

Technical Specifications (In-Cash Procurement)

**34.00.00 - IOTS - 000007 : Technical summary - helium
supply contract**

This document summarizes the major points of the technical specification for the helium supply contract.

Technical Summary

HELIUM SUPPLY FOR ITER

Abstract:

This document summarises the technical requirements for the procurement of the Helium in preparation of the related Framework Contracts.

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1 Subject

The present document summarises the delivery of *liquid and gaseous helium* to ITER.

2 Time schedule

- The duration of contract: 5 years.
- Start of delivery: Q2 2019
- Award of contracts: Q4 2018

3 Scope of supply

The scope of this specification is the supply of helium to ITER.

Helium shall be delivered in in three forms:

1. Liquid helium delivered in cryogenic trailers with a guaranteed purity of minimum 99.995%.
2. Gaseous low grade helium in high pressure tube trailers with a guaranteed purity of minimum 97%
3. Gaseous high grade helium in high pressure bottle racks with a guaranteed purity of minimum quality grade 4.6.

The needs will fluctuate from one year to the next. It is impossible to accurately anticipate the quantities of liquid and gas that will be ordered. However, a basis of estimates is presented in *Appendix 1*.

Note: All these quantities are given for information only and cannot be considered as commitments of consumption by ITER.

3.1 Particularity of delivery for liquid helium

The Contractor assures the supply and transport of liquid helium in 11 000-gallon trailers. The maximum pressure for delivery of liquid is 20 psi.

In order to take into account the storage capacities available the quantities delivered can be reduced to 8000 litres for a container of 11 000 gallons minimum unless otherwise indicated by the beneficiaries.

Unloading of liquid trailers

At the establishment of the contract the Contractor shall take all necessary action to identify all necessary connection material and ensure its provision for each delivery. All necessary connection material shall be included in the Contractors scope. For the transfer of liquid helium flexible transfer hoses will be available at ITER.

3.2 Particularity of delivery for low grade gaseous helium

Helium gas will be delivered by trailers of minimum 2,000 m³ or 340 Kg.

Unloading gas trailers

At the establishment of the contract the Contractor shall take all necessary action to identify all necessary connection material and ensure its provision for each delivery. All necessary connection material shall be included in the Contractors scope.

3.3 Particularity of delivery for high grade gaseous helium

ITER occasional sources gaseous helium bottle racks of different purity grades for different purposes. The bottle racks shall remain property of the Contractor and will be managed by ITER as described in the related order.

3.4 Guarding operation

In the event of a technical shutdown of the ITER installation (maintenance or repair), the Contractor shall make available to ITER within a maximum of one month, an cold and empty 11 000-gallon container to allow the evacuation of liquid helium. The Contractor undertakes to return the same quantities of helium within a deadline set by the beneficiary.

ITER is designed to work in two years operation cycles divided in 1.5 year operation followed by 6 months of maintenance. Throughout the maintenance periods or at exceptional occasions it might be required to resort to the described guarding option.

These quantitative indications are given for information only and cannot be considered in any way as a commitment of consumption by ITER.

4 Conditions of delivery

4.1 Documents to supply at each delivery

The documents that must be submitted during deliveries are the following:

- The delivery date,
- The nature of the product,
- The quantity ordered,
- The quantity delivered,
- The analyses certificate
- In the case of a delivery subject to ADR, the copy of the corresponding ADR transport document.

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road

The Contractor provides products conforming to the technical specifications requested by ITER or announced by the Contractor; in case of non-compliance, the product will be returned without notice, at the expense and risk of the latter.

4.2 Delivery execution

The Contractor is required to comply with the requirements of the loading / unloading safety protocols and any other security document.

The Contractor applies and ensures the application of the regulations relating to the transport of dangerous goods when the conditions of transport and delivery fall under it.

ITER reserves the right to verify the compliance of transport with the European Agreement concerning the international carriage of dangerous goods by road, called ADR, supplemented by the French decree (s) in force, and to refuse the unloading operation, even to refuse access or to request the immobilisation of the vehicle if the safety conditions are not respected. The settlement of these situations is the responsibility of the Contractor.

ITER reserves the right to permanently refuse access to an employee of the Contractor who does not respect the safety instructions, and to request its replacement as soon as possible by a person with same qualifications.

Transport tanks used by the Contractor must in particular be covered by a valid approval issued by the competent authority for the duration of their use at ITER.

In case of difficulty relative to a delivery, the Contractor will inform as soon as possible ITER, so that it can judge the opportunity to confirm or cancel the order in question.

4.3 Planning of deliveries

The orders specify the quality and the quantity of product, as well as the date and possibly the requested time slot for the delivery.

The delivery time for liquid and gas trailers is 4 weeks from the date of dispatch of the order.

The delivery time for gas in bottles or bottle racks is 1 week from the date of dispatch of the order.

Candidates will indicate in their response if they can commit to a better deadline.

In case of emergency, the Contractor guarantees ITER a delivery of up to 2000 kg of liquid helium in 48 working hours from the date of the telephone request, confirmed by order, sent by mail or fax.

In case of emergency, the Contractor guarantees ITER a delivery of up to 340 kg of low grade gaseous helium in 48 working hours from the date of the telephone request, confirmed by order, sent by mail or fax.

Urgent delivery is limited to one per year and not considered before the year 2024.

4.4 Conditions of reception and transfer

The Contractor shall take all necessary steps to ensure that the unloading area is left behind clean after the transfer operation.

During gas/liquid transfer the Contractor must inform ITER of any anomaly related to a lack of sealing of the various flanges or fittings of the installation concerned.

All materials required for connection to the delivery point is in responsibility of the Contractor. Exception is made for the liquid helium transfer line, which is available at ITER site.

The Contractor guarantees the good condition of the material required for the transfer operations and particularly the sealing, connection and insulation components. In case of hardware malfunction, it will be replaced within 24 hours.

A stock of spare parts of the highest urgency required for unloading operations (including joints, collars, etc.) must be made available free of charge to ITER for the duration of the unloading operations.

In the event that the previous conditions are not fulfilled and where ITER reports defects in quality, either of the discharge material or of the helium supplied, ITER expressly reserves the right to refuse the delivery and to return at the expense of the contractor.

4.5 Delivered quantities and qualities

The Contractor must send to ITER the detailed technical procedure of the measuring method to be adopted by mutual agreement between the Parties.

Appendix 1: Forecast of helium consumption

ITER internal remark: [34.00.00 - IOTN – 000010 : Note on basis of estimate gas contracts](#) (ITER_D_WCPAM7 v1.0)

Note: All these quantities are given for information only and cannot be considered as commitments of consumption by ITER.

fluid	min. grade	packaging	Quantity						2024 (half year)	
			2019 (half year)	2020	2021	2022	2023			
He	97%	gas trailer	6 t	0.6 t	0.6 t	0.6 t	0.6 t	0.3 t		
			-	-	-	-	-	340 kg	emergency provision (not countend in global quantity)	
	4.6	bottle racks	32 kg	80 kg	80 kg	80 kg	80 kg	32 kg		
			8.2 t	12.3 t	12.3 t	16.4 t	16.4 t	8.2 t		
liquide	liquid trailer	-	-	-	-	-	2 t	emergency provision (not countend in global quantity)		