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Title	Technical specification for the supply of HEPA replacement filters and their accessories for the nuclear ventilation systems

Abstract: This document defines the technical requirements for the supply of HEPA replacement filters for the nuclear facilities of JRC Ispra site over the period of 2018/2022

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NE.45.0550.A.008 ND.45.0802016.A.005	Rev. 0	Technical specification for the supply of HEPA replacement filters and their accessories for the nuclear ventilation systems.	1 of 5
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Revision	Revision Description
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NE.45.0550.A.008 ND.45.0802016.A.005	Rev. 0	Technical specification for the supply of HEPA replacement filters and their accessories for the nuclear ventilation systems.	2 of 6
---	--------	---	--------

INDEX

REFERENCES 3

ACRONYMS AND TERMINOLOGY 3

1 INTRODUCTION..... 3

2 SCOPE 3

3 APPLICABILITY 4

4 RESPONSIBILITY 4

5 DESCRIPTION OF SUPPLY 4

6 DELIVERY 4

NE.45.0550.A.008 ND.45.0802016.A.005	Rev. 0	Technical specification for the supply of HEPA replacement filters and their accessories for the nuclear ventilation systems.	3 of 6
---	--------	---	--------

REFERENCES

- [1] **Dlgs 230/95 e successive modifiche (CEE 84/466, 89/618, 90/641, 92/3)** in materia di sicurezza degli impianti e protezione sanitaria dei lavoratori e della popolazione contra i pericoli delle radiazioni ionizzanti derivanti dall'impiego pacifica dell'energia nucleare.
- [2] **UNI 7496:1975** (Impianti Nucleari: Collaudo di efficienza dei sistemi filtranti per particelle installati nei condotti di ventilazione (Nuclear plants: Efficiency testing of particulate filters in ventilation ducts).
- [3] **AFNOR NF X44-011** Méthode de mesure de l'efficacité des filtres au moyen d'un aérosol d'uraniné (fluorescéine), 1972.
- [4] **UNI 1822:2009** Filtri per l'aria ad alta efficienza (High Efficiency air filters (EPA, HEPA, ULPA).

ACRONYMS AND TERMINOLOGY

Contractor	the TENDERER to whom a contract has been awarded by JRC ISPRA
HEPA	<u>H</u> igh <u>E</u> fficiency <u>P</u> articulate <u>A</u> ir
JRC Ispra	the Customer, i.e., European Commission's Joint Research Centre, Ispra Site
NDU	<u>N</u> uclear <u>D</u> ecommissioning <u>U</u> nit
PU	<u>P</u> olyurethane
PVC	<u>P</u> oly <u>V</u> inyl <u>C</u> hloride
Tenderer	the economic operator who has submitted a tender

1 INTRODUCTION

- 1.0.0.1 JRC Nuclear Decommissioning Unit (NDU) is responsible for the operation of nuclear installations and their corresponding nuclear ventilation and HEPA (High Efficiency Particulate Air) filtration systems which are located in the nuclear areas ("classified areas" according to D.Lgs. 230/95, Ref. [1]) of the JRC Ispra site. The HEPA filter systems are essential to guarantee safe operating conditions in these installations.
- 1.0.0.2 The HEPA filter systems comprise a filter(s) and associated support racks enclosed in an leak-tight assembly thus assuring that the air flow passes fully the filtering medium. In most cases, the high air flow rates demand large filtering areas and, consequently, a number of filters mounted in parallel in assemblies called subsequently as "Pits" or "Banks".
- 1.0.0.3 Periodically (yearly) or upon a substitution of an existing filter(s), the HEPA filtration system's efficiency is tested with the Uranine standard method [2], [3] for a major part of the filtration systems. The conduct of these in-situ verification tests with the Uranine standard method is a legal obligation. If the filtering efficiency does not meet the acceptance limits, the filter must be replaced and the whole system re-verified.
- 1.0.0.4 The new HEPA filters subject to these specific verification tests shall be pre-certified by the supplier with the same Uranine method so that any anomalous degradation of the in-situ efficiency can be attributed to problems in the installation and mounting of the filter in its assembly. Whereas for the H14-class filters indicated in Table 1, a pre-certification according to UNI 1822 [4] shall be provided.

