

FRENCH REPUBLIC

Ministry of Ecological Transition,
Biodiversity and International
Negotiations on Climate and Nature

Order of establishing criteria for the removal of waste status for thermolysis oil derived from the vapothermolysis or thermolysis of end-of-life tyres for the purpose of material recovery in a petrochemical or chemical facility

NOR : TECP2528362A

Target audience: operators carrying out vapothermolysis or thermolysis of end-of-life tyre waste at a facility subject to environmental authorisation,

Subject: this Order sets out the criteria which, if met, allow thermolysis oil derived from the vapothermolysis or thermolysis of end-of-life tyres and intended for use as a material in a petrochemical facility to be removed from waste status. The application of this Order is without prejudice to compliance with other regulations applicable to these types of products. This Order does not prejudge the rules for accounting for recycled content and traceability at the later stages of the recovery process.

Entry into force: the day after its publication.

Application: this Order can be consulted on the Légifrance website (<http://www.legifrance.gouv.fr>).

Minister for Ecological Transition, Biodiversity and International Negotiations on Climate and Nature:

Having regard to Regulation (EC) No 1907/2006 of the European Parliament and of the Council, of 18 December 2006, concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC;

Having regard to Regulation (EC) No 1272/2008 of the European Parliament and of the Council, of 16 December 2008, on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006;

Having regard to Regulation (EU) 2019/1021 of the European Parliament and of the Council, of 20 June 2019, on persistent organic pollutants;

Having regard to Regulation (EU) 2024/1157 of the European Parliament and of the Council, of 11 April 2024, on shipments of waste, amending Regulations (EU) No 1257/2013 and (EU) 2020/1056 and repealing Regulation (EC) No 1013/2006;

Having regard to Directive 2008/98/EC of the European Parliament and of the Council, of 19 November 2008, on waste and repealing certain Directives;

Having regard to Directive (EU) 2018/851 of the European Parliament and of the Council, of 30 May 2018, amending Directive 2008/98/EC on waste;

Having regard to Directive 2010/75/EU of the European Parliament and of the Council, of 24 November 2010, on industrial emissions;

Having regard to Directive (EU) 2015/1535 of the European Parliament and of the Council, of 9 September 2015, laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services, and in particular notification No 2024/XXX/X;

Having regard to the Environmental Code, in particular Articles L. 541-4-3, D. 541-12-4 to D. 541-12-14, R. 541-43, R. 541-45, R. 541-78;

Having regard to the Order, of 19 June 2015, as amended, on the quality management system referred to in Article D. 541-12-14 of the Environmental Code;

Having regard to the Order, of 31 May 2021, establishing the content of the waste, excavated soil and sediment registers referred to in Articles R. 541-43 and R. 541-43-1 of the Environmental Code;

Having regard to the observations made during the public consultation carried out between 3 and 24 November 2025, pursuant to Article L. 123-19-1 of the Environmental Code,

HEREBY ORDERS:

Article 1

For the purposes of applying the provisions of this Order, the following definitions apply:

Thermolysis oil: a mixture of hydrocarbons in liquid phase resulting from the vapothermolysis or thermolysis operation.

Petrochemical facility: industrial unit comprising the steam cracking unit and any purification processes prior to steam cracking. These facilities fall within the scope of the activities listed in Points 1.2 and 4.1 of Annex I to the aforementioned Directive 2010/75/EU. In France, these facilities are classified under Sections 3410 or 3120 of the nomenclature of facilities classified for environmental protection annexed to Article R. 511-9 of the Environmental Code.

Chemical facility: manufacturing or production unit using chemical transformation. In France, these facilities are classified under the Sections 3410, 3420, 3680 or 2640 of the nomenclature of facilities classified for environmental protection annexed to Article R. 511-9 of the Environmental Code.

User facilities: petrochemical or chemical facilities as defined in this Order.

Marketed batch: a batch or part of a batch of thermolysis oil, sold to the same person or entity.

Recovery operation: vapothermolysis or thermolysis operation as defined in this Order.

Competent personnel: personnel trained in the process for removing waste status, including input control and quality control of batches of thermolysis oil.

Pyrolysis or thermolysis: the thermal decomposition process of an organic compound, between 400 and 800 °C, in the absence of oxygen or in an oxygen-deficient atmosphere. For the purposes of this Order, only the term ‘thermolysis’ is used.

Use: use within the meaning of the aforementioned Regulation (EC) No 1907/2006.

