

INVITATION OF EXPRESSION OF INTEREST (EoI) FOR NDRF EQUIPMENT

NDRF is the lead federal force responsible for responding to all types of natural and man-made disasters. NDRF acknowledge the importance of having reliable equipment to enhance the efficiency and effectiveness of rescue operations.

2. NDRF now intends to procure CBRN equipment for each of its 16 Units/Academy. Accordingly, NDRF has prepared a draft technical specification for **Multi Gas Detector** NDRF equipment required to enhance the efficiency and effectiveness of rescue operations. The draft specifications are appended as **Appendix- A**.

3. In this context, NDRF invites Expressions of Interest (EoI) from eligible manufacturers, suppliers and vendors to submit their comments and suggestions. In case these specifications do not match with the available equipment in the market, the same may be highlighted and the specification of the equipment available in the market may kindly be provided with the same functionality. The purpose of the EoI document is to provide necessary information to NDRF so that genuine and generalized specifications can be framed and finalized for further procurement, and no gap exists in the specifications of the items available in the market out the specificness floated in the bid by NDRF.

4. This EOI is not an offer by NDRF or a tender document but it is an invitation to receive responses from eligible manufacturers, suppliers, and vendors in the industry the draft specification framed by NDRF.

5. **Eligibility Criteria:** The minimum eligibility criteria for an entity to participate in the EoI is as follows: -

- i. The entity must be a manufacturer or vendor/supplier/dealer registered in India under relevant applicable Acts and Laws.
- ii. The entity must have some experience in the supply of such equipment.
- iii. NDRF may call manufacturers, suppliers and vendors to conduct the demonstration/field trial of such equipment if needed before finalizing the specification

6. **Documents to be submitted:** The following documents are required to be submitted as part of the response to this EoI.

- i. Documents supporting Eligibility Criteria as mentioned above.
- ii. List of equipment catalog with detailed technical specifications along with estimated cost if possible.

7. Eligible manufacturers, suppliers and vendors who have the competence and experience to carry out such work are requested to submit the EoI along with supporting documents by 24/07/2024.

Important timelines:

Event	Timeline
Last date of submission of responses	24/07/2024


(Harvinder Singh)
Second-In-Command (R&D)
HQ NDRF

MULTI GAS DETECTORS

QUALITATIVE REQUIREMENTS/SPECIFICATIONS OF MULTI GAS DETECTOR (CHEMICAL AGENT MONITOR)

Present Specifications with date of formulation		Proposed Specifications	Reason for proposed change/review	REMARKS
Particular	Specification			
1.	Hand held chemical agent monitor must be IMS (Ion Mobility Spectrometry) principle based with minimum interferences . The chemical agent monitor should have an additional Toxic industrial chemical detector suitable to enlarge the range of detectable hazardous compounds.	Ion Mobility Spectrometry (IMS)/Flame Spectrometry or Fourier Transform Infrared spectroscopy (FTIR) or similar / equivalent similar detection principle with minimum interferences. The chemical agent monitor may have multiple detectors to enlarge the range of detecting the hazardous compounds.	To allow for more advanced and potentially more accurate detection technologies.	
2.	Detector should be able to indicate and display name of compounds detected.	Same or equivalent	Ensures that the detected compounds are clearly indicated for quick identification.	
3.	Principle firm manufactures must have IPR on complete instrument.	Same	To ensure proprietary rights and avoid infringement issues.	
4.	Instrument must be hand held and capable of sensing:-		Essential for portability and ease of use in the field.	
	a) All nerve agents including V agents.	Same as in a)		
	b) Blister agents including Lewisites.	Same as in b)		
	c) Blood and choking agents.	Same as in c)		
	d) Important Toxic Industrial Chemicals like:-	Same and d) may also include TICs/TIMs like—		