2 SCOPE

- 2.0.0.1 The scope of this document is to provide the necessary technical information in order that a Tenderer can respond to an invitation-to-tender for the supply of the HEPA filters (filter

NE.45.0550.A.008 ND.45.0802016.A.005	Rev. 0	Technical specification for the supply of HEPA replacement filters and their accessories for the nuclear ventilation systems.	4 of 6
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classes H13/14, according to [4]) and their associated accessories to the nuclear facilities of JRC Ispra site over the period of 2018—2022.

3 APPLICABILITY

- 3.0.0.1 This document is applicable for the project I-08.02.01 "Providing utility services and similar consumables" of the D&WM programme of the JRC Ispra.

4 RESPONSIBILITY

- 4.0.0.1 The responsibility for the correct application of the document is the JRC Ispra Technical Officer who is responsible of the contract eventually awarded at the end of the public procurement procedure.
- 4.0.0.2 For each order letter which shall be concluded under the Framework Contract in the subject, JRC Ispra will nominate a technical responsible.

5 DESCRIPTION OF SUPPLY

- 5.0.0.1 In general, the requested supply comprises filters in classes H13 or H14 according to Ref. [4] including their associated mounting kits (gaskets etc.) and all the associated certifications and technical documentation.
- 5.0.0.2 The performance characteristics, dimensions and other specifications of the filters are indicated in Table 1.
- 5.0.0.3 Each supplied filter shall be accompanied by an individual type and test certificate demonstrating conformity to the requirements indicated in Table 1.
- 5.0.0.4 In special cases, e.g. setting up a new HEPA filtering system for which the listed models are not suitable, JRC Ispra might need to order a small number of filters outside the product range requested in Table 1. For these types of supply, the Contractor is asked to present a new unit price for the approval of JRC Ispra. It should be noted that JRC Ispra shall verify that the quoted prices are in line with the market prices.

6 DELIVERY

- 6.0.0.1 Upon receiving an order the Contractor shall deliver the supplies within 6 weeks. The filter supply must be accompanied with all the certificates and relevant documentation.
- 6.0.0.2 Upon receipt at site, the shipment will be inspected for transit damage. Any package that is damaged and/or is not accompanied by its relevant project documentation (including specific certificate) will be immediately quarantined and processed as a non-conformance. Accompanying documentation will include instructions with respect to the preservation of product quality, and identify any necessary environmental conditions.

NE.45.0550.A.008 ND.45.0802016.A.005	Rev. 0	Technical specification for the supply of HEPA replacement filters and their accessories for the nuclear ventilation systems.	5 of 5
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TABLE 1: HEPA FILTER TYPES

Filter name tag	Filtering System name	Certified Efficiency	Dimensions (LxHxD)mm	Filtering medium	Min. Filtering area [m ²]	Frame	Seal	Gasket	Nominal T[°C]	Nominal ΔP [Pa]	Nominal air flow [m ³]
									Min. Nom. Max.1h		
FA1	Containment bubbler	>99,98 % Uranine test	600X65X202	glass fibre	3,23	galvanised steel	mineral resin	As necessary	120 200	300	250
FA2	LCSR/Ispra 1/Essor	>99,98 % Uranine test	600x325x202	glass fibre	17	galvanised steel	PVC	Neoprene	120 200	250	1250
FA3	SGRR/Perla hall	>99,98 % Uranine test	610x610x292	glass fibre	41	galvanised steel	PVC	Neoprene	120 200	250	3400
FA4	Perla	>99,98 % Uranine test	600x130x202	glass fibre	7	galvanised steel	PVC	Neoprene	120 200	250	450
FA5	Glovebox	>99,98 % Uranine test	diam160x173h	glass fibre	0,7	PVC	PU	Neoprene	70	110	30
FA6	Glovebox	>99,98 % Uranine test	diam140x130h	glass fibre	0,45	PVC	PU	Neoprene	70	110	20
FA7	LMR fumehoods	H14 EN 1822	610x610x292	glass fibre	36	galvanised steel	PU	As necessary	70	250	3400
FA8	Tank farm glove box	H14 EN 1822	305x610x292	Glass fibre	16	galvanised steel	PU	As necessary	70	280	1400