

NDS, Delhi	CORRIGENDUM-2 Dt. 22.08.2025	IFB REF: NDS/JICA/MPC/03/Advance Milk Testing & Adulteration Detection Machine
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IFB Reference: NDS/JICA/MPC/03/Advance Milk Testing & Adulteration Detection Machine

Description of Work: Supply Installation Testing and Commissioning of Advance Milk Testing & Adulteration Detection Machine

Please note the following changes in Tender : -

Tender Reference Section / Page Nos.	Revised Tender Terms
Section 4 Technical Requirement of the Contract, Sl.No.1 to 7 (Page Nos.42 to 44)	Please refer the attached Annexure 1 -Revised Technical Specification Automatic Milk Composition and Adulteration Testing Machine (With Remote Monitoring and Data Transfer Capability) Version: July 2025

Note:

1. The above corrigendum shall form part of the bidding document. All other terms and conditions shall remain unchanged.
2. Bidders are requested to submit their bids before the due date and time as specified in the tender document.

Issued by: NDDDB Dairy Service, New Delhi.

Technical Specification
Automatic Milk Composition and Adulteration Testing Machine
(With Remote Monitoring and Data Transfer Capability)

Version: July 2025

1. Functional Requirements

The milk analyser must be capable of simultaneously measuring the following:

- Fat (%)
- SNF (%)
- Protein (%)
- Lactose (%) (optional, if available)
- Density (optional)
- Conductivity (optional)
- Added Water (%) (optional)
- Milk Sample Temperature (°C) (optional)

Supported Milk Types:

- Raw Cow Milk
- Raw Buffalo Milk
- Raw Mixed Milk
- Raw Chilled Milk (up to 4°C)

Sample Analysis Requirements:

- Sample Volume: ≤ 15 ml
- Analysis Time: ≤ 45 seconds
- Sample Temperature Range: 4°C to 40°C
- Ambient Operating Temperature: 5°C to 45°C

Cleaning:

- Automatic internal cleaning through peristaltic pump/any advanced version pump.

Calibration:

- Calibration using reference methods (Gerber, Kjeldahl, Rose-Gottlieb)
- Software slope adjustment
- Protected by OTP/password authentication

Standards Compliance:

- Must comply with ISO 9622 / IDF 141 / AOAC 972.16

2. Analytical Performance

Parameter	Measuring Range	Accuracy	Repeatability
Fat (%)	0 – 13 %	± 0.10 %	≤ 0.06 %
SNF (%)	0 – 15 %	± 0.15 %	≤ 0.08 %
Protein (%)	2.0 – 8.0 %	± 0.10 %	≤ 0.06 %
Added Water (%)	0 – 70 %	± 3.0 % (≥20%)	≤ 2.0 %
Conductivity (optional)	3.5 – 7.0 mS/cm	± 0.05 mS/cm	≤ 0.02 mS/cm
Density (optional)	1.026-1.036 g/cm ³	± 0.0005 g/cm ³	
Temperature (°C)	4 – 45°C	± 0.2°C	

3. Adulterant Detection Capability

The instrument must be capable of detecting or indicating the presence of the following adulterants, either quantitatively or qualitatively (flag/threshold) based on internal algorithm/spectral fingerprinting:

Adulterants to be Detected with Minimum Detection Thresholds

Category	Adulterant	Minimum Detection Threshold
Watering Agents	Added Water	≥ 20%
	Synthetic Milk Components (e.g., soap, urea blend) (Optional)	≥ 20%
Nitrogen-Rich Adulterants	Urea	≥ 0.10%
	Melamine	Flagged (Qualitative)
	Ammonium Sulphate	≥ 0.08%
	Nitrates	Flagged (Qualitative)
Surfactants & Emulsifiers	Detergents (Anionic/Non-Ionic)	Flagged (Qualitative)
	Formalin / Formaldehyde	Flagged (Qualitative)
	Hydrogen Peroxide	Flagged (Qualitative)
Salts & Buffers	Sodium Chloride (NaCl)	Flagged (Qualitative)
	Sodium Citrate	Flagged (Qualitative)
	Potassium Chloride (Optional)	Flagged (Qualitative)
	Neutralizers (carbonates, bicarbonates, hydroxides)	≥ 0.08% for carbonates and bicarbonates, ≥ 0.15% for hydroxides
	Boric Acid (Optional)	Flagged (Qualitative)
Sweeteners & Carbohydrates	Glucose	Flagged (Qualitative)
	Sucrose / Cane Sugar/Fructose	≥ 0.40%
	Maltodextrin	≥ 0.60%
	Sweetening Agents (e.g. saccharin, aspartame) (Optional)	Flagged (Qualitative)
	Sorbitol	Flagged (Qualitative)
Thickeners & Fillers	Starch	Flagged (Qualitative)
	Cellulose / Rice Flour (Optional)	Flagged (Qualitative)
Fat Substitutes	Vegetable Oils / Fats	(Flagged Qualitative)

Non-Milk Fat (Optional)

(Flagged Qualitative)

4. Instrument Features & Data Handling

Feature Specification

- Display Color graphical TFT/LCD, minimum 4.3" diagonal
- User Interface English
- Data Storage ≥ 8 GB; ≥ 1000 test records
- Operating System Embedded or Windows-compatible; Stand-alone capable
- Data Export USB, RS-232, SD card, Ethernet
- Report Generation Date-wise, location-wise, parameter-wise (Excel/PDF)
- Printing Thermal POS printer (optional)
- Built-in Diagnostics Yes; self-test & error indication
- Power Supply 230V AC or 12V DC (Battery/Solar compatible)
- Power Consumption ≤ 50 W

5. Remote Monitoring & IoT Integration (Optional but Preferred)

Feature Specification

- Connectivity GSM / GPRS / 4G LTE / Wi-Fi
- Interface Protocols API / Webhook, JSON/XML for ERP/MIS integration
- Dashboard Access Web portal and Android mobile app
- Alerts SMS / Email alerts for faults or threshold breach
- Remote Configuration Yes; for firmware update and diagnostics
- Offline Buffer Storage ≥ 1000 results locally
- Security Encrypted data transfer, role-based access

6. Physical Characteristics

Parameter Specification

- Instrument Type Table-top, portable compact unit
- Dimensions $(L \times W \times H) \leq 400 \text{ mm} \times 320 \text{ mm} \times 300 \text{ mm}$
- Weight ≤ 5.0 kg
- Enclosure Robust plastic/metal casing with corrosion resistance
- Ingress Protection Minimum IP52 or equivalent
- Environmental Range Temperature: 5°C to 45°C ; RH: ambient–85% (non-condensing)
- Sample Volume ≤ 15 ml
- Cleaning Mechanism Fully automatic, with internal rinse system

7. Training, Warranty & After-Sales Support

Component Specification

- Training 3 days per site for up to 3 persons
- User Manual Hard and soft copy in English and Hindi
- Warranty 3 years comprehensive, extendable by 2 years(rate to

be disclosed)

- Preventive Maintenance Visits 2 per year during warranty period
- Spares & Consumables Should be supplied by OEM or authorized partner