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Technical Specifications (In-Cash Procurement)

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Technical_Specification - industrial gas supply

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Technical Specification

INDUSTRIAL GAS SUPPY FOR ITER

Abstract:

This document defines the technical requirements for the procurement of the industrial gases and is an integral part of the Contract.

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1 Preamble

This Technical Specification is to be read in combination with the General Management Specification for Service and Supply (GM3S) – Ref [1] that constitutes a full part of the technical requirements.

In case of conflict, the content of the Technical Specification supersedes the content of Ref [1].

2 Purpose

This technical specification defines the conditions of the delivery and specifications of technical gases to be delivered to ITER.

It outlines the supply of *liquid and gaseous nitrogen* as well as the supply of *calibration and other gases*.

3 Acronyms & Definitions

3.1 Acronyms

The following acronyms are the main one relevant to this document.

Abbreviation	Description
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CLP	Classification, Labelling and Packaging of chemicals
CRO	Contract Responsible Officer
GM3S	General Management Specification for Service and Supply
IO	ITER Organization
ITP	Instructions to proceed
NPE	Nuclear Pressure Equipment
PE	Pressure Equipment
PIA	Protection Important Activities
PIC	Protection Important Component
PRO	Procurement Responsible Officer
REACH	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)

3.2 Definitions

Contractor: shall mean an economic operator who have signed the Contract in which this document is referenced.

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4 Applicable Documents & Codes and standards

4.1 Applicable Documents

This is the responsibility of the Contractor to identify and request for any documents that would not have been transmitted by IO, including the below list of reference documents.

This Technical Specification takes precedence over the referenced documents. In case of conflicting information, this is the responsibility of the Contractor to seek clarification from IO.

Upon notification of any revision of the applicable document transmitted officially to the Contractor, the Contractor shall advise within 4 weeks of any impact on the execution of the contract. Without any response after this period, no impact will be considered.

Ref	Title	IDM Doc ID	Version
1	General Management Specification for Service and Supply (GM3S)	82MXQK	1.4
2	Health Protection and Safety General Coordination Plan - ITER Construction Site - Volume 0 - General Safety Rules	2NUEYG	6.0
3	PGC Annex 00 - List of the applicable annexes to the PGC SPS Volume 1	42FYPZ	3.0
4	#00 - PGC Volume 1	T6V4RP	5.1
5	PGC Annex 03 - Rules of cooperation between the HSPC and the contractors	UJ95AV	5.1
6	ITER Site Life-Saving Rules	YSU3VK	2.1

4.2 Applicable Codes and Standards

This is the responsibility of the Contractor to procure the relevant Codes and Standards applicable to that scope of work.

Ref	Title	Doc Ref.	Version
CS1	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)	-	-
CS2	Regulation (EU) 2024/2865 of the European Parliament and of the Council of 23 October 2024 amending Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (Text with EEA relevance)	-	-
CS3	Arrêté du 26 avril 1996 pris en application de l'article R. 237-1 du code du travail et portant adaptation de certaines règles de sécurité applicables aux opérations de chargement et de déchargement effectuées par une entreprise extérieure	-	-

5 Scope of Work

5.1 Scope of supply

5.1.1 Products

The scope of this specification is the supply of technical gases to ITER.

The scope is detailed as follows:

- Supply of liquid and gaseous nitrogen
    1. Liquid nitrogen delivered in cryogenic trailers with a guaranteed purity of minimum 99.995%.
    2. Gaseous high-grade nitrogen in high pressure bottle racks with a guaranteed purity of minimum quality grade 4.5.
- Supply of calibration and other gases

  ITER will use different gases these are in general manner framed by this specification. (For details see Appendix ‘1.)

The needs may 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.

5.1.2 Particularity of delivery for liquid nitrogen

The Contractor assures the supply and transport of liquid nitrogen in 11 000-gallon trailers.

Unloading of liquid trailers

At the establishment of the contract, the Contractor shall take all necessary actions to identify all necessary connection materials required and ensure their provision for each delivery. All necessary connection materials shall be included in the Contractors scope.

5.1.3 Particularity of delivery for gaseous nitrogen

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.

Additionally, to nitrogen in gas trailers ITER may also source gaseous nitrogen bottle racks for different purposes. The bottle racks shall remain property of the Contractor and will be managed by ITER as described in the related order.

5.1.4 Particularity of delivery for calibration and other gases

For calibration and measuring purpose ITER sources different calibration and other gases. Basis of estimate information is summarised in Appendix 1.