Vapothermolysis: a process involving the thermal decomposition of an organic compound at temperatures between 350 and 800°C, either in the absence of oxygen or in an oxygen-deficient atmosphere in the presence of water vapour.

Article 2

Thermolysis oil from end-of-life tyre waste ceases to be waste when all of the following criteria are met:

- a) the waste entering the recovery operation must meet the criteria set out in Section 1 of Annex I;
- b) the waste entering the recovery operation has been managed in accordance with the criteria set out in Section 2 of Annex I;
- c) the thermolysis oil meets the criteria set out in Section 3 of Annex I;
- d) a system of checks and self-monitoring in accordance with the provisions of Section 4 of Annex I is in place at the facility;
- e) the operator of the facility carrying out the recovery operation has entered into a transfer agreement for the marketed batch of thermolysis oil with a facility;
- f) the operator of the facility carrying out the recovery operation meets the requirements laid down in Articles 4 to 7 of this Order;
- g) the use of thermolysis oil derived from end-of-life tyre waste is not likely to increase either the emission limit values or, to any significant extent, the emissions released into the environment imposed in the facility using it;
- h) the use of thermolysis oil from end-of-life tyre waste does not increase the quantified diffuse emissions at the user facility.

Article 3

The content of the certificate of compliance referred to in Article D. 541-12-13 of the Environmental Code complies with Annex II of this Order. The certificate of compliance may be issued in electronic form. It is issued for each marketed batch of thermolysis oil.

The information requested in the certificate of compliance may be included in the transfer agreement drawn up between the operator of the facility carrying out the recovery operation and the user facility; the transfer agreement then serves as a certificate of compliance.

Article 4

Pursuant to Article D. 541-12-14 of the Environmental Code, the operator of the facility carrying out the recovery operation applies a quality management system in accordance with the aforementioned Ministerial Order, of 19 June 2015.

Article 5

Each marketed batch of thermolysis oil is identified by a unique number and a reference to uniquely identify the facility where the recovery operation was carried out. In the event that the marketed batch forms part of a batch, the unique number and reference also makes it possible to identify the batch from which the marketed batch originates. The numbering system is recorded in the quality management manual referred to in the aforementioned Ministerial Order, of 19 June 2015.

Article 6

The person carrying out the recovery operation keeps an up-to-date register in accordance with Article 5 of the aforementioned Order, of 31 May 2021. The batches covered by the waste status removal procedure are identified in the register.

Article 7

Evidence of compliance with Articles 2 to 6 is kept by the operator of the facility carrying out the recovery operation for at least five years.

Article 8

The Director-General for Risk Prevention is responsible for implementing this Order, which will be published in the Official Journal of the French Republic.

Drawn up on

For and on behalf of the Minister:
The Director-General for Risk Prevention,
Cédric Bourillet

ANNEX I – CRITERIA FOR THE REMOVAL FROM WASTE STATUS FOR THERMOLYSIS OIL RESULTING FROM THE RECOVERY OPERATION OF END-OF-LIFE TYRE WASTE

Section 1: Waste authorised as input waste into the recovery operation

1.1. The only waste accepted as input waste into the recovery operation is non-hazardous tyre waste covered by the following code in the single list of waste referred to in Article R. 541-7 of the Environmental Code:

16 01 03	End-of-life tyre
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1.2. All batches of waste entering the recovery operation are waste, from end-of-life tyres, crushed to a size of less than 250 mm.

1.3. Any batch of tyre waste entering the recovery operation is free from:

- Waste electrical and electronic equipment ('WEEE');
- Hazardous waste within the meaning of Article R. 541-8 of the Environmental Code;
- Waste containing asbestos;
- Waste containing substances referred to in Article R. 543-17 of the Environmental Code, known as 'PCBs' (polychlorinated biphenyls);
- Waste likely to contain persistent organic pollutants in concentrations exceeding the limits set out in Annex IV to the aforementioned Regulation (EU) 2019/1021, of 20 June 2019;
- Waste that may contain brominated flame retardants;
- Waste falling under Section 18 'Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)' in the single list referred to in Article R. 541-7 of the Environmental Code;
- Waste from components of end-of-life vehicles (ELVs), other than tyres.

1.4. The provisions of this section are formalised in specifications by the operator of the facility carrying out the recovery operation.

Section 2: Treatment techniques and processes

End-of-life tyres are stored separately from other types of products and waste managed on the site of the facility carrying out the recovery operation.

