently treating wastes.

The REACH registration process identifies a chemical substances hazard profile (e.g. as class H XXX) by using consistent testing and detailed scientific methodologies. Information is then communicated to downstream users of that substance by the Classification, Labelling and Packaging (CLP) requirements in the form of reports or Safety Data Sheets. Once discarded and becoming a waste, a connection is made in that CLP methodology is similarly required to classify wastes into HP (XX) classes. Even without a complete history of a waste, existing waste legislation requires its classification according to the (assumed) substance-inherent hazard characteristics.

The logic now put forward introduces a way of using REACH and CLP as the basis for determining EoW using the definitions in both of these Regulations. To introduce another approach hampers the hazard and risk information process at the substance identification concept adopted in REACH, and to substantially increase animal testing, time, and costs for generating new data generation and its evaluation. Such an outcome would complicate the process to the point of making it unworkable and hamper the smaller volume quantities associated with recycling operations.

The ESRG solution is to treat EoW recyclates as required within the law to see that their analyses comply with the substance identity of REACH, including addressing any contaminants, and wherever possible adopt the REACH exemption process defined in Article 2 (7) (d) of the REACH regulation that was included to avoid unnecessary re-registration of recyclates. The approach can similarly be readily adapted to manage solvent mixtures using REACH and CLP methodologies.

Hence if this procedure is followed, all interests can be satisfied, and it can lead to the placing of a recycled solvent on the market that presents no additional risk to human health or the environment when compared with the virgin material it replaces.

Demonstrating End Of Waste

In summary, EoW for a recycled solvent can be demonstrated through a Recycler's Certificate of Conformance that includes the following elements:

- I. Production facilities must hold the appropriate Environmental Permit issued by the Member State under IED 2010/75 EU procedures referencing the appropriate BREF.
- II. The business must display current competence in accordance with the Permitting Regulations.
- III. The business must show it is permitted to manage the class of solvents by the appropriate EWC coding.
- IV. The business must demonstrate the use of a relevant laboratory, sampling, and associated analytical techniques to meet acceptable standards that ensure compliance with the requirements of the appropriate REACH registration or exemption criteria.
- V. A specific test certificate of conformity is issued for each batch of solvent released to the market.

- VI. A specific Safety Data Sheet will be made available in accord with CLP Regulations
- VII. Records must be kept that are consistent with the site's Environmental Permit and include incoming Waste Classification Codes.
- VIII. Production samples will be stored for a minimum of 180 days or other period required by the national permitting authority.
- IX. The makeup and disposal of each output batch will be recorded.

Conclusion

By adopting the above procedures, solvent recycling activities can legally and professionally meet the requirements contained in the Waste Framework Directive and to end the waste status of an input substance. By so doing, the solvents recycling sector can confidently place recycled materials back on to the market to replace virgin solvents while underpinning the aims and objectives of the waste hierarchy and resource efficiency needs of the Community, including a reduction of the associated carbon footprint.

Disclaimer:

This document is not designed to have legal significance. It is intended to be general guidance in order to provide transparency of the ESRG position. Its aim is to help explain in clear language what End of Waste (EoW) principles are, and, to identify a solution to some of the problems in applying EU EoW law in a consistent manner, in order to deliver a non-waste status output.

In respect of the solvent recycling sector's procedures for making the transition from a materials waste to non-waste status, it outlines a process to solve most of the difficulties respecting the position of the industry and its Regulators'.

This document is meant for ESRG members operating in the EU and EFTA areas subject to REACH/CLP. However, the principles and standards required usually apply equally to comparable legislation in many non-EU countries. For such countries similar procedures may be met through an equivalent methodology for example as laid out in Chemical laws reflecting the Globally Harmonised System (GHS).

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