		i) Formaldehyde ii) Phosphorus Richloride iii) Hydrogen Chloride iv) Chlorine v) Arsine vi) Boron Trichloride vii) Boron Trifluoride viii) Sulphur Dioxide ix) Cyanide	<ul style="list-style-type: none"> • Phosgene • Hydrogen Cyanide • Hydrogen Fluoride • Hydrogen Sulfide • Nitrogen Dioxide • Benzene • Carbon Disulfide • Acrylonitrile • Ethylene Oxide • Vinyl Chloride • Ethyl Mercaptan • Ammonia • Methyl Isocyanate • Aniline • Benzyl Chloride • Methanol • Acetonitrile • Toluene • Butadiene • Propylene Oxide • Dimethylformamide (DMF) • Pyridine • Nitric Acid • Ethyl Acetate • Diethylamine • Isopropyl Alcohol • Chloroform • Cyclohexane • Trichloroethylene (TCE) • Methyl Bromide • Methyl Ethyl Ketone (MEK) • Ethylene Glycol • Xylene • Propionaldehyde • Vinyl Acetate • Cumene 		
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			<ul style="list-style-type: none"> • Diisocyanates (e.g., TDI, MDI) • Boron Trichloride • Butyl Acetate • Diethylene Glycol • Propylene • Nitrobenzene • Benzyl Alcohol • Acrolein • Chlorine dioxide 	
5.	Detection Sensitivities			
	a)	Nerve Agents & VX : 0.05 mg/m ³ (GA, GB, GD, GF, VX)	Same	Maintains current sensitivity levels for accuracy.
	b)	Blister Agents : 0.5 mg/m ³ *HD& Lewisite)		
6.	Response time must be < 60 at the above stated concentration.		Same	Ensures timely detection for rapid response.
7.	Recovery time must be < 03 Minutes at the above stated concentration.		Same	Ensures timely detection
8.	It must sense vapour samples from agents present in the atmosphere in the form of vapours liquid or aerosol.		Same	To detect chemical agents in various states.
9.	Time to be ready : < 05 minutes after switch on.		Same (Less than 05 minutes)	For timely detection
10.	Must be capable of providing visual alarms for agent class (Nerve, Blister, Blood, Chocking and TIC)		Same or equivalent	- Audible alarm intensity ensures immediate detection alerts. - Visual alarm for visibility from all angles. - Internal vibrator for high noise areas. - Various alarms for different agent class.

11.	Must be capable to provide audio and visual alarm with LCD/LED indications for increasing concentrations.	Same or equivalent	<ul style="list-style-type: none"> - Clear and easy-to-read display for quick agent class readings. - Backlight for visibility in low-light conditions. 	
12.	The chemical detector shall be capable of having workable memory and networking with comprehensive communication links, such as RS -232/- RS - 422/Ethernet/Fiber optic or RF options.	Same or Equivalent	<p>Enhanced Data Management and Real-Time Monitoring: This capability allows for real-time monitoring and data transfer to central control units, ensuring prompt and effective responses to hazardous situations. These communication links (RS-232, RS-422, Ethernet, Fiber optic, RF options) enable the device to connect with multiple systems for extensive data logging, remote diagnostics, and centralized monitoring. Furthermore, having a robust networking capability ensures compatibility with future upgrades and integration into advanced safety and monitoring systems.</p>	
13.	The chemical agent detector must be compatible with communication capable to transferring the real time data.	Wireless communication for real-time alerts to connected devices.(Like GPS,WiFi,SIM,BLUETOOTH)	<ul style="list-style-type: none"> - Real-time alerts enhance safety during hazardous situations. - Wireless communication allows for faster intervention in case of significant risks. 	
14.	The chemical agent detector must be compatible to store the data.	Same or Equivalent	Removable memory card or USB for data download on PC	
15.	Instrument must not give false alarm in continuous operation of minimum 06 hrs in normal Indian environment	Same	Ensures reliability during extended use.	