The facility carrying out the recovery operation falls under Section 2771 of the Annex to Article R. 511-9 of the Environmental Code.

Section 3: Quality of the thermolysis oil produced from the recovery operation for end-of-life tyres

3.1. The batches of thermolysis oil:

- Are free from metallic yarn and textiles;
- Are free from impurities in quantities likely to damage the user facility's equipment or cause incidents;
- Are free from impurities likely to cause greater environmental or health impacts in the user facilities, under the conditions provided by the operator of the user facility, than those generated by the use of the usual incoming products;

- Have technical characteristics enabling them to be used for the same functions and with the same level of safety as the products that they replace, under the conditions provided by the operator of the user facility;
- Do not lead to the presence of undesirable substances in products leaving the user facility and do not lead to a modification of products leaving the user facility;
- Have characteristics enabling user facilities to use them in accordance with the environmental emission limit values imposed on them and without increasing the diffuse emissions quantified at the user facility level.

3.2. Without prejudice to Point 3.3 of this Annex, batches of thermolysis oil from the end-of-life tyre recovery operation comply with the technical specifications required by the operator of the user facility.

These technical specifications are established, for each facility carrying out the end-of-life tyre waste recovery operation, by the operator of the user facility following tests to validate the substitution conditions for the usual incoming products. These tests are described in Point 4.5 of Section 4 of this Annex.

The two preceding subparagraphs and the provisions of Point 3.1 are the subject of explicit clauses in the transfer agreement provided for in Letter e) of Article 2. The clauses concerned are made available for the inspection of installations classified for environmental protection.

3.3. Without prejudice to the provisions of Points 3.1, 3.2 and 3.4 of this Annex:

The batches of recycled thermolysis oil do not exceed, for each of the following compounds, the contents provided for in the table below:

Parameter	Maximum level
Sulphur	30,000 ppm
Nitrogen⁽¹⁾	10,000 ppm
Total Oxygen⁽¹⁾	20,000 ppm
Sum of halogens: Br + Cl + F + I⁽¹⁾	1000 ppm
Sum of metals: Al + Cr + Co + Cu + Mn + Ni + V + Fe + Zn + Mg + Cd + Ti⁽¹⁾	500 ppm
Sum of metals: As + Hg + Pb + Sb⁽¹⁾	10 ppm
(1) Where the nature of the incoming waste is homogeneous and consistent, the operator of the facility carrying out the recovery operation may refrain from analysing this parameter for each batch if it is able to demonstrate the stability of the incoming waste stream using a method similar to that set out in the guide published by the Ministry of the Environment on the assessment of the stability of aqueous and atmospheric emissions from industry.	

The operator of the facility carrying out the recovery operation ensures that analytical methods are used that enable reliable, repeatable and reproducible measurements to be taken.

3.4. The batches of thermolysis oil comply with the provisions of Regulation (EC) No 1907/2006, of 18 December 2006, referred to above.

3.5 The batches of thermolysis oil comply with the provisions of Regulation (EC) No 1272/2008, of 16 December 2008, referred to above.

3.6 The batches of thermolysis oil are packaged and stored in conditions that ensure their integrity and quality.

Section 4: Prior information, checks and self-monitoring

The operator of the facility carrying out the recovery operation sets up self-monitoring as defined below. The procedures for ensuring compliance with these obligations are established and recorded in the quality management manual provided for in the aforementioned Ministerial Order, of 19 June 2015.

4.1. Prior information

Before admitting waste into the recovery operation, the operator carrying out the recovery operation asks the producer of the waste, the collector or collectors or the holder of the waste for prior information in order to verify the eligibility of that waste. This prior information is updated annually and kept for at least five years by the operator.

The prior information contains the elements necessary for the basic characterisation defined below. The basic characterisation demonstrates that the waste meets the criteria for acceptance into the recovery operation.

The information to be collected for establishing the basic characterisation is as follows:

- Source and origin of the waste;
- Information on the waste production process (description and characteristics of raw materials and products, methods of collection and sorting);
- Data concerning the composition of the waste, in particular the absence of prohibited waste according to the specifications of the facility carrying out the recovery operation;
- Demonstration of compliance with the provisions of Section 1 of this Annex;
- Absence of hazardous properties;
- Appearance of the waste (odour, colour, physical appearance);
- Waste code within the meaning of the single list provided for in Article R. 541-7 of the Environmental Code;
- Analysis of persistent organic pollutants (POPs) in type and concentration, for waste likely to contain them;
- If necessary, additional precautions to be determined by the operator of the facility carrying out the recovery operation.

