Technical and administrative specifications

File number: 25LIC.009

1. Equipment description

Pyrolysis is a thermochemical conversion process in which organic materials are decomposed at elevated temperatures (typically between 300°C and 700°C) in the absence of oxygen. It is considered as a sustainable method for waste valorization and the production of value-added chemicals, fuels, and materials from a wide range of feedstocks, particularly polymers (plastics) and biomass.

This document describes the specifications of a rapid heating pyrolysis reactor capable of thermically treat and potentially valorise polymeric materials.

(*): The reactor should be capable to perform the pyrolysis of the following materials(**):

- Oil sludge, oil and waxes - up to 100% (w/w)
- Polyolefins (PE/PP) - up to 100% (w/w)
- Polystyrene (PS) - up to 100% (w/w)
- Polyvinyl chloride PVC - 21% (w/w)
- Mixed plastic waste

(**) Moisture content up to 20%.

(**) Not suitable for corrosive and hazardous substances, including highly exothermic reagents.

2. Technical characteristics

Operation mode: Batch

Geometry: Cylindrical reactor body

Material: Stainless Steel (AISI 304)

Working volume: 5 L reactor.

Operating temperature: up to 700 ºC

Operating pressure: 100 mm Water (gauge, 9.8 mbar)

Maximum electrical power: less than 32 Amp (3 phase)

Agitation system required: Motor + frequency inverter + shaft and blades corrosion resistant (PTFE or similar)

Inertization subsystem: N_2 or CO_2

Connections: Inert gas inlet and outlet, safety valve, sensors, non-condensable gas exhaust.

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Heating subsystem (reaction): External resistances, as a dry jacket.

Cooling/condensation subsystem (gas collection): 3 condensation stages: 1. heavier oils and waxes 2. Secondary condensation, 3. Lighter fraction. One tank for heavy fraction collection, and another one tank for light fraction collection must be included.

Sensors: Thermocouple, 3 pressure gauges, [O_2] sensor, gas flowmeter

Process control: Closed-loop temperature control, energy consumption monitoring, pressure monitoring (3 sensors). Sensors and actuators are enclosed in an industrial electrical case, in which temperature is controlled in an analogic way.

Safety: Safety valve set at 100 mm Water, interlocks, emergency stop button, torch for non-condensable gases

Standard compliance: ATEX regulation compliance, CE marking required (EU conformity requirement).

Lifting system with the intervention of a technician.

Size: Provide the complete size (length x width) and safety zone perimeter.

3. Other characteristics/considerations

- Technical support coverage and speed of response from the technical service will be an asset, as well as additional useful software packages.
- Availability of consumables and/or replacement parts for a minimum of 10 years.
- Global maintenance contract will be an asset: Coverage must include preventive maintenance and repair and labour of the equipment for the duration of the contract.
- Delivery time should be indicated
- 10-days complete training is required and should be budgeted separately

4. Contracting Authority

The contracting authority is ITENE – Packaging, Transport & Logistics Research Center.

5. Procurement Procedure

In this procedure, at least three comparable offers will be required from three companies qualified to carry out the object of the contract, whenever possible. Proposals will be submitted according to the attached technical specifications sheet along with the required documentation. ITENE's technical evaluation committee will evaluate the offers, and the one that obtains the highest score will be awarded.

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6. Object of the contract

The object of this contract will be the supply indicated in the attached technical specifications sheet. The contractual object will include at least:

a) The identification of the parties.
b) The definition and description of the object of the contract in accordance with the offered supply. The technical details of the supply offered in accordance with the technical specifications issued by the contracting authority.
c) The price.
d) The duration of the contract or the estimated dates for its commencement and completion, as well as any extensions, if foreseen.
e) The conditions for reception, delivery, installation or admission of services, transport and delivery to the place of destination (ITENE facilities in Parque Tecnológico, C/Albert Einstein, 1, 46980 Paterna, Valencia, Spain), as well as the necessary actions for assembly and installation until its effective commissioning.
f) Payment conditions.
g) The objective and temporal scope of the duty of confidentiality that, if applicable, is imposed on the contractor.
h) The guarantee of the asset.

8. Contract Formalization

For the formalization of the contract, accreditation of the signatories' capacity to sign the contract will be requested. The contract will be formalized by sending the supplier the signed and sealed offer itself, along with a purchase order number that must appear on the invoices issued by the supplier associated with the purchase.

9. Evaluation Criteria:

The contract will be awarded by a free procedure using multiple criteria, in accordance with the provisions of the internal contracting instructions. The evaluation will be carried out within ITENE's Purchase Evaluation Committee.

The objective criteria to be used as a basis for the contract award are those established, with their corresponding weighting, or failing that, in decreasing order of importance.

Criteria	**%**
Budget	70
Technical service and maintenance	10
Delivery time	10
Guarantees	5
Others	5

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10. Evaluation Criteria Technical Solvency

For the final offer, the supplier must provide the following information as applicable:

Location, connections and assembly requirements

- Detailed scale drawings
- Weight
- Supplies (air, water, power, etc.)
- Connections

Manufacturing materials

- Standardized type (certificates if applicable)
- Special treatments
- Special care

Manuals

- Commissioning, use and maintenance manuals, as well as electrical and process diagrams will be supplied.

Technical service

- Geographical availability
- Contact methods
- Response capability
- Costs

Maintenance / Spare parts

- Operations performed exclusively by the supplier / manufacturer
- Cost and periodicity
- Recommended spare parts stock, supplier, cost and delivery time (in case of exclusivity of the supplier / manufacturer)

Offer conditions

- Payment method
- Warranty
- Services / materials included: Commissioning
- Transport, packaging
- Insurance
- Spare parts stock
- Others

11. Deadline and place of delivery

Quotations shall be sent by e-mail to: licitaciones@itene.com, until 31st January 2026.The offer shall be valid, at least, until 28th February 2026.

The tender file number, **25LIC.009** shall be indicated.

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