16.	<p>Interferences:-Instrument must not give alarm to the interferons, such as screening smokes, smoke of wood, paper plastic, PVC, Incendiary gases from explosive, engine exhaust and fuel. At the same time it should be able to detect CW agents in the presence of above stated interferons.</p>	Same	<p>In environments where these interferences are common, such as industrial sites, military operations, and disaster response scenarios, the ability to filter out non-threatening substances while accurately detecting chemical warfare (CW) agents is essential. This ensures that the detector provides reliable alerts only when a genuine threat is present, thereby enhancing the safety and efficiency of response teams.</p> <p>Additionally, by avoiding false alarms, the credibility and trust in the detection system are maintained, ensuring that personnel remain vigilant and responsive to genuine threats rather than becoming desensitized due to frequent false alarms.</p>	
17.	<p>Operating Temperature</p> <p>a) Lower temperature range : - 30° to - 25° C</p> <p>b) Higher Temperature range : + 45° to 55° C</p>	-30 to +50 degree C	<p>-Wide range of temperatures help to operate in all climates</p>	
18.	It must be possible to decontaminate the instrument easily in the field.	IP55+ or Equivalent	Dustproof Waterproof/Water Resistant	
19.	Temperature and environmental test must meet JSS55555 / MIL-46IE/810F or other equivalent standards for the instrument in semi protected conditions.	same or equivalent	<p>Dustproof Waterproof/Water Resistant - Impact-resistant, rugged material for durability and safety.</p> <p>-extra safety and all weather</p>	

			terrain operability	
20.	Input power must be 6 to 12 V DC battery rechargeable / 230 V AC operated. (with battery eliminator)	Same	Dual power options ensure the detector operates in various conditions, offering flexibility with rechargeable batteries and reliable 230 V AC power for uninterrupted use.	
21.	Instrument must able to run for minimum 06 hrs continuously with a single battery unit.	Same or/(Rechargeable battery)backup for 6 hours	- Longer battery life ensures extended operation. - more backup allows for sustained usage without frequent recharging.	
b22.	The weight of instrument must< 02 Kgs without battery & case.	Same or justifiable	- Light-weight design for ease of carrying and operation. - Justifiable weight for durability or added features if needed.	
23.	Maintenance must be modular, with fitment of consumable form outside, without opening complete instrument enclosure.	Same	Modular maintenance with external consumable fitment allows for quick, easy replacements without disassembling the instrument, reducing downtime and maintaining operational efficiency.	
24.	Shelf life minimum 10 years.	Same		
25.	Maintenance must be minimum in specified storage conditions.	Same	Ensuring minimal maintenance in storage enhances reliability, reduces downtime, and lowers operational costs for long-term use.	
26.	Easy maintainable at unit/site level. Maintenance tool must be adequate.	Same	Adequate maintenance tools enable quick, effective repairs on-site, minimizing downtime and ensuring the detector's reliability and continuous operation.	

27.	Spare part list, instructions for user, complete equipment schedule and any other relevant documents must be provided.	Same	<ul style="list-style-type: none"> - Comprehensive spare part list/accessories for extended use and maintenance. 	
28.	Must have provision for software / data library up gradation.	<p>Same, with additional focus on:</p> <ul style="list-style-type: none"> - Data downloading accessories for Personal Computer with software and hardware 	<ul style="list-style-type: none"> - Data downloading accessories for easy transfer and analysis of data. 	
29.	Must provide warranty of at least 02 years.	02 or more years	<p>A minimum warranty period of at least two years provides assurance of the instrument's reliability and durability. This warranty period covers potential manufacturing defects and ensures that the equipment functions as intended under normal usage conditions.</p> <p>Having a two-year warranty also demonstrates the manufacturer's confidence in their product. It reduces the risk of unexpected costs related to repairs or replacements within the warranty period, thereby ensuring continuous operation without financial strain.</p>	
30	Documentary evidences are required to support the compliance statement wherever applicable.	Same	Certificates/Undertakings to support the compliance statement wherever applicable.	