4.2. Acceptance procedure

a) When the waste arrives at the site, the competent personnel:

- Verify the existence of valid prior information in accordance with the provisions of Point 4.1;
- Verify, where appropriate, the documents required by Regulation (EC) No 1013/2006 of the European Parliament and of the Council, of 14 June 2006, on transfers of waste;
- Verify that the waste is packaged and labelled according to the regulations in force;
- Weigh the incoming waste;
- Conduct a visual inspection;

– Issue a written acknowledgement of receipt for each delivery accepted on site.

b) If the required documents are not provided in full or if the waste received is not in accordance with the waste described, the operator immediately informs the producer, collection authority/ies or holder of the waste. The batches of thermolysis oil produced from all or part of this waste remain waste. If the operator of the facility carrying out the recovery operation wishes to refuse the load, in whole or in part, it sends a copy of the reasoned notification of the refusal of the load to the producer, collection authority/ies or holder of the waste as soon as possible, and no later than 48 hours after the refusal. These documents are required to be made available for inspection by the classified facilities inspectorate for environmental protection.

c) In cases of doubt as to the nature, composition or hazardous properties of incoming waste, the operator conducts analyses or has analyses conducted in order to identify the waste.

d) An area is designated for the storage of waste covered by Points b) and c) above.

4.3. Checks for persistent organic pollutant (POP) content:

The competent personnel ensure that analyses are carried out at the entry to the unit carrying out the recovery operation on the waste entering the recovery process containing or likely to contain persistent organic pollutants (POPs). Waste with a POP content exceeding the limits set out in Annex IV to the aforementioned amended Regulation (EU) 2019/1021, of 20 June 2019, is dispatched by the competent personnel to a waste management facility authorised to receive it.

The results of analyses of the POP content are known before the waste is accepted for the recovery operation.

The search for persistent organic pollutants or the absence of a search is justified for each batch of waste entering the facility carrying out the recovery operation. This justification is recorded in a document that enables identification of the waste in question (type, origin, date received). The procedure for determining whether or not a search for persistent organic pollutants is required is detailed in the quality management manual. Suspicion of the presence of waste electrical and electronic equipment ('WEEE'), waste plastics from WEEE or end-of-life vehicles ('ELV'), or the observation of plastics from WEEE or ELVs in input waste must systematically trigger either a search for POP or rejection of the batch of incoming waste.

Where an analysis reveals the presence of a persistent organic pollutant in a waste below the limit laid down in Annex IV to Regulation (EU) 2019/1021, of 20 June 2019, as amended, but at a level allowing recovery by the recovery operation, checks are carried out on the batch of thermolysis oil from that waste, in order to verify the batch's compliance with the provisions of the POP regulation. The batches that do not comply with the provisions of the aforementioned Regulation (EU) No 2019/1021, of 20 June 2019, and in particular that contain POP levels above the limits set out in Annex I thereto, remain waste.

4.4. Checks on the batch of thermolysis oil

4.4.1 Analyses are carried out on the batches of thermolysis oil in order to verify that they meet the technical specifications of the user facilities, as described in Section 3 of this Annex.

The techniques used to carry out sampling, testing and analysis operations ensure that the recovery process functions in a representative manner, and the reliability and traceability of the measurement results.

The sampling takes into account particles that are rare in concentration and size. If a batch is stored in more than one container, the operator verifies that the batch is homogeneous in order to ensure the reliability and representativeness of the analyses carried out. The sampling procedure is documented in the quality management manual.

The analyses identify all the components required to meet the technical specifications and, in any case, identify at least 90 % of the composition of the sample. The standard used for these analyses shall be specified and its application to thermolysis oil shall be justified. The 'Characterization of Wastes - Guide to the Determination of the Content of Elements and Substances in Wastes' method, as described in Standard XP CEN/TS17943: 2023 is considered to meet these requirements.

Analysis of the sum of the metals is performed using an inductively coupled plasma method after mineralisation of the sample in a closed environment. For the analysis of the sum of Br + Cl + F + I halogens, the ion chromatography after combustion method is considered to provide reliable data.

4.4.2 The analyses referred to in Point 4.4.1 of Section 4 of this Annex is carried out for each batch and at a frequency of at least monthly, with the exception of those analyses that the operator can justify not carrying out in accordance with the provisions of Point 3.3 of this Annex.