5.2 Access to ITER site

Access to ITER requires the respect of particular conditions as defined in the "General Management Specification for Service and Supply (GM3S)" Ref [1]. The Contractor must therefore approach ITER to enquire the specific terms of access. The contractor shall deliver at the ITER site during the opening hours.

5.2.1 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.

5.2.2 Conditions of reception and transfer

The Contractor shall take all necessary steps to ensure that the unloading area is left 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 are the responsibility of the Contractor.

The Contractor guarantees the good condition of the materials 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.

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A stock of spare parts that may be urgently 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 gas supplied, ITER expressly reserves the right to refuse the delivery and to return at the expense of the contractor.

5.2.3 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.

6 Location for Scope of Work Execution

This a delivery contract for liquefied and bottled gases principally delivered to B51, B52 and Area 53.

7 IO Documents & IO Free issue items

"No input nor free issue item is expected from IO"

8 Deliverables and Schedule Milestones

8.1.1 Planning of deliveries

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

The expected delivery intervals from the date of contractor's confirmation of the ITP are:

- 2 weeks for liquid nitrogen
- 1 week for standard gases, welding gases and air in bottles or bottle racks
- 4 weeks for special mixtures

8.1.2 Transmission of Material Safety Data Sheets and Technical Data Sheets

The Contractor shall on ITER demand transmit the safety data sheet of the delivered products free of charge in both French and English, both in paper form and in electronic form as follows:

- At the request of the prescriber when ordering, the delivered chemical must be accompanied by its safety data sheet in French and on paper,
- At the first delivery, its French and English safety data sheet must be transmitted in electronic form to a single electronic address stipulated at the start of the contract.

The safety data sheets shall be established in accordance with Annex II to Regulation (EC) N ° 1907/2006 of 18/12/2006, commonly identified as "REACH", and in any case in accordance with the relevant regulations in force.

In addition, since 01/12/2010, in accordance with Regulation (EC) No 1272/2008 ("CLP"), the safety data sheets of the products supplied must be up to date and contain the classification carried out in accordance with the Regulation (EU) 2024/2865 of the European Parliament and of the Council of 23 October 2024 amending Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures ('CLP').

The Contractor will also ensure the accuracy of the information in the safety data sheets by ensuring any necessary updates as soon as possible, as soon as new information that may affect the risk management measures or new information relating to the hazards is available.

The new dated version of the information, identified as "Revision: (date)", will be provided free of charge in electronic form, in French and English, to a unique email address specified at the start of the contract.

The technical data sheets of the products will be transmitted to the first order, at the request of the prescriber and following each modification of these.

8.1.3 Documents to supply with each delivery

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

- The delivery notes with clear reference to the Instruction to Proceed (ITP), stating:
  - The delivery date
  - The nature of the product,
  - The quantity delivered
- The analyses certificate – if requested by ITER
- 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 will provide products conforming to the technical specifications requested by ITER. In case of non-compliance, the product will be exchanged for a compliant product at the expense and risk of the Contractor.

9 Quality Assurance requirements

Under this contract for the supply of industrial gases [Ref 1] GM3S section 8 applies in line with the defined Quality Requirements.

10 Safety requirements

The Supplier and Subcontractors shall observe all applicable environment, safety and health provisions for work on the ITER Site, as well as specific requirements set out in this Technical Specification.

Any activity by the Supplier and Subcontractors at the ITER Site shall be subject to the Internal Regulations as referred in [Ref 1] GM3S]. Any activity by the Supplier and Subcontractors on the ITER Construction Site shall be subject to the “ITER Policy on Safety, Security and

Environment Protection Management as referred in Ref 9 of [Ref 1] GM3S] and resulting procedures. Any additional applicable provisions regarding environment, safety and health shall be communicated by ITER to the Supplier at least 30 calendar days in advance of the activities to be performed at the ITER Site.

Joint inspection meetings and safety regulatory procedures: in accordance with Articles R.4515-1 et seq. of the Labour Code (codifying the Decree of 26/04/1996), the delivery to ITER can only start after the constitution of a security protocol for unloading / loading, between ITER and the Contractor.

Thus, at the start of the contract and before any delivery or intervention, the Contractor will have to contact ITER ORGANISATION, in order to organize a joint safety inspection.

This meeting will allow:

- To detail and analyse each operation carried out and each place of intervention,
- Detail the necessary documents,
- Present and study the safety instructions and / or procedures,
- Define and validate the preventive measures to be observed at each phase of unloading / loading operations.

Following this joint inspection meeting, in accordance with Article R. 4515-4 of the Labour Code, an unloading / loading safety protocol will be drawn up for each identified operation, in order to prevent the risks associated with the interference between the activities, facilities and equipment of ITER and the carrier, as well as other companies that may be present in the work areas.

The safety protocols (and the prevention plan, if applicable) will be communicated to ITER. If the joint safety preliminary inspection meeting, and therefore the security protocol, was not carried out, ITER would be obliged to block deliveries until safety is guaranteed as specified.

10.1 Nuclear class Safety

“No specific safety requirement related

10.2 Seismic class

“No specific safety requirement related to PIC and/or PIA and/or PE/NPE components apply”.

11 Special Management requirements

No special management requirements in place. This contract defines the delivery of liquefied and bottled gases.

11.1 Contract Gates

- Kick-off meeting
- Joint visit

11.2 Work Monitoring

The contractor shall monitor the ordered and delivered gases. These data shall be made available to the client.

11.3 Meeting Schedule

Additional to Kick-off meeting Joint Visit meetings can be held if required.

11.4 CAD design requirements

"This contract does not imply CAD activities"

12 Appendixes

Appendix I – List of Deliverable Supplies

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

LIQUIDE NITROGEN [per year]					
Item #	**Fluid**	**Min. grade**	**Packaging**	**Unit**	**Quantity**
1	N2	Liquid (minimum 99.995%)	Liquid trailer	KL	3500
2		Delivery service - per delivery	-	Delivery	115

PACKAGED GAS [per year]					
Item #	**Fluid**	**min. grade**	**desired packaging**	**Unit**	**Estimated Quantity / Year ***
1	Air	5.0 H2O<=3 ppm, CnHm<=0.2 ppm, CO<=1 ppm, CO2<=1 ppm	M20 bottle	bottle	2
2	Mixture 2,4% H2 in Ar	Conform to the standard EN ISO 14175-R1-ArH-2,4 (Welding application)	M20 bottle	bottle	2
3	Argon	4.8 Conform to the standard EN ISO 14175-I1-Ar (Welding application)	Bundle V09	m3	380
4	Argon	5.0	M20 bottle	bottle	2
5	Argon	5.0	L50 bottle	bottle	2
6	Carbon Dioxide	(≥ 99,7 %)	Bundle V09	Kg	50
7	Helium	4.5	L50 bottle	bottle	6
8	Helium	4.5	Bundle V09 or V18	m3	1458
9	Helium	5.0	M20 bottle	bottle	2
10	Helium	5.0	L50 bottle	bottle	2
11	Helium	6.0	M20 bottle	bottle	5
12	Helium	6.0	L50 bottle	bottle	5
13	N2	4.5	L50 bottle	bottle	1
14	N2	4.5	Bundle V09 or V18	m3	4080

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15	N2	5.0	M20 bottle	bottle	5
16	N2	5.0	L50 bottle	bottle	5
17	N2	6.0	M20 bottle	bottle	5
18	Neon	5.0	S05 bottle	bottle	5
19	Mixture 18 ppm CO2 in N2		M20 bottle	bottle	2
20	Mixture 250 ppm H2O/N2		M20 bottle	bottle	2
21	Mixture 450 ppm Ar in N2		M20 bottle	bottle	2
22	Mixture 8 ppm O2 in N2		M20 bottle	bottle	2
23	Mixture 90 ppm O2 in N2		M20 bottle	bottle	2
24	Mixture 5%H2 in N2		S05 bottle	bottle	2
25	Mixture 9 % N2 in He		M20 bottle	bottle	2
26	Mixture 9 ppm Ne + 9 ppm H2 + 9 ppm CH4 + 9 ppm Ar in He		M20 bottle	bottle	2
27	Mixture 90 ppm 02 in He		M20 bottle	bottle	2
28	Mixture 90 ppm N2 in He		M20 bottle	bottle	2
29	Mixture 100 ppm N2 in He		M20 bottle	bottle	2
30	Mixture1000 ppm H2O in He		M20 bottle	bottle	2
31	Delivery service - fix part	.		Delivery	48
32	Delivery service - charge per bundle			Delivery	48
33	Rental Bundle V09 Specialized			Month	48
34	Rental Bundle V09 Standard			Month	48
35	Rental Bundle V18 Specialized			Month	48
36	Rental Bundle V18 Standard			Month	48
37	Rental Standard Bottle			Month	48
38	Rental SG Bottle			Month	48

All gases with purity grades higher than 5.0 are considered as specialized.

** The Estimated Quantity / Year represents the basis of the pricing model and is a reasonable assumption only.*