For the metals Hg, As, Pb and Sb, these analyses are carried out and at a frequency of at least monthly, with the exception of those from which the operator may be exempted in accordance with the tables in Point 3.3. This frequency is reduced to quarterly if it is previously demonstrated over the course of one year, by means of monthly monitoring, that levels of undesirable substances are below the thresholds specified in Point 3.3 of this Annex.

When an exceedance is found, analyses are repeated on a monthly basis for three months. If no exceedances are found during this period, the operator resumes a quarterly frequency.

In the case of an exceedance, for a parameter exempted from analysis in accordance with Point 3.3:

If an exceedance is found, on one of the parameters exempted in accordance with Point 3.3, the operator:

- Investigates the cause of the exceedance;
- Implements a corrective action by demonstrating that this action prevents a further exceedance;
- Updates the file enabling the analysis exemption;
- Carries out monthly analyses of all the parameters specified in Point 3.3 as soon as an exceedance is detected and for at least six months after the corrective action has been implemented.

If no exceedances are found during this period, the operator reperforms all the analyses provided for in Point 3.3 of this Annex six months after the last analysis. If the last analysis is compliant, it is not necessary to carry out these analyses, as set out in the provisions of Point 3.3 of this Annex.

4.4.3 Compliance with the requirements of the sector is recorded in the certificate of compliance.

The analyses cover *at least* the content of each of the compounds mentioned in Point 3.3 of this Annex.

4.5. Prior tests by the user facility

In addition to the basic characterisation as set out in Point 4.1, the user facility carries out prior tests before accepting a transfer agreement for marketed batches of thermolysis oil at its facility. These tests ensure that the use of accepted thermolysis oil does not affect the equipment, the emissions of the facility or its output products. These tests make it possible to define, if they do not already exist, technical specifications for the acceptance of thermolysis oil in this facility, as provided for in Point 3.2 of Section 3 of this Annex. Each user facility carries out its own tests. These tests include monitoring emissions and discharges as well as a check of the output products.

These tests are carried out under the normal operating conditions of the user facilities. They are carried out with a thermolysis oil composition corresponding, as far as possible, to the maximum technical specifications accepted by the user facility.

In the case of using oil in a mixture with other inputs, the technical specifications of the user facilities are established as far as possible on the basis of tests carried out with a maximum concentration of oil in relation to what will be accepted by the user facility.

The results of the tests are made available to the inspectorate of facilities classified for environmental protection and to the Directorate-General for Risk Prevention.

ANNEX II – INFORMATION THAT MUST BE INCLUDED IN THE CERTIFICATE OF COMPLIANCE

<p>Identification of the site on which the recovery operation was carried out, enabling the marketed batch of thermolysis oil covered by this certificate to be removed from waste status</p> <p>Company name of the operator:</p> <p>SIRET number:</p> <p>Name of the site:</p> <p>Full postal address:</p> <p>Postcode and Town/City:</p> <p>Tel.: _____ Email: _____</p> <p>Recovery operation carried out (only one choice possible):</p> <ul style="list-style-type: none">• Vapothermolysis operation• Thermolysis operation
<p>Identification of the buyer</p> <p>Company name of the buyer:</p> <p>SIRET number (if French buyer):</p> <p>Full postal address:</p> <p>Postcode and Town/City _____ Country: _____</p> <p>Tel.: _____</p> <p>Email: _____</p>
<p>Marketed batch number:</p> <p>Product type: Thermolysis oil</p> <p>Weight (t), volume (m³) or quantity:</p> <p>Number of the marketed batch:</p> <p>Delivery date:</p>
<p>The marketed batch complies with the following provisions:</p> <p>a) Compliance with an industrial standard or specification (<i>cite the industrial standard or specification</i>):</p> <p>b) Where applicable, the main technical provisions of the customer's specifications (e.g. composition, dimensions, type or properties):</p> <p>Presence of impurities (<i>indicate nature and quantity</i>):</p> <p>Authorised use(s) of the marketed batch:</p>
<p>I, the undersigned, certify that the above information is accurate and provided in good faith, and that the batch of thermolysis oil has been produced in accordance with the requirements set out in the Ministerial Order, of XX/XX/202X, laying down the criteria for the end-of-waste status of thermolysis oil derived from the vapothermolysis or thermolysis of end-of-life tyres for the purpose of material recovery in a petrochemical or chemical facility</p>

Date:

Name and signature of the site operator: