

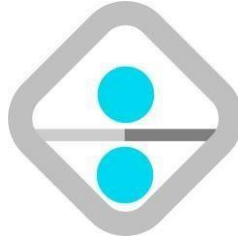
*National Expression of Interest (EOI) for identifying suitable suppliers for supply of raw materials required for manufacturing varnish and inks for banknote printing - Varnika, BRBNMPL, Mysuru
EOI 001/MYS/MMD/2024-25 dated 17.01.2025*

**BHARATIYA RESERVE BANK NOTE MUDRAN PRIVATE LIMITED,
MYSURU**

EXPRESSION OF INTEREST (EOI)

**FOR IDENTIFYING SUITABLE SUPPLIERS FOR SUPPLY OF RAW MATERIALS REQUIRED FOR
MANUFACTURING VARNISH AND INKS FOR BANK NOTE PRINTING**

EOI 001/MYS/MMD/2024-25 dated 17.01.2025



Issued by:

GENERAL MANAGER & O-I-C

BHARATIYA RESERVE BANK NOTE MUDRAN (P) LTD (BRBNMPL)

(Wholly Owned subsidiary of Reserve Bank of India)

Note Mudran Nagar, Mysuru – 57003

Tel No: +91 - 821 – 2469042, 2469045, 2582905/915/925/935/945

Email: prsanjay@brbnmpl.co.in, kaushiksimlai@brbnmpl.co.in, dineshanand@brbnmpl.co.in

Website: www.brbnmpl.co.in

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NATIONAL EXPRESSION OF INTEREST (EOI) FOR IDENTIFYING SUITABLE SUPPLIERS FOR SUPPLYING OF RAW MATERIALS REQUIRED FOR MANUFACTURING VARNISH AND INKS FOR BANK NOTE PRINTING.

Not Transferable
Security Classification: Non-Security

EOI 001/MYS/MMD/2024-25

Dated: 17.01.2025

This EOI document contains 93 Pages

Document is given to:

M/s _____

Address _____

Details of contact person in BRBNMPL regarding this EOI:

Shri D K Anand
General Manager

BHARATIYA RESERVE BANK NOTE MUDRAN (P) LTD

(Wholly Owned Subsidiary of Reserve Bank of India)

Note Mudran Nagar, Mysuru – 570003

Tel No: 0821-2469042, 2469045, 2582905/915/925/935/945. Fax: 0821-2582099

EMAIL: dineshanand@brbnmpl.co.in

Website: www.brbnmpl.co.in

EXPRESSION OF INTEREST (EOI)

**BHARATIYA RESERVE BANK NOTE MUDRAN (P) LTD
(Wholly Owned subsidiary of Reserve Bank of India)
Note Mudran Nagar, Mysuru – 570003**

EOI 001/MYS/MMD/2024-25

Dated: 17.01.2025

1. Bharatiya Reserve Bank Note Mudran Private Limited (BRBNMPL) is a wholly owned subsidiary of Reserve Bank of India having two printing presses one at Mysuru, Karnataka & the other at Salboni, West Bengal, for banknote production. As a part of backward integration and Make in India initiative, BRBNMPL has set up its own Ink manufacturing facility (Varnika) for manufacturing of varnishes and ink required for printing banknotes.
2. Expression of Interest (EOI) is invited for enlisting of new vendors and widening the vendor base for supply of raw materials, only from Indian manufacturers or authorized representatives/dealers, distributors and stockists of Indian manufacturers. The raw materials are used in manufacture of varnish and inks (Offset, Intaglio and Numbering process) for banknote printing.
3. Manufacturers can participate directly or can authorize only one representative/ Distributor/ Dealer/ Stockists for participating in this EOI. (Bidders should qualify as Class-I or Class-II supplier as per the Preference to Make in India order dated 15/06/2017 and its amendments).
4. The existing suppliers, already empaneled for supply of any specific raw material(s) listed below, need not participate in this EOI. However, if they want to empanel for other raw materials listed in this EOI, they can participate for the same.
5. Details of approximate annual requirement of various raw materials are as below:

Sl. No.	Name of the Raw Material	Approx. Quantity Required per Annum (in Kg)
1	Solvent Type C10-13 (Solvent 4)	34,900
2	Invisible Fluorescent Yellow Pigment (Fluo. Compound 1)	160
3	Invisible Fluorescent Orange Pigment (Fluo. Compound 7)	275
4	Hydrophobic Fumed Silica	32,500
5	Hydrophilic Fumed Silica	1,550
6	Carnauba Wax (Wax Type-1)	27,700
7	Invisible Fluorescent Bluish Green Pigment	80

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Sl. No.	Name of the Raw Material	Approx. Quantity Required per Annum (in Kg)
	(Fluo. Compound 6)	
8	Bentonite Clay	600
9	Talc N (Hydrated Magnesium Silicate)	800
10	Food Grade Fumaric Acid	12,000
11	Anti-Oxidant Paste	175
12	Additive (Emulsifier or Dispersing Agent)-Sophrophore	3,200
13	Lanolin- EP Grade	425

Quantities mentioned above are only indicative. Two-part tender will be issued among the empaneled vendors for future procurement of the above raw materials.

Type of Tender (Two Bid / PQB / EOI / RC / Development / Indigenization / Disposal of Scrap / Security item etc.	Expression of Interest (EOI)
Date of Publication of EOI documents	17.01.2025
Price of the EOI Document	Free
Closing date and time for receipt of EOI	14:30 hrs. on 18.02.2025
Place of receipt of EOI	Administrative Building, BRBNMPL, Note Mudran Nagar, Mysuru-570003, Karnataka
Time and date of opening of EOI	18.02.2025 at 15:00 hrs.
Place of opening of EOI	Administrative Building, BRBNMPL, Note Mudran Nagar, Mysuru-570003, Karnataka
Nominated Person / Designation to receive bulky documents (Clause 21.1 of GIT)	Shri. D K Anand, General Manager, BRBNMPL, Mysuru

6. The interested vendors may obtain further information about this EOI from the above office. EOI documents may be downloaded from the BRBNMPL website: www.brbnmpl.co.in or can also be obtained from Materials Management -Purchase Division, BRBNMPL, Mysuru.
7. On prior appointment, interested vendors may visit Varnika to understand the functional requirement of the proposed raw material required to be supplied/developed. For security reasons, the vendors are required to provide details of their representative/s (like Adhaar card etc.) who will be visiting to Varnika, BRBNMPL, Mysore.
8. Vendors shall ensure that their offer, duly sealed and signed, complete in all respects as per instructions contained in the EOI, are dropped in the tender box located at the address given above on or before the closing date and time indicated in the Para 5 above. The offers received within the last date prescribed

in EOI will be evaluated and after evaluation, Intimation for submitting of sample will be given to eligible vendors. Following of successful evaluation of sample, vendor will be empaneled. Two-part tender will be issued among the empaneled vendors for future procurement of above raw materials at a later date.

9. In the event of any of the above mentioned dates being declared as a holiday / closed day for the purchase organization, the EOI documents will be sold / received / opened on the next working day at the appointed time.
10. Vendors may also download the EOI from the website and submit their offer by utilizing the downloaded document.
11. The EOI documents are not transferable.
12. BRBNMPL reserves the right to cancel the EOI / Reject all offers / Re-float the EOI without assigning any reason thereof. BRBNMPL also reserves the right to accept the EOI in whole or in part. Incomplete offers submitted not in accordance with the directions issued shall be liable for rejection.
13. BRBNMPL is not responsible for any postal delay and the EOI proposals may not be accepted for opening after due date and time. Any offers received after the due date will be evaluated and enlisted in the vendor base if found qualified. But these offers will not be considered for the immediate requirement of materials.
14. Interested vendors must satisfy themselves about all the details required to be filled in the EOI before submission of offer.
15. Vendors are required to stamp and provide their authorized signature on every page of the EOI document and all the supporting documents to be submitted.
16. Vendors shall mention the **serial number and name of the raw material** for which they are submitting their offer.
17. **Submission of free sample**- Free samples will be collected from **qualified parties** of this EOI for lab evaluation. Existing vendors need not to submit samples for the materials which they have been already supplying to Varnika.
18. Vendors submitting sample must compulsorily mention the product code and product batch number.
19. Applicable guidelines - Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012', Public Procurement (Preference to Make in India) Order, 2017' and order dated 16/09/2020, Ministry of Finance No 6/18/2019-PPD dated 23rd Jul 2020 (GFR 2017) and all related procurement guidelines issued by Government of India time to time. (Please refer attached annexures for reference).

A. Terms of Reference:

Vendor shall provide

- i. Monthly capacity to supply each of the raw material for which the vendor is intending to participate in the offer.
- ii. Material - wise indicative delivery time (ex-factory) required for the supply.

B. Procurement Process

Following are the details of vendor empanelment process of BRBNMPL.

- i. Expression of Interest is being invited for empanelment of vendors for procurement of the raw materials listed in EOI from Indian manufacturers or authorized representatives/dealers, distributors and stockists of Indian manufacturers.
- ii. Details of samples to be submitted by qualified parties:

Sl. No.	Name of Raw Material	Sample quantity to be submitted (grams)
1	Solvent Type C10-13 (Solvent 4)	1,000
2	Invisible Fluorescent Yellow Pigment (Fluo. Compound 1)	25
3	Invisible Fluorescent Orange Pigment (Fluo. Compound 7)	50
4	Hydrophobic Fumed Silica	500
5	Hydrophilic Fumed Silica	250
6	Carnauba Wax (Wax Type-1)	2,000
7	Invisible Fluorescent Bluish Green Pigment (Fluo. Compound 6)	25
8	Bentonite Clay	500
9	Talc N (Hydrated Magnesium Silicate)	500
10	Food Grade Fumaric Acid	500
11	Anti-Oxidant Paste	200
12	Additive (Emulsifier or Dispersing Agent)- Soprophore	500
13	Lanolin- EP Grade (Lanolin)	500

- iii. Samples will be on Free of Cost (FOC) basis i.e., on no cost-no commitment basis. Samples will be tested at VARNIKA, for their suitability for manufacturing of varnishes / inks for banknote printing. During sample evaluation, physical and chemical resistance properties of the sample will be tested as per the test methods mentioned in the technical specification.
- iv. Vendors qualified in this EOI (satisfactory performance of samples and meeting the qualifying criteria) and enlisted as empanelled vendors will be invited to participate in two-part tender in future.
- v. It shall be noted, if found necessary, BRBNMPL may seek additional samples from the vendor/s, for extensive trials.

vi. At the BRBNMPL's discretion, facility visit of the supplier will be carried out, if required.

C. Sample (will be collected for lab evaluation from qualified parties only):

- i. Samples – If Vendor is interested in taking part in all materials, they shall provide samples for all the materials. Samples should pass on all quality parameters mentioned in the technical specifications (Annexure-A).
- ii. Vendors may submit more than one sample for one raw material. **Existing vendors need not submit samples for the materials which they are already supplying to Varnika.**
- iii. Vendor shall ensure that the samples are packed in air tight sealed spill proof containers to avoid spillage during transit.
- iv. **The samples shall be properly labelled with EOI reference number and name of the raw material as per the EOI document.**
- v. The offer document and the samples shall be submitted in separate packages with proper tracking.
- vi. The samples and the offer document shall be addressed to:

**“General Manager & O-I-C”,
Bharatiya Reserve Bank Note Mudran (P) Ltd
Note Mudran Nagar,
Mysuru – 570003**

D. Qualifying Criteria

The following are the qualifying criteria which must be fulfilled by the intending vendor:

General Terms:

- I. If representatives, dealers, distributors or stockists are taking part in the EOI, the credentials of their principal manufacturer will be ascertained to meet the eligibility criteria.
- II. Net worth of the firm should not be negative and also should not have eroded by more than 30% year-on-year in the last three years, ending on 31st March 2024. Please enclose the details of last three years' ending 31st Mar 2024 financial standings data (P/L accounts, Balance sheets) are duly certified by Chartered Accountant (CA).
- III. The vendor must have an annual capacity to manufacture or supply at least 30% of requirement of the item to which they are intending to participate. Please provide a statement confirming the above on your letterhead along with list of Machinery & Equipments.
- IV. Principal manufacturers/OEMs, manufacturers under license or their authorized dealers / distributors / representatives who are exclusively appointed by the principal manufacturers / OEMs (Indian manufacturers only) shall be eligible to apply or to take part in the EOI. One

Principal manufacturer / OEM can authorize only one dealer / distributor / representative for this EOI. Similarly, one authorized Dealer/Distributor/Representative can represent only one Principal manufacturer / OEM in this EOI. There can be only one offer from either:-

1. The Principal manufacturer/OEM directly; or
2. Any of its branch/division/subsidiary; or
3. Authorized Dealer/Distributor/Representative on behalf of the Principal manufacturer/OEM

Note:

- I. In this EOI, either the Principal manufacturer/OEM or its authorized Dealer/Distributor/Representative can participate but both cannot participate simultaneously in the same EOI.
- II. In case, the vendor is an authorized Dealer/Distributor/Representative, then
 - a) the vendor should have been associated as authorised Dealer/Distributor/Representative of the same or other Principal Manufacturer/OEM for same set of services as in present bid for same or similar 'Product' for past three years ending on 31st March 2024 and
 - b) The principal manufacturer/OEM should meet all the pre-qualification criteria without exemption.

E. Past Experience:

- I. The Vendor or their principal manufacturer should have supplied the raw materials for manufacturing varnish/printing inks during last five years as on date of submission.
- II. The Vendor should provide names of the ink manufacturing companies to whom they have supplied respective material in the past indicating the quantities supplied annually during the last five years. (Previous Purchase Order copies to be enclosed).
- III. One Vendor can provide more than one variety for each schedule (listed items) for which he intends to participate.
- IV. Samples provided will be used in laboratory for testing purpose.
- V. Samples will be checked/used in laboratory to ascertain their suitability for manufacturing bank note printing inks, which will be used for banknote printing.
- VI. The bidders applying as MSE's/Start-ups (whether MSEs or otherwise) shall be eligible for relaxation of norms with regard to prior experience and financial criteria. Relaxation on prior experience for Class-I and II Local Suppliers may also be considered as per para 10a and 10b

of revised Make in India Order.

F. OTHER REQUIREMENTS FOR THE VENDORS

- a) Vendor shall clearly indicate in the EOI if any patent or other proprietary rights are involved for the material and if so whether the vendor has unlimited legal rights to deal with them/use them. The vendor shall completely indemnify and hold harmless BRBNMPL from and against any claims of infringement of any patent from any source. The abuse of patent rights resulting in cartel formation could lead to permanent disqualification of the vendor. BRBNMPL reserves the right to take such action as deemed fit over the same, without assigning any reason thereof.
- b) BRBNMPL shall seek additional documents / information from any Vendor at any point of time, if required.
- c) All experience, past performance, capacity/capability related data and other necessary declarations should be certified by the authorized signatory of the vendor.
- d) The vendor should clearly indicate in their EOI that they are submitting the application for one or more materials.

G. GENERAL INSTRUCTIONS FOR THE VENDORS

- a) The vendor should provide testimony in support of the above mentioned requirements wherever applicable failing which the application will be rejected summarily without further correspondence.
- b) The applications as per enclosed format, are to be submitted in a sealed cover super scribing on the top of the cover "EOI 001/MYS/MMD/2024-25 dated 17/01/2025- National Expression of Interest (EOI) for identifying suitable suppliers for supply of raw materials required for manufacturing of varnish and inks for banknote printing" and to be submitted to The General Manager & O-I-C, BRBNMPL, Note Mudran Nagar, Mysuru – 570003 by 14:30 hrs. IST on or before 18.02.2025.
- c) Applications received on or before the due date will only be considered for evaluation. The responsibility to submit EOI before the due date and time rests with vendor and BRBNMPL will not entertain any explanation/reason for late submission.
- d) BRBNMPL will not be responsible for any delay in delivery of offers.
- e) The changes/Amendment to this EOI will be updated in our website (www.brbnmpl.co.in) only. Vendors requested to visit our website regularly for periodic updates.

ENCLOSURES:

Part I - Annexure A: Technical Specifications of listed 13 raw materials (Pages 12 to 54)-(Not to be circulated)

Part II – List of documents to be filled and submitted by the vendors participating in the EOI

1. Annexure B: Undertaking/Declaration on Blacklisting and Confidentiality.
2. Annexure C: EOI Participation details.
3. Annexure D: Bidder Information.
4. Annexure E: Eligibility Declarations.
5. Annexure F: Explanatory note on make in India order 2017; MSE's order 2012 and start-ups.
6. Annexure G: Restrictions of procurement from countries sharing land border with India.
7. Annexure H: Declaration & Undertaking by MSEs / Start-up Companies / Entities seeking purchase preference under Make In India Policy / Women entrepreneurs / Registration with TReDS/GeM.
8. Annexure I: Statement of Financial Standing along with copies of Balance Sheet & P&L accounts for year 2021-22, 2022-23 and 2023-24.
9. Annexure J: Template for assessment of Capability of Bidder.
10. Annexure K: Performance Statement.
11. Annexure L: Terms and Conditions-Compliance.

TECHNICAL SPECIFICATIONS

Sl. No.	Name of Raw Material	Sample quantity to be submitted (grams)	Page number of technical specifications
1	Solvent Type C10-13 (Solvent 4)	1000	11~14
2	Invisible Fluorescent Yellow Pigment (Fluo. Compound 1)	25	14~18
3	Invisible Fluorescent Orange Pigment (Fluo. Compound 7)	50	18~21
4	Hydrophobic Fumed Silica	500	21~25
5	Hydrophilic Fumed Silica	250	25~28
6	Carnauba Wax	2000	28~32
7	Invisible Fluorescent Bluish Green Pigment (Fluo. Compound 6)	25	32~35
8	Bentonite Clay	500	35~39
9	Talc (Hydrated Magnesium Silicate)	500	39~42
10	Food Grade Fumaric Acid	500	42~46
11	Anti-Oxidant Paste	200	46~49
12	Additive (Emulsifier or Dispersing Agent)	500	49~50
13	Lanolin- EP Grade (Lanolin –Lanis)	500	50~53

1. SPECIFICATIONS FOR SOLVENT TYPE C10-C13 (SOLVENT-4):

The high quality hydrocarbon solvent is used in manufacture of varnish which in turn is used in manufacture of intaglio inks for banknote printing. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 sheets per hour. Under these conditions printing has to be carried out without any major printing issues like – misting, filling, transfer issues etc.

SOLVENT TYPE-4 (C10-C13)		
1	Type	Solvent-Hydrocarbons, C10-C13
2	Physical state	Liquid (Free from any foreign particles and dust)
3	Colour	Water white to very light yellowish
4	Density @ 15°C	0.790 ± 0.015
5	Initial Boiling point @ 760 mm Hg	Between 177°C to 182°C
6	Final Boiling point @ 760 mm Hg	220°C Max
7	Aniline Point:	70-72°C
10	Aromatic Content	<0.5%

1. The supplier has to furnish a test certificate for conformity as per the tender specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of varnish, manufacturing of inks, quality control of varnish and ink samples including curing/drying of ink, stability of inks/varnish during retention, press performance of inks, physical and chemical resistance tests etc.
3. The sample should have a stable performance during the entire process of varnish/ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE VARNISH/INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Hydrocarbon solvent shall

- (i) Work smoothly while processing in the reactor at high temperature (up to 250°C) during processing of varnish.
- (ii) The varnish thus manufactured shall work smoothly on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (iii) Have good compatibility with other components such as rosin modified phenolic resin, alkyd resins, Tung oil, High boiling mineral distillates, other vehicles/ varnish, extenders, pigment, solvents etc. used in manufacturing of Banknote printing inks.
- (iv) Be suitable for manufacturing varnish/inks to obtain appropriate rheology (Viscosity, Tack) as required for satisfactory running in intaglio printing machines.
- (v) The inks manufactured by the offered materials shall be non-corrosive to printing plates.

- (vi) **Shelf life:** The Hydrocarbon solvent in sealed container/drums should have shelf life 2 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Hydrocarbon solvent should be such that

- (i) Ink prepared by using this solvent should work smoothly on intaglio ink printing machines.
- (ii) The offered solvent should not have any adverse impact on ink drying on rollers, set off in the printed sheets after keeping in the pile (approx. 1000 sheets) for drying.
- (iii) Printed sheets should dry within the regular drying time.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the intaglio ink where the target solvent has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability and physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas.

Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered solvent shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered solvent shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4
Soap	Soap Solution	10%	85	30	4

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Bleach	Sodium Hypochlorite (8.5%)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),
3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

- D. Environmental Aspect:** The solvent sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls, restricted poly cyclic aromatic and aliphatic hydrocarbons etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.
- E. Quality Certificate:** Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.
- G. Tender Stipulations:** Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.
- H. Health and safety requirements:** The ink manufactured with the offered solvent shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile organic compounds or odour, which would be harmful to health of the employee while working on machines and the manufacturer, shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

2. INVISIBLE FLUORESCENT YELLOW PIGMENT (FLUO. COMPOUND-1):

An easier-dispersing Invisible Fluorescent Yellow Pigment powder with precisely controlled particle size distribution is required for manufacturing of high quality Offset and Numbering ink. These inks will be used for printing of banknotes on 100% cotton rag substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 to 12000 sheets per hour. Under these conditions printing has to be carried out without any major printing issues like – misting, filling, transfer issues etc.

Invisible Pigment Fluorescent Yellow		
1	Chemical Class	Organic luminescent pigment for security coding
2	Form	Powder
3	Light Fastness (When 7 days" air dried print is subjected to Xenotest)	Minimum 4 in the blue wool scale of 1 to 8 or comparable to the std. available with us.
4	Chemical resistance	≥ 4 (in the scale of 1- 5) or comparable to the std. available with us.
5	Glow in UV light	Should glow intense yellow in all UV ranges particularly in 254 nm, 312 nm & 365 nm
6	Particle Size/Fineness of Grind	<5 microns on Hegmann Guage
7	Emission wavelength while exposing	Should have following peaks as close to

	the printed drawdown at offset print thickness (printed with ink having 30% fluo pigment and 70 % transparent medium) under UV light i.e. 365 nm	the reference. 1 st Peak 546 nm at 100% intensity 2 nd highest Peak 562 nm 3 rd highest Peak 586 nm However final evaluation will be done in finished ink to check the exact shade, glow, peak identification and intensity.
8	Admissible % of iron particles	It should not exceed 0.05%
9	Application	It will be used for making high quality security bank note printing ink.
10	Shade , strength, opacity, transparency	As per standard material kept with us \pm 5% of standard (Higher colour strength is also acceptable)

1. The supplier has to furnish a test certificate for conformity as per the above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of ink, quality control of ink samples including stability of ink during retention, press performance of ink, physical and chemical resistance tests etc.
3. Performance of the sample should be stable during the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Pigment shall

- (i) Work efficiently on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) The offered pigment shall wet uniformly during premixing with medium.
- (iii) **The offered pigment (premix of 30% pigment with oleoresinous varnish) shall grind/disperse on tripleroll mill (Max set temp 35°C) in two passes with the tolerance of additional one pass.**
- (iv) Have good compatibility with varnish, extenders, other pigments, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (v) Be such that the inks manufactured from the offered pigment are non-corrosive to printing plates.
- (vi) **Shelf life:** The offered Pigment should have shelf life of 3 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Pigment should be such that

- (i) Ink prepared by using this pigment should not show any abnormal behavior while running on Offset, intaglio and numbering printing machines.

(ii) Ink should be stable during the retention period i.e. minimum 2 years.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the high security offset, intaglio and numbering ink where this pigment has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability, physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)', 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)', 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The light fastness should be as per the table given above.

CHEMICAL RESISTANCE: The offered pigment shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter

paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature ° C	Exposing Time (minutes)
Solvents	Ethyl Alcohol	95%	25	30
	Ethyl acetate	PURE	25	30
	Acetone	PURE	25	5
	Trichloro ethylene	PURE	25	30
	Perchloro ethylene	PURE	25	30
	Xylene	PURE	25	30

Class	Reagent	Concentration	Temperature ° C	Exposing Time (minutes)
Acids	Acetic Acid	20%	25	30
	Sulphuric acid	2%	25	30
	Hydrochloric Acid	5%	25	30
Soap	Soap Solution	10%	85	30
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),
3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

D. Environmental Aspect: The Pigment sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered pigment shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile organic compounds or odour, which would be harmful to health of the employee while working on machines and the manufacturer, shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

3. INVISIBLE FLUORESCENT ORANGE PIGMENT (Fluo. Compound 7):

An easier-dispersing Invisible Fluorescent Orange Pigment powder with precisely controlled particle size distribution is required for manufacturing of high quality Offset and numbering ink. These inks will be used for printing of banknotes on 100% cotton rag substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 to 12000 sheets per hour. Under these conditions printing has to be carried out without any major printing issues like – misting, filling, transfer issues etc.

Pigment Fluorescent Orange		
1	Chemical Class	Inorganic or Organic luminescent pigment for security coding
2	Form	Powder
3	Light Fastness (When 7 days" air dried print is subjected to Xenotest)	Minimum 4 in the blue wool scale of 1 to 8 or comparable to the std. available with us.
4	Chemical resistance	≥ 4 (in the scale of 1- 5) or comparable to the std. available with us.
5	Glow in UV light	Should glow intense Orange in all UV ranges particularly in 254 nm, 312 nm & 365 nm or comparable to the std. available with us.
6	Particle Size/Fineness of Grind	<5 microns on Hegmann Guage
7	Emission wavelength while exposing the printed drawdown at offset print thickness (printed with ink having 30% fluo pigment and 70 % transparent medium) under UV light i.e. 365 nm	Should have following peaks as close to the reference. 1 st Peak 595 ± 10 nm at 100% intensity However final evaluation will be done in finished ink to check the exact shade, glow, peak identification and intensity.
8	Admissible % of iron particles	It should not exceed 0.05%
9	Application	It will be used for making high quality

		security bank note printing ink.
10	Shade , strength, opacity, transparency	As per standard material kept with us \pm 5% of standard (Higher colour strength is also acceptable)

1. The supplier has to furnish a test certificate for conformity as per the above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of ink, quality control of ink samples including stability of ink during retention, press performance of ink, physical and chemical resistance tests etc.
3. Performance of the sample should be stable during the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Pigment shall

- (i) Work efficiently on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) The offered pigment shall wet uniformly during premixing with medium.
- (iii) **The offered pigment (premix of 30% pigment with oleoresinous varnish) shall grind/disperse on triple roll mill (Max set temp 35°C) in two passes with the tolerance of additional one pass.**
- (iv) Have good compatibility with varnish, extenders, other pigments, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (v) Be such that the inks manufactured from the offered pigment are non-corrosive to printing plates.
- (vi) **Shelf life:** The offered pigment should have shelf life of 3 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Pigment should be such that

- (i) Ink prepared by using this pigment should not show any abnormal behavior while running on Offset, intaglio and numbering printing machines.
- (ii) Ink should be stable during the retention period i.e. minimum 2 years.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the high security offset, intaglio and numbering ink where this pigment has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability, physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining)'. The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining)'. The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The light fastness should be as per the table given above.

CHEMICAL RESISTANCE: The offered pigment shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature ° C	Exposing Time (minutes)
Solvents	Ethyl Alcohol	95%	25	30
	Ethyl acetate	PURE	25	30
	Acetone	PURE	25	5
	Trichloro ethylene	PURE	25	30
	Perchloro ethylene	PURE	25	30

	Xylene	PURE	25	30
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Class	Reagent	Concentration	Temperature ° C	Exposing Time (minutes)
Acids	Acetic Acid	20%	25	30
	Sulphuric acid	2%	25	30
	Hydrochloric Acid	5%	25	30
Soap	Soap Solution	10%	85	30
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),
3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The Pigment sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered pigment shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile organic compounds or odour, which would be harmful to health of the employee while working on machines and the manufacturer, shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

4. HYDROPHOBIC FUMED SILICA:

Hydrophobic Fumed Silica is required for manufacturing of high security Intaglio, Offset and Numbering ink for banknote printing. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines running at a speed ranging from 10000 to 12000 sheets per hour on banknote printing machines. Under these conditions printing has to be carried out without any major printing issues like — misting, filling, transfer issues, wipability of ink etc.

HYDROPHOBIC FUMED SILICA		
1	Type	Hydrophobic Fumed Silica
2	Appearance	Fine white colour Powder
3	Specific Surface Area (BET)	90 to 145 m ² /g
4	pH value in 4% dispersion	3.6 to 5.5
5	SiO ₂ Content	> 99.8%
6	Loss on drying 2 Hrs @ 105°C	<=1.0 %
7	Tamped Density	Max. 70 g/l

1. The Supplier has to furnish a test certificate for conformity as per above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of anti-set off paste, manufacturing of offset, intaglio and numbering ink, quality control of anti-set off paste, offset, intaglio and numbering ink samples including solubility of ink, stability of ink during retention, press performance of inks, physical and chemical resistance tests etc.
3. The sample should perform stably on the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE VARNISH/INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Hydrophobic Fumed Silica shall

- (i) Work smoothly on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) Have good compatibility with other components such as Oil based Medium, High boiling mineral distillates, other vehicles/ varnish, extenders, pigment, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (iii) Be suitable for manufacturing varnish/inks to obtain appropriate rheology (Viscosity, Tack), solid content and acid value as required for satisfactory running in intaglio printing machines.
- (iv) Be such that the inks manufactured from the offered Hydrophobic fumed silica is non-corrosive to printing plates.
- (v) **Shelf life:** The Hydrophobic fumed silica in sealed container/bags should have shelf life of up to 2 years.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Hydrophobic Fumed Silica should be such that

- (i) Ink prepared by using this Hydrophobic fumed silica should work smoothly on offset, intaglio and numbering printing machines.
- (ii) There should not be any set off in the printed sheets after keeping in the pile (approx. 1000 sheets) for drying.
- (iii) Printed sheets should dry within the regular drying time.
- (iv) Printed sheets should withstand the scuffing forces and should not be damaged during running on numbering machines and during the cutting operation in finishing.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using high security offset, intaglio and numbering ink where the target Hydrophobic fumed silica has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability and physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas.

Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2. Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered Hydrophobic fumed silica shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered Hydrophobic fumed silica shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),

3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The Hydrophobic fumed silica sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered Hydrophobic fumed silica shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile or odour, which would be harmful to health of the employee while working on machines and the manufacturer shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

5. HYDROPHILIC FUMED SILICA:

Hydrophilic Fumed Silica is required for manufacturing of high security intaglio ink for banknote printing. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines running at a speed of 10000 sheets per hour on Banknote Printing machines. Under these conditions printing has to be carried out without any major printing issues like - misting, filling, transfer issues, wipability of ink etc.

HYDROPHILIC FUMED SILICA		
1	Type	Hydrophilic Fumed Silica
2	Appearance	Fine white colour Powder
3	Specific Surface Area (BET)	175 to 230 m ² /g
4	pH value in 4% dispersion	3.7 to 4.5
5	SiO ₂ Content	> 99.8%
6	Loss on drying 2 Hrs @ 105°C	<=2.0%
7	Tamped Density	Approx. 50 - 60 g/l

1. The Supplier has to furnish a test certificate for conformity as per above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of anti-set off, manufacturing of colour shift

intaglio medium & manufacturing of colour shift intaglio ink, quality control of anti-set off paste, colour shift intaglio medium and ink samples including solubility of ink, stability of ink during retention, press performance of inks, physical and chemical resistance tests etc.

3. The sample should perform stably on the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE VARNISH/INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Hydrophilic Fumed Silica shall

- (i) Work smoothly on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) Have good compatibility with other components such as Oil based Medium, High boiling mineral distillates, other vehicles/ varnish, extenders, pigment, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (iii) Be suitable for manufacturing varnish/inks to obtain appropriate rheology (Viscosity, Tack), solid content and acid value as required for satisfactory running in intaglio printing machines.
- (iv) Be such that the inks manufactured from the offered hydrophilic fumed silica are non-corrosive to printing plates.
- (v) **Shelf life:** The hydrophilic fumed silica in sealed container/bags should have shelf life of up to 2 years.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Hydrophilic Fumed Silica should be such that

- (i) Ink prepared by using this hydrophilic fumed silica should work smoothly on intaglio printing machines.
- (ii) There should not be any set off in the printed sheets after keeping in the pile (approx. 1000 sheets) for drying.
- (iii) Printed sheets should dry within the regular drying time.
- (iv) Printed sheets should withstand the scuffing forces and should not be damaged during running on numbering machines and during the cutting operation in finishing.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using high security intaglio ink where the target hydrophilic fumed silica has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability and physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then

repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered hydrophilic fumed silica shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered hydrophilic fumed silica shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5%)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),

3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The hydrophilic fumed silica sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered hydrophilic fumed silica shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile organic compounds or odour, which would be harmful to health of the employee while working on machines and the manufacturer, shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

6. CARNAUBA WAX (WAX TYPE-1):

The high quality Carnauba wax is required for manufacturing of high security intaglio ink for banknote printing. The ink will be used for printing of banknotes on 100% rag cotton substrate. Printing of banknote is carried out in high speed of 10000 sheets per hour. Under these conditions printing has to be carried out without any major printing issues like – misting, filling, transfer issues, wipability of ink etc.

CARNAUBA WAX		
1	Type	Micronized Carnauba Wax
2	Appearance	Light yellow powder
3	Average Particle size	20 – 40 µm
4	Acid Value (mg KOH/g)	2 – 7 mg KOH/g
5	Drop Melting point	80 - 88°C
6	Saponification Value (mg KOH/g)	78 – 95 mg KOH/g

1. The supplier has to furnish a test certificate for conformity as per the tender specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests, for example manufacturing of anti-setoff paste, manufacturing of inks, quality control of intermediate and ink samples, stability of inks/intermediates during retention, press performance of inks, physical and chemical resistance tests especially for set-off, rub resistance etc.
3. The sample should have stable performance during the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Wax shall

- (i) Work smoothly on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) Sample should not melt/congeal during processing at High Torque Mixers and Triple Roll Milling machines at normal operating conditions.
- (iii) Have good compatibility with other components such as vehicle, varnish, extenders, pigment, solvents etc. used in manufacturing of Banknote printing inks.
- (iv) Disperse uniformly in the components and should not form froth or should not sediment on the ink mixing vessels.
- (v) Disperse such that it is milled to the required particle size in optimum mill passes. The Wax should not form agglomerates and disperse thoroughly such that it should be suitable for manufacturing of intaglio inks.
- (vi) Be suitable for manufacturing inks to obtain appropriate rheology (Viscosity, Tack) as required for satisfactory running in Intaglio machines.

(vii) The inks manufactured from the offered Carnauba Wax shall be non-corrosive to printing plates.

(viii) **Shelf life:** The Wax in sealed container/bags should have shelf life of 2 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered wax should be such that

- (i) Ink prepared by using offered wax should work smoothly on Intaglio ink printing machines.
- (ii) There should not be any set off in the printed sheets after keeping in the pile (approx. 1000 sheets) for drying.
- (iii) Printed sheets should withstand the scuffing forces and should not be damaged during running on numbering machines and during the high speed automated paper cutting and counting machines.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the Intaglio ink where the target wax has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability and physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1. Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas.

Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2. Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour

disappearance (less than 5% remaining). The rating will be based on visual comparison of untested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered Wax shall be such that these should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered Wax shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5%)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),

3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The wax sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The wax sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered wax shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile or odour, which would be harmful to health of the employee while working on machines and the manufacturer shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

7. INVISIBLE FLUORESCENT BLUISH GREEN PIGMENT (FLUO. COMPOUND 6):

An easier-dispersing Invisible Fluorescent Bluish Green Pigment powder with precisely controlled particle size distribution is required for manufacturing of high quality Offset and Numbering ink. These inks will be used for printing of banknotes on 100% cotton rag substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 to 12000 sheets per hour. Under these conditions printing has to be carried out without any major printing issues like – misting, filling, transfer issues etc.

Invisible Pigment Fluorescent Bluish green		
1	Chemical Class	Organic luminescent pigment for security coding
2	Form	Powder
3	Light Fastness (When 7 days" air dried print is subjected to Xenotest)	Minimum 4 in the blue wool scale of 1 to 8 or comparable to the std. available with us.
4	Chemical resistance	≥ 4 (in the scale of 1- 5) or comparable to the std. available with us.
5	Glow in UV light	Should glow intense Bluish green in all UV ranges particularly in 254 nm, 312 nm & 365 nm

6	Particle Size/Fineness of Grind	<5 microns on Hegmann Guage
7	Emission wavelength while exposing the printed drawdown at offset print thickness (printed with ink having 30% fluo pigment and 70 % transparent medium) under UV light i.e. 365 nm	Should have following peaks as close to the reference. 1 st Peak 513 nm at 100% intensity 2 nd highest Peak 499 nm 3 rd highest Peak 486 nm 4 th highest Paek 542 nm & 473 nm However final evaluation will be done in finished ink to check the exact shade, glow, peak identification and intensity.
8	Admissible % of iron particles	It should not exceed 0.05%
9	Application	It will be used for making high quality security bank note printing ink.
10	Shade , strength, opacity, transparency	As per standard material kept with us ± 5% of standard (Higher colour strength is also acceptable)

1. The supplier has to furnish a test certificate for conformity as per the above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of ink, quality control of ink samples including stability of ink during retention, press performance of ink, physical and chemical resistance tests etc.
3. Performance of the sample should be stable during the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Pigment shall

- (i) Work efficiently on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) The offered pigment shall wet uniformly during premixing with medium.
- (iii) **The offered pigment (premix of 30% pigment with oleoresinous varnish) shall grind/disperse on triple roll mill (Max set temp 35°C) in two passes with the tolerance of additional one pass.**
- (iv) Have good compatibility with varnish, extenders, other pigments, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (v) Be such that the inks manufactured from the offered pigment are non-corrosive to printing plates.
- (vi) **Shelf life:** The offered Pigment should have shelf life of 3 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered pigment should be such that

- (i) Ink prepared by using this pigment should not show any abnormal behavior while running on Offset, intaglio and numbering printing machines.
- (ii) Ink should be stable during the retention period i.e. minimum 2 years.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the high security offset, intaglio and numbering ink where this pigment has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability, physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The light fastness should be as per the table given above.

CHEMICAL RESISTANCE: The offered pigment shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter

paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature ° C	Exposing Time (minutes)
Solvents	Ethyl Alcohol	95%	25	30
	Ethyl acetate	PURE	25	30
	Acetone	PURE	25	5
	Trichloro ethylene	PURE	25	30
	Perchloro ethylene	PURE	25	30
	Xylene	PURE	25	30

Class	Reagent	Concentration	Temperature ° C	Exposing Time (minutes)
Acids	Acetic Acid	20%	25	30
	Sulphuric acid	2%	25	30
	Hydrochloric Acid	5%	25	30
Soap	Soap Solution	10%	85	30
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),

3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The Pigment sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of

parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered pigment shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile organic compounds or odour, which would be harmful to health of the employee while working on machines and the manufacturer, shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

8. BENTONITE CLAY:

An easier-dispersing organoclay powder with precisely controlled particle size distribution is required for manufacturing of high security intaglio medium. This medium is used for manufacturing of high security intaglio inks to print banknotes. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 sheets per hour. Under these conditions, intaglio printing has to be carried out without any major printing issues like – misting, filling, transfer issues, wipability of ink etc.

ORGANIC DERIVATIVE OF BENTONITE CLAY		
1	Type	Organic derivative of bentonite clay (with precisely controlled particle size distribution)
2	Appearance	Light Cream Powder
3	% Drying Loss	0.1 – 3.0
4	% Loss of Ignition	45 - 48
5	% Thru 200 Mesh Sieve	97 - 100
6	Moisture	≤ 3 %
7	Should have tendency to provide rapid rheology build and good sag resistance	Conforms
8	Disperses easily with less shear	Conforms

1. The supplier has to furnish a test certificate for conformity as per the above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of medium & ink, quality control of medium and ink samples including curing/drying of ink, stability of ink during retention, press performance of ink, physical and chemical resistance tests especially for rub resistance, laundry test, circulation and simulation, crumpling test etc.
3. The sample should have stable performance in the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Organoclay shall

- (i) Work efficiently on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) Have good compatibility with High boiling mineral distillates, varnish, extenders, metallic pigments, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (iii) Be such that the inks manufactured from the offered Bentonite Clay are non-corrosive to printing plates.
- (iv) **Shelf life:** The offered Bentonite Clay should have shelf life of 5 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Organoclay should be such that

- (i) Ink prepared by using medium manufactured with offered material should not show any abnormal behavior while using in intaglio printing machines.
- (ii) There should not be any set off in the printed sheets after keeping in the pile for drying.
- (iii) Printed sheets should dry within the regular drying time.
- (iv) Printed sheets should withstand the scuffing forces and should not be damaged during running on numbering machines and during the high speed automated paper cutting and counting machines.
- (v) Ink should be stable during the retention period i.e. minimum 2 years.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the high security intaglio ink where this Organoclay has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability, physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas.

Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered Organoclay shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered Organoclay shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),
3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The Organoclay sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered Organoclay shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile or odour, which would be harmful to health of the employee while working on machines and the manufacturer shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

9. TALC (HYDRATED MAGNESIUM SILICATE):

A high quality talc powder with precise controlled particle size distribution is required for manufacturing of high security intaglio medium. This medium is used for manufacturing of high security intaglio inks to print banknotes. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 sheets per hour. Under these conditions, intaglio printing has to be carried out without any major printing issues like – misting, filling, transfer issues, wipability of ink etc.

TALC (HYDRATED MAGNESIUM SILICATE)		
1	Type	Hydrated Magnesium Silicate with precisely controlled particle size distribution
2	Appearance	White Powder
3	Talc (Mg-Silicate)	>96%
3	Top cut D98 (Sedigraph, ISO13317)	≤10 micron

4	Median Particle Size D50 (Sedigraph, ISO13317)	≤2.2 micron
5	Specific surface area (BET,ISO 4652)	≤9.5 m ² /g
6	Oil Absorption (ISO 787/5)	≤ 48 g/100g
7	ISO brightness R457	> 84.5 %
8	Whiteness Ry (DIN53163)	>85%
9	Abrasion (Einlehner at 1000)	Approx. 5 mg
10	Hardness (Mohs)	Approx. 1

1. The supplier has to furnish a test certificate for conformity as per the above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of medium & ink, quality control of medium and ink samples including curing/drying of ink, stability of ink during retention, press performance of ink, physical and chemical resistance tests especially for rub resistance, laundry test, circulation and simulation, crumpling test etc.
3. The sample supplied should have a stable performance during the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Talc shall

- (i) Work efficiently on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) Have good compatibility with High boiling mineral distillates, varnish, extenders, metallic pigments, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (iii) The inks manufactured by the offered material shall be non-corrosive to printing plates.
- (iv) **Shelf life:** The offered wax should have shelf life of 5 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Talc should be such that

- (i) Ink prepared by using medium manufactured with this material should not show any abnormal behavior while running on intaglio printing machines.
- (ii) There should not be any set off in the printed sheets after keeping in the pile for drying.
- (iii) Printed sheets should dry within the regular drying time.
- (iv) Printed sheets should withstand the scuffing forces and should not be damaged during running on numbering machines and during the high speed automated paper cutting and counting machines.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE

PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the high security intaglio ink where this Talc has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability, physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas.

Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered Talc shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered Talc shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),
3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The Talc sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered Talc shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile or odour, which would be harmful to health of the employee while working on machines and the manufacturer shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

10. FOOD GRADE FUMARIC ACID

The high quality fumaric acid is required for manufacturing of high security intaglio varnishes. The intaglio varnish is used for manufacturing of Intaglio inks to print banknotes. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 sheets per hour. Under these conditions, the intaglio printing has to be carried out without any major printing issues like – misting, filling, transfer issues, wipability of ink etc.

FOOD GRADE FUMARIC ACID		
1	Type	Food Grade Fumaric Acid
2	Appearance	White Crystalline Fine Powder
3	Assay (as C ₄ H ₄ O ₄) on dry basis (wt. %)	99.5 % min
4	Loss on Drying @ 105°C (wt. %)	0.25% max
5	Maleic Acid (wt. %)	0.05% max
6	Residue on Ignition (Sulphated Ash) wt. %	0.05% max
7	Colour of 5% solution in Alcohol (APHA)	20 Max
8	Arsenic (PPM)	1 Max
9	LEAD (PPM)	2 Max
10	Solubility in Water at 30°C	0.7 gms /100 ml

1. The Supplier has to furnish a test certificate for conformity as per the above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example manufacturing of varnish, manufacturing of inks, quality control of varnish and ink samples including curing/drying of ink, stability of inks/varnish during retention, press performance of inks, physical and chemical resistance tests especially for rub resistance, laundry test, circulation and simulation, crumpling test etc.
3. The sample should have stable performance during the entire process of varnish/ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE VARNISH/INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Fumaric Acid shall

- (i) Work smoothly and should not show any abnormal behavior while processing in the reactor at high temperature (up to 250°C) during processing of varnish.
- (ii) React chemically with the other raw material used in the varnish as per the varnish formulation requirement and processing parameters and as per the demand of the varnish.
- (iii) The varnish thus manufactured shall work efficiently on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (iv) Have good compatibility with other components such as rosin modified phenolic resin, alkyd resins, high boiling mineral distillates, other vehicles/ varnish, extenders, pigments, solvents, waxes, driers etc. used in manufacturing of banknote printing inks.
- (v) Be suitable for manufacturing varnish/inks to obtain appropriate rheology (Viscosity, Tack), solid content and acid value as required for satisfactory running in intaglio printing machines.
- (vi) The inks manufactured from the offered Fumaric Acid shall be non-corrosive to printing plates.
- (vii) **Shelf life:** The Fumaric Acid in sealed barrel/drum should have shelf life of 2 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Fumaric Acid should be such that

- (i) Ink prepared by using varnish manufactured with this Fumaric Acid should not show any abnormal behaviour while running on intaglio printing machines.
- (ii) There should not be any set off in the printed sheets after keeping in the pile for drying.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the intaglio ink & colour shift intaglio ink where the target Fumaric Acid has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability, physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas.

Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates

'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered Fumaric Acid shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered Fumaric Acid shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Acid	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4

	Hydrochloric Acid	5%	25	30	4
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),

3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The Fumaric Acid sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered Fumaric Acid shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile organic compounds or odour, which would be harmful to health of the employee while working on machines and the manufacturer, shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

11. ANTI-OXIDANT PASTE

A good quality antioxidant paste is required for manufacturing of high security Offset, Numbering, Intaglio and CSI ink for banknote printing. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines running at a speed ranging from 10000 to 12000 sheets per hour on banknote printing machines. Under these conditions printing has to be carried out without any major printing issues like – Drying of ink, transfer issues, etc.

Antioxidant Paste

1	Type	Antioxidant Paste
2	Chemical Name	2-tert-butylhydroquinone
3	Appearance	Off-white/ Pale beige coloured Paste
4	% active product	49 % - 50 %

1. The Supplier has to furnish a test certificate for conformity as per above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of Offset, Numbering, Intaglio and CSI ink, quality control of Offset, Numbering, Intaglio and CSI ink, stability of ink during retention, press performance of inks, physical and chemical resistance tests etc.
3. The sample should perform stably on the entire process of ink manufacturing, printing and all quality control requirements.
4. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered antioxidant paste shall

- (i) Work smoothly on High Torque Mixers under normal operating conditions.
- (ii) Have good compatibility with other components such as Oil based Medium, High boiling mineral distillates, other vehicles/ varnish, extenders, pigment, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (iii) Be suitable for manufacturing inks to obtain appropriate rheology (Viscosity, Tack) and drying as required for satisfactory running in Offset, Intaglio and Numbering printing machines.
- (iv) Be such that the inks manufactured from the offered antioxidant paste are non-corrosive to printing plates.
- (v) **Shelf life:** The antioxidant paste in sealed container should have shelf life of up to 1 years.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Antioxidant paste should be such that

- (i) Ink prepared by using this antioxidant paste should work smoothly on Offset, Intaglio and Numbering printing machines.
- (ii) Printed sheets should dry within the regular drying time.
- (iii) Printed sheets should withstand the scuffing forces and should not be damaged during running on numbering machines and during the cutting operation in finishing.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using high security Offset, Numbering, intaglio and CSI ink where the target antioxidant paste has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability and physical and chemical

resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas.

Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered antioxidant paste shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered antioxidant paste shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
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Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5 %)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),

3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The antioxidant paste sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered antioxidant paste shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile or odour, which would be harmful to health of the employee while working on machines and the manufacturer shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

12. ADDITIVE (EMULSIFIER OR DISPERSING AGENT):

A good quality emulsifier/Dispersing Agent is required for manufacturing of high security Intaglio, ink for banknote printing. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines running at a speed ranging from 10000 to 12000 sheets per hour on banknote printing machines. Under these conditions printing has to be carried out without any major printing issues like —transfer issues, wipability of ink etc.

Emulsifier or Dispersing Agent		
1	Type	Emulsifier or Dispersing Agent
2	Chemical Name	Ammonium salt of poly substituted aromatic sulphate
3	Appearance at 20°C	Viscous Liquid to Paste
4	pH (5% in Water)	3.0-7.0
5	Water Content (%)	1.0 Max
6	Acid Number (mg KOH/g)	40.0-50.0
7	Ionic Character	Anionic
8	Active Content (%)	Almost 100%
9	Flash Point (°C)	>100
10	Solubility	Should be soluble in water and majority of polar and aromatic solvent
11	Density at 50°C (g/cm ³)	1.10 ± 0.05

1. The Supplier has to furnish a test certificate for conformity as per above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
2. Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests including Physical & Chemical Resistance test.
3. The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. Environmental Aspect: The emulsifier sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc.

B. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

C. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

D. Health and safety requirements: The ink manufactured with the offered emulsifier shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in

continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile or odour, which would be harmful to health of the employee while working on machines and the manufacturer shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

13. LANOLIN-EP GRADE (LANOLINE-LANIS):

An ultra-pure, pharmaceutical –grade anhydrous lanolin is required for manufacturing of high security intaglio medium. The intaglio ink medium is used for manufacturing of high security intaglio ink to print banknotes. The banknote paper is made from 100% rag cotton substrate. Printing of banknote is carried out in high speed printing machines having a speed of 10000 sheets per hour. Under these conditions, intaglio printing has to be carried out without any major printing issues like – misting, filling, transfer issues, wipability of ink etc.

LANOLIN (PHARAMACEUTICAL GRADE WATER FREE WOOL WAX)		
1	Type	Anhydrous Lanolin (Water Free Wool Wax)
2	Odour	Mild, Characteristics
3	Appearance	Yellow clear, semi solid
3	Colour (Gardner)	≤ 10
4	Acid Value (mg KOH/gm)	≤ 1
5	Saponification Value (mg KOH/gm)	90-105
6	Drop Point °C	38-44
7	Peroxide Value (meq O2/Kg)	≤ 20
8	Water Absorption %	≥ 200
9	Loss on drying % ,1Hrs at 105 °C	≤ 0.5
10	Ash (sulphated) %	≤ 0.15
11	Paraffins %	≤ 1.0
12	Chlorides (ppm)	≤ 150
13	Water soluble alkalis	Conforms to EP
14	Water soluble oxidants	Conforms to EP
15	Product complies to European Pharmacopoeia	Conforms to EP

- 1.** The Supplier has to furnish a test certificate for conformity as per the above specifications (for each parameter) while making the supplies of material every time. However, purchaser reserves the right to carry the critical tests of any of the specified parameters on receipt of the material in BRBNMPL.
- 2.** Apart from the conformity on the above parameters, the sample should pass all the functional requirements/tests. For example, manufacturing of medium & ink, quality control of medium and ink samples including curing/drying of ink, stability of ink during retention, press performance of ink, physical and chemical resistance tests especially for rub resistance, laundry test, circulation and simulation, crumpling test etc.
- 3.** The sample should have a stable performance during the entire process of ink manufacturing, printing and all quality control requirements.
- 4.** The decision of the evaluation by the Purchaser would be final and binding on the bidder and the bidder has to accept the result of such evaluation without any objection/reservation.

A. PERFORMANCE ON THE INK MANUFACTURING MACHINES

General Operational Requirements: - Offered Pharmaceutical grade water-free wool wax shall

- (i) Work efficiently on High Torque Mixers and Triple Roll Milling machines, under normal operating conditions.
- (ii) Have good compatibility with High boiling mineral distillates, varnish, extenders, metallic pigments, solvents, waxes etc. used in manufacturing of Banknote printing inks.
- (iii) The inks manufactured by the offered material shall be non-corrosive to printing plates.
- (iv) **Shelf life:** The offered wax should have shelf life of 2 years preferably.

B. PERFORMANCE ON THE PRINTING MACHINES & POST PRINTING

General Operational Requirements: - Offered Pharmaceutical grade water-free wool wax should be such that

- (i) Ink prepared by using medium manufactured with this wax should not show any abnormal behavior while running on intaglio printing machines.
- (ii) There should not be any set off in the printed sheets after keeping in the pile for drying.
- (iii) Printed sheets should dry within the regular drying time.
- (iv) Printed sheets should withstand the scuffing forces and should not be damaged during running on numbering machines and during the high speed automated paper cutting and counting machines.

C. LABORATORY TEST FOR PHYSICAL AND CHEMICAL RESISTANCE PROPERTIES OF THE PRINTED SHEET/DRAWDOWN.

The printed sheet/drawdown by using the high security intaglio ink where the target wax has been used shall conform to all the tests mentioned below. These tests are carried out to confirm the durability, physical and chemical resistance of inks.

PHYSICAL RESISTANCE:

1.Crumpling Resistance: -

Test Method: Resistance to crumpling is evaluated by means of the Crumpling Test Apparatus. 6x6 cm. cut of print is rolled up on itself, printed face inside, then introduced into the apparatus, and the lever is fully pressed. The print is then withdrawn, unfolded, and the operation is repeated three times, each time rotating the print by 90°. The procedure is then repeated analogously by rolling the printed face outside. Afterwards, the print is unrolled, flattened and compared with the standard scale. The print is examined by means of a magnifying glass for splitting of the ink film and for staining of blank areas. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-crumpled print taking into account (i) the damage to the colour of the print (ii) ink transfer on un-printed areas.

2.Rub Resistance: -

Test Method: A print is subjected to the rub resistance test by means of the Rub Test Apparatus. The print is rubbed against a sheet of the equivalent blank paper. Acceptable Rating should be ≥ 3 on the scale of 1-5 evaluated on crumpling test apparatus, where 5 indicates 'no colour change, no damage, no transfer, no bleeding of ink prints (less than 5%)', 4 indicates 'slight colour change/damage/transfer/bleedings of the prints (5-25%)', 3 indicates 'minor colour change/damage/transfer/bleedings of the prints (25-50%)' 2 indicates 'significant colour change/damage/transfer/bleedings of the prints (50-95%)' and 1 indicates 'colour disappearance (less than 5% remaining). The rating will be based on visual comparison of un-tested and tested print and transfer to the paper, used for rubbing against.

LIGHT FASTNESS: The offered wax shall be such that this should not affect the light fastness of the manufactured ink.

CHEMICAL RESISTANCE: The offered wax shall be such that the ink manufactured should be resistant to acid, alkali, solvents and other reagents like industrial laundry solutions etc. (given below) as required for security inks for banknotes. The chemical resistance should not be less than 4 in the scale of 1 to 5, where 1 indicates total colour disappearance (in addition fluorescent disappearance) in the case of fluorescent inks and 5 indicates no colour change to the print.

Chemical Resistance Properties of Dried Print: -

Test Method: The chemical resistance test will be conducted on the prints on cotton paper, dried naturally for seven days. The prints will be treated in various chemicals for time and temperature indicated below. The print is then withdrawn rinsed and placed under a filter paper between two glass plates under a weight of 1 Kg. until both print and filter paper are completely dry.

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Solvents	Ethyl Alcohol	95%	25	30	4
	Ethyl acetate	PURE	25	30	4
	Acetone	PURE	25	5	4
	Trichloro ethylene	PURE	25	30	4
	Perchloro ethylene	PURE	25	30	4
	Xylene	PURE	25	30	4

Class	Reagent	Concentration	Temperature° C	Exposing Time (minutes)	Result (Minimum)
Acids	Acetic Acid	20%	25	30	4
	Sulphuric acid	2%	25	30	4
	Hydrochloric Acid	5%	25	30	4
Soap	Soap Solution	10%	85	30	4
Bleach	Sodium Hypochlorite (8.5%)	20%	25	20	4

Ratings are based on visual comparison of the appearance of treated print with an untreated print taking into account (i) the ink transfer on filter paper kept in contact, while drying and (ii) bleed in the chemicals where,

5 indicates no visible damage to colour and glitter, no transfer, no bleeding of ink prints (less than 5%),

4 indicates slight change in the colour and glitter (5-25%),

3 indicates minor change in the colour and glitter (25-50%),

2 Indicates significant change in colour, glitter transfer bleeding (50-95%)

1 indicates colour disappearance (less than 5% remaining).

Note: Purchaser may perform either of the tests of the ink as per the point D.

E. Environmental Aspect: The wax sample should not contain any heavy metal like Lead, Chromium, Nickel, Cadmium in any form or organic agents such as polychlorinated biphenyls etc. The sample should be free from any toxic solvents, toxic organic chemicals, cyanides, chlorinated solvents, mono-glycol ethers etc. The bidder should provide the Material Safety Data Sheet pertaining to the product.

F. Quality Certificate: Each lot supplied should have Quality Control Certificate giving details of parameter tested. Purchaser reserves the right to verify the quality control parameters submitted by the bidder/s and to reject the supply in case of incomplete/wrong details in the certificates.

G. Tender Stipulations: Bidder firm should provide Material Safety Data Sheets (MSDS) of the offered product. Each lot supplied should have Quality Control Certificate giving details of parameters tested. Prospective bidders shall comply with the feature specifications and submit a "Specification Compliance Certificate" with their Technical Bid along with the test certificates.

H. Health and safety requirements: The ink manufactured with the offered wax shall meet the standards of health and safety regulations prescribed by the appropriate Indian/Global agencies and the bidder/s shall submit a certificate to this effect. The ink while in continuous use on machines either shall not pose any health hazards to the personnel to their eyes or skin or to any internal organs or to the functions of the body in any way and the bidder shall submit a certificate to this effect. The ink shall not emit any volatile or odour, which would be harmful to health of the employee while working on machines and the manufacturer shall submit a certificate to this effect. The bidder shall indicate the shelf life and storing conditions.

EOI 001/MYS/MMD/2024-25

Dated: 17.01.2025

UNDERTAKING / DECLARATION

(To be submitted on Company letter head duly signed by authorized person)

1) CONFIDENTIALITY STATEMENT

"The information, which is contained in this document will not, in whole or in part be reproduced, transferred to other documents/electronic media or disclosed to others without written consent of BRBNMPL". Bidder shall also undertake to maintain secrecy, exclusivity and confidentiality of the high security currency printing environment of BRBNMPL"

2) BLACKLISTING:

This is to confirm that we M/s._____ have not been blacklisted / debarred by BRBNMPL/Government of India/PSU in the past 5 years.

This is to inform that we, M/s._____, had been blacklisted / debarred by _____ from _____ date) to _____(date) in the past 5 years. We further confirm that we do not stand blacklisted/debarred as on the date of tender opening.

[Please strikeout whichever statement is not applicable]

Yours faithfully,

Date:

(Signature of the Bidder)

Place:

(Seal of bidder mentioning address also)

EOI 001/MYS/MMD/2024-25

Dated: 17.01.2025

EOI Participation details:

The following documents and information shall be submitted together with the Expression of Interest:

EOI is submitted for the following

Sl. No.	Name of Raw Material	EOI submitted for *
1	Solvent Type C10-13 (Solvent 4)	Y/N
2	Invisible Fluorescent Yellow Pigment (Fluo. Compound 1)	Y/N
3	Invisible Fluorescent Orange Pigment (Fluo. Compound 7)	Y/N
4	Hydrophobic Fumed Silica	Y/N
5	Hydrophilic Fumed Silica	Y/N
6	Carnauba Wax	Y/N
7	Invisible Fluorescent Bluish Green Pigment (Fluo. Compound 6)	Y/N
8	Bentonite Clay	Y/N
9	Talc (Hydrated Magnesium Silicate)	Y/N
10	Food Grade Fumaric Acid	Y/N
11	Anti-Oxidant Paste	Y/N
12	Additive (Emulsifier or Dispersing Agent)	Y/N
13	Lanolin- EP Grade (Lanolin –Lanis)	Y/N

(*) Please tick as applicable

- Brief description of the company/organization, including its structure and the number of employees.
 - Name of the firm and complete address including branches; if any:
 - Status of the firm: Proprietor / Partnership / Regd. Company / Co-op. Society
- Reference list of major clients and projects of similar nature executed in the last 5 years with relevant details like Supply order/LOI/satisfactory performance certificate.
- The vendor should give a declaration that they have not been blacklisted / debarred from dealing by

Government of India/BRBNMPL in the past 5 years.

- The vendor is required to submit the undertaking that “the information given in the documents are correct and the Vendor is aware that any information provided is found to be false at a later stage, purchaser reserves the right to reject / disqualify the vendor at any stage of the tendering process without assigning any reason.”
- The vendor should indicate that authorized signatory is competent and legally authorized to submit the EOI and / or to enter into legally binding contract. The offer shall be legally binding on the vendor and are required to submit the authorization letter to that effect.
- A duly signed and stamped confidentiality statement as given below is to be furnished-“The information contained in the EOI document will not, in whole or in part be reproduced, transferred to other documents / electronic media or disclosed to others without written consent of BRBNMPL”.
- Please enclose the details of last three years’ ending 31st March 2024 financial standings data (P/L accounts, Balance sheets) are duly certified by Chartered Accountant (CA).
- The Vendor shall clearly indicate in the EOI if any patent or other proprietary rights are involved for the material and if so whether the Vendor has unlimited legal rights to deal with them/use them. The Vendor shall completely indemnify and hold harmless the Purchaser from and against any claims of infringement of any patent from any source. The abuse of patent rights resulting in cartel formation could lead to permanent disqualification of the Vendor. The Purchaser reserves the right to take such action as deemed fit over the same, without assigning any reason thereof.
- The Vendor should provide names of the Ink manufacturing companies to which they have supplied respective material in the past indicating the quantities supplied annually during the last five years. (Previous Purchase Order copies to be enclosed).

EOI: 001/MYS/MMD/2024-25

Dated: 17.01.2025

Section V: Bidder Information

Bidder shall fill in this Form following the instructions indicated below. In case a statement does not apply to a bidder, the same should be answered with the remark "Not Applicable".

Wherever necessary and applicable, the bidder shall enclose certified copy as documentary proof / evidence to substantiate the corresponding statement.

In case a bidder furnishes a wrong or evasive answer against any of the under mentioned question / issues, its bid will be liable to be ignored.

1	Bidder particulars	
a	Name of the Company:	
b	Nature of the Company (Proprietorship/Partnership/Ltd. Company/Co-op. Society etc.):	
c	Corporate Identity No. (CIN), if available:	
d	Registration with BRBNMPL, if applicable:	
e	GeM Supplier ID (if registered with GeM)	
f	Place of Registration/Principal place of business/manufacture	
g	Complete Postal Address:	
h	Pin code/ZIP code:	
i	Telephone Nos. (with country/area codes):	
j	Fax No. (with country/area codes):	

*National Expression of Interest (EOI) for identifying suitable suppliers for supply of raw materials required for manufacturing varnish and inks for banknote printing - Varnika , BRBNMPL, Mysuru
EOI 001/MYS/MMD/2024-25 dated 17.01.2025*

k	Cell phone Nos. (with country/area codes):	
l	Contact persons/Designation:	
m	Email IDs:	

If asked, submit documents to demonstrate eligibility – A self-certified copy of registration certificate – in case of a partnership firm – Deed of Partnership; in case of Company – Notarized and certified copy of its Registration; and in case of Society – its Byelaws and registration certificate of the firm.

2	Taxation Details:	
a	PAN number:	
b	Type of GST Registration as per the Act (Normal Taxpayer, Composition, Casual Taxable Person, SEZ, etc.):	
c	GSTIN (in Consignor and Consignee States):	
d	Registered / Certified Works / Factory where the Goods would be mainly manufactured and Place of Consignor for GST Purpose:	
e	Contact Names, Nos. & email IDs for GST matters (Please mention primary and secondary contacts):	

We solemnly declare that our GST rating on the GST portal / Govt. official website is NOT negative / blacklisted.

Documents to be submitted: Self-attested Copies of PAN Card and GSTIN Registration

3	Authorization of Person(s) signing the bid on behalf of the Bidder	
a	Full Name:	
b	Designation:	
c	Signing as: <input type="checkbox"/> A sole proprietorship firm. The person signing the bid is the sole proprietor/ constituted attorney of the sole proprietor, <input type="checkbox"/> A partnership firm. The person signing the bid is duly authorised being a partner to do so, under	

the partnership agreement or the general power of attorney,

☐ A company. The person signing the bid is the constituted attorney by a resolution passed by the Board of Directors or in pursuance of the Authority conferred by Memorandum of Association.

If asked, documents to be submitted: Registration Certificate / Memorandum of Association / Partnership Agreement / Power of Attorney / Board Resolution

4	Bidder's Authorized Representative Information	
a	Name:	
b	Address:	
c	Telephone/ Mobile Numbers:	
d	Email Address:	

.....

(Authorized Signatory of the bidder firm with date)

Name of Authorized signatory:

Designation:

Seal

Eligibility Declarations

EOI No. 001/MYS/MMD/2024-25 dated 17/01/2025

Date _____

Bidder's Name _____

[Address and Contact Details]

Bidder's Reference No. _____ Date _____

Note: The list below is indicative only. You may attach more documents as required to confirm your eligibility criteria.

(Please tick appropriate boxes or cross out any declaration not applicable to the Bidder)

We hereby confirm that we comply with the stipulated eligibility criteria and declare as under and shall provide evidence of our continued eligibility to BRBNMPL as may be requested:

1. **Legal Entity of Bidder:**

2. **OEM/Authorized representative/Dealership Status:**

3. We are,

- a Joint Venture
- not a Joint Venture

4. We solemnly declare that we (including our affiliates or subsidiaries or constituents):

- are not insolvent, in receivership, bankrupt or being wound up, not have our affairs administered by a court or a judicial officer, not have our business activities suspended and are not the subject of legal proceedings for any of these reasons;
(including our Contractors/subcontractors for any part of the contract):
- Do not stand declared ineligible/blacklisted/banned/debarred by BRBNMPL or its subsidiaries or by any Ministry/Department of GoI from participating in its Tender Processes or by any Government Agency anywhere in the world, for participating in their tenders, under that country's laws or official regulations; and/or

- Are not convicted (within three years preceding the last date of bid submission) or stand declared ineligible / suspended / blacklisted / banned / debarred by appropriate agencies of Government of India from participation in Tender Processes of all of its entities, for offences mentioned in Tender Document in this regard. We have neither changed our name nor created a new "Allied Firm", consequent to the above disqualifications.
- Do not have any association (as bidder / partner / Director / employee in any capacity) with such retired officials or near relations of such officials of BRBNMPL.
- We have no conflict of interest, which substantially affects fair competition. The prices quoted are competitive and without adopting any unfair/ unethical/anti-competitive means. No attempt has been made or shall be made by us to induce any other bidder to submit or not to submit an offer to restrict competition.

5. Restrictions on procurement from bidders from a country sharing land border with India Order (Public Procurement No. 1) issued vide F.No.6/18/2019 -PPD dated 23rd July 2020 (and its amendments if any) by Department of Expenditure, Ministry of Finance

We certify as under:

"We have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries, and solemnly certify that we fulfil all requirements in this regard and are eligible to be considered. We certify that:

- we are not from such a country or, if from such a country, we are registered with the Competent Authority (copy enclosed); and
- we shall not subcontract any work to a contractor from such countries unless such contractor is registered with the Competent Authority.

6. MSMEs Status

Having read and understood the Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 (as amended and revised till date), and solemnly declare the following:

a) We are a,

- Micro Enterprise
- Small Enterprise
- Medium Enterprise
- Others

b) We are a MSE and we are classified as,

- Manufacturer
- Service Provider
- Trader / dealer / reseller / distributor / authorized agent

Not applicable

c) We are a MSE and submit herewith Udyam Registration Certificate as proof of our being MSE registered on the Udyam Registration Portal. The certificate is the latest up to the deadline for submission of the bid.

Udyam Registration No.

d) We are a MSE and our Proprietor / Partner belongs to,

- SC (if applicable, specify _____% of shares)
- ST (if applicable, specify _____% of shares)
- Women
- Not applicable

7. Start-up Status

We confirm that as per the definition of the Department of Promotion of Industrial and Internal Trade – DPIIT, we are

- a Start-up
- not a Start-up

8. Make in India Status

Having read and understood the Public Procurement (Preference to Make in India) Order, 2017 (as amended and revised till date) and related notifications from the relevant Nodal Ministry/Department, and solemnly declare the following:

a) **Self-Certification for category of supplier:**

(Provide a certificate from statutory auditors / cost accountant in case of Tenders above ₹10 Crore for Class-I or Class-II Local Suppliers).

Details of local content and location(s) at which value addition is made are as follows:

Local content %age	
--------------------	--

Location(s) of value addition	
-------------------------------	--

Therefore, we certify that we qualify for the following category of the supplier:

- Class-I Local Supplier
- Class-II Local Supplier
- Non-Local Supplier

b) We also declare that

- There is no country whose bidders have been notified as ineligible on reciprocal basis under this order for the offered Goods, or
- We do not belong to any Country whose bidders are notified as ineligible on a reciprocal basis under this order for the offered Goods.

9. Penalties for false or misleading declarations: We hereby confirm that the particulars given above are factually correct and nothing is concealed and also undertake to advise any future changes to the above details. We understand that any wrong or misleading self-declaration by us would be violation of Code of Ethics and would attract penalties as mentioned in this tender document, including debarment.

Authorized Signatory of the bidder firm with date)

(Seal)

.....

Name & Designation

EXPLANATORY NOTE ON MAKE IN INDIA ORDER 2017; MSE'S ORDER 2012 AND START-UPS

Public Procurement (Preference to Make in India) Order, 2017

- The Govt. of India has decided to incentivise the growth of local content in goods and services through the Make in India Policy by providing purchase preference to the manufacturers/service providers having capability to meet/exceed the local content targets. Incentivising enhanced local content in the procurement of goods and/or services would lead to increased local industry content.
- The ultimate aim of the policy is to support and boost the growth of domestic manufacturing sector with a view to enhancing income and employment and contribute added value to economy, absorb manpower as well as have national, regional and international competitiveness.
- Local content can be increased through partnerships, cooperation with local companies, establishing production units in India or joint ventures (JV) with Indian suppliers, increasing the participation of local employees in services and training them etc.
- The provisions of this policy shall apply to all procurements of goods, services, including System Integrator (SI) contracts, and works, including Engineering, Procurement and Construction (EPC) contracts. However, the provisions of this policy shall not apply to small procurements where estimated value to be procured is less than ₹5 lakh.

Definitions

- Domestic Products shall be goods and/or services (including design and engineering), produced by companies, investing and producing in India.
- Domestic Manufacturer shall be business entity or individual having business activity established under Indian law and producing products domestically.
- Local Content (LC) means the amount of value added in India which shall, unless otherwise prescribed by the Nodal ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.
- Local Content (LC) in Goods shall be the use of raw materials, design and engineering towards manufacturing, fabrication, assembly and finishing of work carried out within the country.
- Local Content (LC) in Services shall be the use of services up to the final delivery by utilizing manpower (including specialists), working appliance (including software) and supporting facilities carried out within the country.
- 'Margin of purchase preference' means the maximum extent to which the price quoted by a "Class-I local supplier" may be above the L1 (lowest bid) for the purpose of purchase preference.
- Supplier of Goods and/or provider of Services shall be a business entity having capability of providing Goods and/or Services in accordance with the business line and qualification thereof and classified as under: -
 - 'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50% as defined under Make in India policy.

- 'Class-II local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%, as defined under Make in India policy.

- 'Non-local supplier' means a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%, as defined under Make in India policy.

Eligibility to bid

- Only Class-I local suppliers and Class-II local suppliers shall be eligible to bid in all procurements except when Global Tender Enquiry, allowed if purchase value is more than ₹200 crore*, is issued.
- In local procurement of all goods, services and works in respect of which the Nodal ministry / Department has communicated that there is sufficient local capacity and local competition, only Class-I local supplier shall be eligible to bid irrespective of purchase value.
- For all other local procurements, both Class-I local supplier and Class-II local supplier shall be eligible to bid irrespective of purchase value but purchase preference shall be given to Class-I local supplier only.
- In global tender enquiries, Non-local suppliers shall also be eligible to bid along with Class-I local suppliers and Class-II local suppliers. Class-I local supplier shall be given purchase preference.
- Class-I local suppliers and Class-II local suppliers shall be eligible to get relaxations in eligibility criteria like turnover, production capability and financial strength. Eligibility criteria on previous experience shall not require proof of supply to other countries or proof of exports for any class of suppliers. However, Purchase preference shall be given to Class-I local suppliers only. Class-II local suppliers or Non-local suppliers shall not get purchase preference in any procurement.
- Bidders offering imported products/content cannot, repeat cannot, claim themselves as Class-I local suppliers/Class-II local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, after sales service support like AMC/CMC etc. as local value addition. Such bidders will fall under the category of Non-local suppliers.

Procedure for purchase preference

The manufacturers/service providers having the capability of meeting/exceeding the local content targets shall be eligible for purchase preference under the Policy as described below: -

- Where the quoted price is within the margin of purchase preference of the lowest price, other things being equal, purchase preference shall be granted to the bidder concerned (eligible techno-commercially qualified Class-I local supplier) at the lowest valid price bid. The margin of purchase preference shall be 20%.
- The successful bidder shall be obliged to fulfil the requirements of quality and delivery time in accordance with provisions of the purchase order/contract.

- BRBNMPL shall have the right to satisfy itself of the production capability and product quality of the manufacturer.
- Procedure for granting purchase preference to Class-I local suppliers under various scenarios is given in Annex-I.

Verification of local content

- Class-I local suppliers and Class-II local suppliers shall furnish the following undertaking from the **authorized signatory of the bidder** along with their techno-commercial bid. The undertaking shall become a part of the contract.

Class-I local supplier

"We _____ (name of the bidder) undertake that we meet the mandatory minimum local content requirement i.e. equal to or more than 50% for qualifying as Class-I local supplier as per the Make in India Policy for claiming purchase preference against tender No. _____. The percentage of local content in the bid is _____%."

Class-II local supplier

"We _____ (name of the bidder) undertake that we meet the mandatory minimum local content requirement i.e. more than 20% but less than 50% for qualifying as Class-II local supplier as per the Make in India Policy for participating against tender No. _____. The percentage of local content in the bid is _____%."

Location(s) at which local value addition is made:

- In case of procurement for a value in excess of ₹10 crores, above undertaking shall be supported by the following certificate from Statutory Auditor engaged by the bidder or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies), on the letterhead of such Statutory Auditor etc.

Class-I local supplier

"We the Statutory Auditor (or as the case may be) of M/s. _____ (name of the bidder) hereby certify that M/s. _____ (name of the bidder) meet the mandatory local content requirement of the Goods and/or Services i.e. equal to or more than 50% for qualifying as Class-I local supplier as per the Make in India Policy for claiming purchase preference against tender No. _____. The percentage of local content in the bid is _____%."

Class-II local supplier

"We the Statutory Auditor (or as the case may be) of M/s. _____ (name of the bidder) hereby certify that M/s. _____ (name of the bidder) meet the mandatory local content requirement of the Goods and/or Services i.e. more than 20% but less than 50% for qualifying as Class-II local supplier

as per the Make in India Policy for participating against tender No. _____. The percentage of local content in the bid is _____%.”

Note:

- In case of a foreign bidder, certificate (with regard to fulfilment of minimum mandatory local content requirement) from Statutory Auditor or cost auditor of their own office or subsidiary in India giving percentage of local content is also acceptable. In case office or subsidiary in India does not exist or Indian office/subsidiary is not required to appoint Statutory Auditor or cost auditor, certificate from a practicing chartered accountant in India or practicing cost accountant in India shall also be acceptable.
- In case manufacturer/service provider himself is bidding then the certificate shall be submitted by the Statutory Auditors etc. of the manufacturer/service provider.
- In case the bidder is a supplier quoting on behalf of manufacturer/service provider then the certificate shall be submitted by the Statutory Auditors etc. of the supplier. The responsibility for the certificate provided by the Statutory Auditor etc. of the supplier shall be that of the supplier.
- Each supplier shall provide the necessary local content documentation to the Statutory Auditor (or as the case may be), which shall review and determine that local content requirements have been met and issue a local content certificate to that effect, stating the % of local content in the goods or services measured. The Auditor shall keep all necessary information obtained from the supplier for measurement of local content confidential.
- During the execution of the contract, local content certificate shall have to be submitted along with each invoice raised. However, the % of local content may vary with each invoice while maintaining the overall % of local content for the total purchase of the pro-rata local content requirement. In case it is not satisfied cumulatively in the invoices raised up to that stage, the supplier shall indicate how the local content requirement would be met in the subsequent stages.
- Non-local suppliers shall also indicate percentage of local content component in their bid as under: -
“Percentage of local content as per the make in India Policy in the bid of M/s. _____ (name of the bidder) is _____%.”
- The prescribed local content in the Make in India Policy shall be applicable on the date of Notice Inviting Tender (NIT).
- Where currency quoted by the bidder is other than INR, then the bidder claiming benefits under Make in India Policy shall consider exchange rate prevailing on the date of Notice Inviting tender (NIT) for the calculation of local content.
- Since Class-I / Class-II local suppliers are eligible to bid only if they meet the local content norms, therefore, irrespective of whether they are willing to seek benefits under the Make in India Policy or not, it is mandatory for them to submit adequate documentation as follows to establish their status as Class-I / Class-II local supplier. In fact, all bidders (i.e. Class-I local suppliers, Class-II local suppliers, Non-local suppliers) are required to mention local content in their bid and to submit the requisite documents as per the requirement of the Policy.
- BRBNMPL shall have the authority to audit as well as witness production processes to certify the achievement of the requisite local content.

Determination of local content

Local content of Goods

- Local Content (LC) in Goods shall be the use of raw materials, design and engineering towards manufacturing, fabrication, assembly and finishing of work carried out within the country.
- Local content shall be computed on the basis of the cost of domestic components in goods, compared to the whole cost of the product.
- The criteria for the determination of the local content cost shall be as follows: -
 - a) In the case of direct component (material), based on country of origin;
 - b) In the case of manpower based on INR component;
- The calculation of local content of the combination of several kinds of goods shall be based on the ratio of the sum of the multiplication of local content (%) of each of the goods with the acquisition price of each of the goods to the acquisition price of the combination of the goods.

Local content of Services

- Local Content (LC) in Services shall be the use of services up to the final delivery by utilizing manpower (including specialists), working appliance (including software) and supporting facilities carried out within the country.
- Local content of services shall be calculated on the basis of the ratio of service cost of domestic component in service to the total cost of service.
- The total cost of service shall be constituted of the cost spent for rendering of service, covering:
 - a. Cost component (material) which is used;
 - b. Manpower and consultant cost; cost of working equipment/facility; and
 - c. General service cost.
- The criteria for determination of cost of local content in the services shall be as follows:
 - a. In the case of material being used to help the provision of service, based on country of origin;
 - b. In the case of manpower and consultant based in INR component of the services contract;
 - b. In the case of working equipment/facility, based on country of origin; and
 - c. In the case of general service cost, based on the criteria as mentioned in clauses a, b and c above

Local content of EPC contracts

- Local content in Engineering, Procurement and Construction (EPC) contracts where supply of both goods and services are involved shall be the ratio of the whole cost of domestic components in the combination of goods and services to the whole combined cost of goods and services.
- The whole combined cost of goods and services shall be the cost spent to produce the combination of goods and services, which is incurred in the work site.
- Local content of the combination of goods and services shall be counted in every activity of the combination work of goods and services.
- The spent cost shall include production cost in the calculation of local content of goods and service cost in the calculation of local content of services.

- Local content shall be calculated on the basis of verifiable data. In case data used in calculation of local content not being verifiable, the value of local content of the said component shall be treated as 'Nil'.

False declarations and Sanctions

- BRBNMPL shall have the right to impose sanctions on the bidder/manufacturer/ service provider for not fulfilling the local content of goods/services in accordance with the value mentioned in the certificate of local content. The sanctions may be in the form of written warning, financial penalty and debarring.
- If the bidder does not fulfil his obligations after the expiration of the period specified in such warning, BRBNMPL shall have the right to initiate action for debarring such bidder or impose financial penalty on the bidder or both.
- A bidder, who has been awarded the contract after availing purchase preference, is found to have violated the local content provision in the execution of the procurement contract of goods and/or services, shall be subject to financial penalty up to a maximum of 10% of the contract value. In such a case, BRBNMPL reserves the right to invoke the performance bank guarantee submitted by the bidder.
- Class-I local suppliers and Class-II local suppliers shall furnish the following undertaking from the authorized signatory of the bidder along with their techno-commercial bid. The undertaking shall become a part of the contract.

"We understand that false declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the GFR for which a bidder or its successor may be debarred for up to two years as per Rule 151(iii) of GFR along with such other actions by BRBNMPL as may be permissible under law including financial penalty up to a maximum of 10% of the contract value. In such a case, BRBNMPL reserves the right to invoke the performance bank guarantee submitted by the bidder."

Reciprocity clause

- Entities of countries which have been identified by the nodal Ministry/Department as not allowing Indian companies to participate in their Government procurement for any item related to that nodal Ministry, shall not be allowed to participate in Government procurement in India for all items related to that nodal Ministry/Department, except for the list of items published by the Ministry/ Department permitting their participation. The term 'entity' of a country shall have the same meaning as under the FDI Policy of DPIIT as amended from time to time.
- Hence, prospective foreign bidders intending to participate in tenders floated by BRBNMPL, shall furnish the following declaration,
"We do not belong to any country whose bidders are notified as ineligible on reciprocal basis under the Make in India order of Government of India"

Manufacture under license / technology collaboration agreements with phased indigenization under 'Make in India'

- (i) Suppliers may be exempted from meeting the stipulated local content if the product is being manufactured in India under a license from a foreign manufacturer who hold intellectual property rights and where there is a technology collaboration agreement / transfer of technology agreement for indigenous manufacture of a product developed abroad with clear phasing of increase in local content within the validity of the contract.
- (ii) In procurement of all goods, services or works in respect of which the Nodal ministry has not notified that there is sufficient local capacity and local competition, procuring entities may prescribe in their respective tenders that foreign companies may participate in the tender through a subsidiary or a joint venture with an Indian company. Such subsidiaries/joint ventures may be exempted from meeting the stipulated minimum local content requirement, provided there is clear phasing of increase in local content within the validity of the contract. Such subsidiaries/joint ventures must obtain an exemption letter and submit the same along with their bid to avail the exemption.

Procedure for Purchase Preference under Make in India Order, 2017

i. Procurement of Goods and Works which are *divisible* in nature (but without split order clause):-

- If L1 is 'Class-I local supplier' – 100% awarded to L1
- If L1 is *not* 'Class-I local supplier' – 50% awarded to L1
 - Remaining 50% awarded to lowest bidder among 'Class-I local supplier' falling within L1+20% subject to matching L1 price
 - If lowest bidder among 'Class-I local supplier' is unable to match L1 price or accepts less than offered quantity, next lowest 'Class-I local supplier' bidder within L1+20% is invited to match L1 price for remaining quantity and so on and contract will be awarded accordingly
 - If some quantity is still left uncovered on 'Class-I local supplier', then such balance quantity can be ordered on the original L1 bidder
 - If none of the 'Class-I local supplier' bidder within L1+20% is able to match L1 price or no 'Class-I local supplier' falls within L1+20%, contract awarded to original L1 bidder
- When the tendered goods/services cannot be divided in the exact ratio of 50:50 then BRBNMPL reserves the right to award on lowest eligible Class-I local supplier for quantity not less than 50%, as may be dividable.
E.g.: In case tendered quantity is 3 (not divisible in the ratio of 50:50), Class-I local supplier shall get order for 2 nos. and the rest will go to L1 (who is not a Class-I local supplier).

ii. Procurement of Goods and Works which are *not divisible* in nature and procurement of Services where bid is evaluated on price alone: -

- If L1 is 'Class-I local supplier' – 100% awarded to L1
- If L1 is *not* 'Class-I local supplier'
 - Lowest bidder among 'Class-I local supplier' falling within L1+20% is invited to match L1 price – contract awarded subject to matching L1 price - If lowest bidder among 'Class-I local supplier' is unable to match L1 price, next lowest 'Class-I local supplier' bidder within L1+20% is invited to match L1 price and so on and contract will be awarded accordingly
 - If none of the 'Class-I local supplier' bidder within L1+20% is able to match L1 price or no 'Class-I local supplier' falls within L1+20%, contract awarded to original L1 bidder

iii. Procedure to be adopted in case of tenders with *split order/parallel contracts* clause:

- If in normal course of splitting of orders between L1 and L2 bidders (70:30) or L1, L2 and L3 bidders (50:30:20), 'Class-I local suppliers' qualify for award of contract for at least 50% of the tendered quantity without resorting to purchase preference, then parallel contracts may be awarded to original L1 and L2 bidders or L1, L2 and L3 bidders, as the case may be, as per the split order/parallel contracts clause stipulated in the tender
- If, however, 'Class-I local suppliers' do not qualify for award of contract for at least 50% of the tendered quantity, purchase preference shall be given to 'Class-I local suppliers' provided their quoted rate falls within 20% of **the highest quoted bidder considered for award of contract** so as to ensure that 'Class-I local suppliers' taken in totality are considered for award of contract for at least 50% of the tendered quantity
- In case of 2-way splitting between L1 and L2 bidders in the ratio of 70:30, the **L2** bidder shall be treated as **the highest quoted bidder considered for award of contract**
- In case of 3-way splitting between L1, L2 and L3 bidders in the ratio of 50:30:20, the **L3** bidder shall be treated as **the highest quoted bidder considered for award of contract**

Examples of splitting of orders

- **In case of two-way splitting between L1 and L2 bidders in the ratio of 70:30** • If L1 is 'Class-I local supplier' – 70% awarded to L1 - If L2 is 'Class-I local supplier' – remaining 30% awarded to L2 subject to matching L1 price

- If L2 is *not* 'Class-I local supplier' – Remaining 30% awarded to lowest bidder among 'Class-I local suppliers' falling within **L2+20%** subject to matching L1 price
- If lowest bidder among 'Class-I local suppliers' is unable to match L1 price or accepts less than offered quantity, next lowest 'Class-I local supplier' falling within **L2+20%** is invited to match L1 price for remaining quantity and so on and contract will be awarded accordingly
- If some quantity is still left uncovered on 'Class-I local supplier', then such balance quantity can be ordered on the original L1 bidder
- If none of the 'Class-I local suppliers' falling within **L2+20%** is able to match L1 price or there are no 'Class-I local suppliers' falling within **L2+20%**, then contract shall be awarded to original L1 and L2 (L3, L4...and so on) bidders in the ratio 70:30 subject to matching L1 price
- If L1 is *not* 'Class-I local supplier' – 50% awarded to L1
- If L2 is 'Class-I local supplier' – remaining 50% awarded to L2 subject to matching L1 price
- If L2 is *not* 'Class-I local supplier' – Remaining 50% awarded to lowest bidder among 'Class-I local suppliers' falling within **L2+20%** subject to matching L1 price
- If lowest bidder among 'Class-I local suppliers' is unable to match L1 price or accepts less than offered quantity, next lowest 'Class-I local supplier' falling within **L2+20%** is invited to match L1 price for remaining quantity and so on and contract will be awarded accordingly
- If some quantity is still left uncovered on 'Class-I local supplier', then such balance quantity can be ordered on the original L1 bidder
- If none of the 'Class-I local suppliers' falling within **L2+20%** is able to match L1 price or there are no 'Class-I local suppliers' falling within **L2+20%**, then contract shall be awarded to original L1 and L2 (L3, L4...and so on) bidders in the ratio 70:30 subject to matching L1 price
- **In case of three-way splitting between L1, L2 and L3 bidders in the ratio of 50:30:20**
- If L1 is 'Class-I local supplier' – 50% awarded to L1
- If L2 and L3 are 'Class-I local suppliers' – 30% and 20% awarded to L2 and L3 bidders respectively subject to matching L1 price
- If *either* L2 or L3 is a 'Class-I local supplier' – 30% awarded to L2 or L3, whoever is a 'Class-I local supplier', subject to matching L1 price – remaining 20% awarded to lowest among other 'Class-I local suppliers' falling within **L3+20%** subject to matching L1 price » If there are no other 'Class-I local suppliers' falling within **L3+20%**, then the contract will be split into two in the ratio of 50:50 and the remaining 50% shall be awarded to *either* L2 or L3, whoever is a 'Class-I local supplier', subject to matching L1 price - If L2 and L3

are *not* 'Class-I local suppliers' – remaining 30% and 20% awarded to lowest two bidders amongst 'Class-I local suppliers' falling within **L3+20%** subject to matching L1 price

- If any of the two lowest bidders among 'Class-I local suppliers' is unable to match L1 price or accepts less than offered quantity, next lowest 'Class-I local supplier' within **L3+20%** is invited to match L1 price for remaining quantity and so on and contract will be awarded accordingly

» If there is only one eligible 'Class-I local supplier' falling within **L3+20%** then the contract will be split into two in the ratio of 50:50 and the remaining 50% shall be awarded to the single eligible 'Class-I local supplier' subject to matching L1 price

- If some quantity is still left uncovered on 'Class-I local supplier', then such balance quantity can be ordered on the original L1 bidder

- If none of the 'Class-I local suppliers' within **L3+20%** is able to match L1 price or there are no 'Class-I local suppliers' falling within **L3+20%**, then contract shall be awarded to original L1, L2 (L3, L4... and so on) and L3 (L4, L5... and so on) bidders in the ratio 50:30:20 subject to matching L1 price

- If L1 is *not* 'Class-I local supplier' – 50% awarded to L1

- If L2 and L3 are 'Class-I local suppliers' – 30% and 20% awarded to L2 and L3 bidders respectively subject to matching L1 price

- If *either* L2 or L3 is a 'Class-I local supplier' – 30% awarded to L2 or L3, whoever is a 'Class-I local supplier', subject to matching L1 price – remaining 20% awarded to lowest among other 'Class-I local suppliers' falling within **L3+20%** subject to matching L1 price

» If there are no other 'Class-I local suppliers' falling within **L3+20%**, then the contract will be split into two in the ratio of 50:50 and the remaining 50% shall be awarded to *either* L2 or L3, whoever is a 'Class-I local supplier', subject to matching L1 price

- If L2 and L3 are *not* 'Class-I local suppliers' – remaining 30% and 20% awarded to lowest two bidders amongst 'Class-I local suppliers' falling within **L3+20%** subject to matching L1 price - If any of the two lowest bidders among 'Class-I local suppliers' is unable to match L1 price or accepts less than offered quantity, next lowest 'Class-I local supplier' within **L3+20%** is invited to match L1 price for remaining quantity and so on and contract will be awarded accordingly

» If there is only one eligible 'Class-I local supplier' falling within **L3+20%** then the contract will be split into two in the ratio of 50:50 and the remaining 50% shall be awarded to the single eligible 'Class-I local supplier' subject to matching L1 price

- If some quantity is still left uncovered on 'Class-I local supplier', then such balance quantity can be ordered on the original L1 bidder

- If none of the 'Class-I local suppliers' within **L3+20%** is able to match L1 price or there are no 'Class-I local suppliers' falling within **L3+20%**, then contract shall be awarded to original L1, L2 (L3, L4... and so on) and L3 (L4, L5... and so on) bidders in the ratio 50:30:20 subject to matching L1 price.

Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012

CONDITIONS FOR MICRO AND SMALL ENTERPRISES (MSEs)

1. The definition for Micro & Small Enterprise shall be as per the guidelines issued by Ministry of MSME vide Gazette Notification No. 1702(E) dated 01.06.2020 and 2119(E) dated 26.06.2020 which came into effect from 01.07.2020.
2. MSEs must be registered with any of the following in order to avail the benefits / preference available under MSEs Order, 2012: -
 - District Industries Centers (DIC)
 - Khadi and Village Industries Commission (KVIC)
 - Khadi and Village Industries Board
 - Coir Board
 - National Small Industries Corporation (NSIC)
 - Directorate of Handicraft and Handloom
 - Any other body specified by Ministry of MSME (MoMSME)
 - Udyog Aadhaar Acknowledgment / Udyog Aadhaar Memorandum issued by MoMSME
 - Udyam Registration Portal
3. MSEs participating in the tender must submit valid & authorised copy of certificate of registration with any one of the above agencies. In case of bidders submitting DIC registration certificate, they shall attach original notarised copy of the DIC certificate.
4. The registration certificate issued from any one of the above agencies must be valid as on Bid closing date of the tender. Bidder shall ensure validity of registration certificate in case bid closing date is extended.
5. The MSEs who have applied for registration or renewal of registration with any of the above agencies/bodies, but have not obtained the valid certificate as on closing date of the tender, are not eligible for exemption/preference. Where validity of such certificates such as NSIC certificate has lapsed, it shall be the responsibility of the bidder to seek renewal from the concerned Govt. agency before such expiry. *However, documentary evidence seeking extension before the lapse of validity of such certificate and an authorization letter from the Govt. agency having received application for renewal submitted before the bid closing date shall be accepted.*
6. To be classified as Micro or Small Enterprises as per new definition, the companies need to register themselves on "Udyam Registration Portal" on or after 01.07.2020. This provision is for new establishments as well as for existing MSEs registered with NSIC, UAM etc.

7. As per the new notification by the Government of India, every business unit registered under MSME / Udyog Aadhaar shall be treated as a valid MSME up to **30th June 2022** beyond which they need to be registered on Udyam Registration Portal to enjoy the MSME Benefits.
8. The provisions of this policy shall apply to all procurements of goods and services. **Work contracts are excluded from the purview of this policy.**
9. The MSEs registered with above mentioned agencies / bodies are exempted from payment of Earnest Money Deposit (EMD) & tender fees.
10. **MSE must be a Manufacturer/Service provider:** The MSE bidder must be a Manufacturer capable of manufacturing the tendered items / Service provider capable of rendering the tendered services by themselves to avail the benefits under MSEs Order, 2012. Traders/dealers/resellers/distributors/authorized agents will not be considered for availing benefits under MSEs Order, 2012 as per guidelines issued by MoMSME.
11. **Relaxation of Norms for Micro & Small Enterprises (MSEs):** Pre-qualification criteria with respect to Prior Turnover and Prior experience may be relaxed for Micro & Small Enterprises as per GOI guidelines subject to meeting of quality and technical specifications.
12. However, there may be circumstances like procurement of items/services related to public safety, health, critical security operations and equipment, etc., wherein BRBNMPL reserves the right to not consider relaxation of Prior Turnover and Prior Experience for Micro and Small Enterprises.
13. Items which are reserved for exclusive purchase from MSEs shall be procured from Micro and Small Enterprises as per Public Procurement Policy.
14. Subject to meeting terms and conditions stated in the tender document, *at least 25%* of the total quantity of the tender is earmarked for MSEs registered with above mentioned agencies / bodies.
15. In case MSE bidder is L1, entire value of the tender is to be ordered on the L1 MSE bidder.
16. In tender, participating MSEs quoting price within price band of L1 + 15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply at *least 25%* of the total tendered value (where the tender quantity can be split).
17. In case of more than one such MSEs are in the price band of L1 + 15% and matches the L1 price, the supply may be shared proportionately if the job can be split.
18. In case the tendered quantity cannot be split, MSE shall be allowed to supply total tendered quantity provided their quoted price is within a price band of L1 + 15% and they match the L1 price.
19. If the quantity cannot be split and there are more than one eligible MSE bidders (price band within L1+15%) then the opportunity to match the L1 rate of the tender shall be given first to MSE (who have quoted lowest rate among the MSEs within the price band of L1+15%) and the total quantity shall be awarded to him after matching the L1 price of the tender.
20. If the MSE who have quoted lowest rate among the MSEs in the price band of L1 + 15% do not agree to match the rate of L1 of the tender, then the next ranked MSE bidder who has quoted within the price band of L1 + 15% in order shall be given chance to match the rate of L1 for award of the quantity/order.
21. For more clarity in this regard, following table is furnished: -

Type of Tender	Price quoted by MSE	Finalization of tender
Can be Split	L1	Full order on MSE
	Not L1 but within L1+15%	At least 25% order on MSE subject to matching L1 price
Cannot be split	L1	Full order on MSE
	Not L1 but within L1+15%	Full Order on MSE subject to matching L1 price

22. The purchase preference to MSEs is not applicable for works contracts where supply of goods not produced by MSEs is also involved.
23. **Special provision for MSEs owned by SC & ST entrepreneurs:** Out of the 25% target of annual procurement from MSEs, 4% shall be earmarked for procurement from MSEs owned by SC & ST entrepreneurs. In the event of failure of such MSEs to participate in the tender process or meet the tender requirements and L1 price, 4% sub-target so earmarked shall be met from other MSEs.
24. To qualify for entitlement as SC/ST owned MSE, the SC/ST certificate issued by District Authority in addition to certificate of registration with any one of the agencies mentioned in paragraph 1 above. Alternatively, the bidder shall be responsible to furnish necessary documentary evidence for enabling BRBNMPL to ascertain that the MSE is owned by SC/ST entrepreneurs. MSE owned by SC/ST is defined as:
- In case of Proprietary MSE, proprietor(s) shall be SC/ST
 - In case of Partnership MSE, the SC/ST partners shall be holding at least 51% shares in the enterprise
 - In case of Private Limited Companies, at least 51% share shall be held by SC/ST promoters
25. **Special provision for MSEs owned by women entrepreneurs:** Out of the 25% target of annual procurement from MSEs, 3% shall be earmarked for procurement from MSEs owned by women entrepreneurs *in addition* to 4% earmarked for MSEs owned by SC/ ST entrepreneurs. MSE owned by Women is defined as:
- In case of Proprietary MSE, proprietor(s) shall be Women
 - In case of Partnership MSE, the Women partners shall be holding at least 51% shares in the enterprise
 - In case of Private Limited Companies, at least 51% share shall be held by Women promoters
26. **TReDS:** TReDS is an electronic institutional mechanism for facilitating the financing of trade receivables of MSMEs through multiple financiers. BRBNMPL is already registered on the following TReDS platforms:

- M/s A TREDS (Invoicemart), Mumbai

27. MSE vendors are required to register on the TReDS platform. The MSME vendors can avail the TReDS facility, if they want to.

SUPPORT TO START-UP ENTERPRISES

1. Subject to meeting of Quality and Technical specifications, BRBNMPL may consider allowing the participation of “Start-up” companies with capability to execute the supply / services, as per technical specifications / perform the job as per scope of work specified in the tender and subject to meeting extant & relevant guidelines of Government of India. This should be confirmed and substantiated in the technical bid.
2. The bidder who intends to participate as “Start-up” company should enclose the Certificate of Recognition issued by Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, Govt. of India or a certificate of an eligible Start-up from the inter-Ministerial Board of Certification during submission of Technical bid.
3. The Nature of Business mentioned in application made to get Start-up accreditation should be related to the tendered item.
4. Start-ups registered with DPIIT are exempted from payment of Earnest Money Deposit (EMD) & tender fees. However, they shall be required only to submit Bid Security Declaration.
5. Prequalification Criteria with respect to Prior Turnover and Prior Experience may be relaxed for Start-ups as per the GOI guidelines.
6. However, there may be circumstances like procurement of items/services related to public safety, health, critical security operations and equipment, etc. wherein BRBNMPL reserves the right to not consider relaxation of Prior Turnover and Prior Experience for Start-up Companies as per GOI guidelines.
7. Start-up Companies, who are also registered as MSEs and wish to avail the benefits as applicable to MSE, shall submit relevant documents covered under Conditions for Micro and Small Enterprises elsewhere in this tender.
8. Definition of Start-up Enterprises
 - (i) As defined by DPIIT, an entity shall be considered as a 'Start-up':
 - a) Upto a period of ten years from the date of incorporation/registration, if it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India, and
 - b) Turnover of the entity for any of the financial years since incorporation/ registration has not exceeded ₹100 (one hundred) crore, and
 - c) The entity works towards innovation, development or improvement of products or processes or services or a scalable business model with a high potential for employment generation or wealth creation.

- (ii) Provided that an entity formed by splitting up or reconstructing an existing business shall not be considered a 'Start-up'.

Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017

1. The Class-I local suppliers, under PPP-MII Order, participating in any government tender, may or may not be MSEs, as defined under the MSME Act. Similarly, MSEs participating in any government tender, may or may not be Class-I local suppliers. Suppliers may be categorised in following four broad categories for consideration or applicability of purchase preference:

Category	Terminology
Supplier is both MSE & Class-I local supplier	"MSE Class-I local supplier"
Supplier is MSE but not Class-I local supplier	"MSE but non-Class-I local supplier"
Supplier is not MSE but is Class-I local supplier	"Non-MSE but Class-I local supplier"
Supplier is neither MSE nor Class-I local	"Non-MSE non-Class-I local supplier"

2. The applicability of PPP-MSE Order and PPP-MII Order in various scenarios, involving simultaneous purchase preference to MSEs and Class-I local suppliers under PPP-MSE Order and PPP-MII Order respectively, shall be as under:
- a) *Items covered under Para 3(a) of PPP- MII Order, 2017 for which Nodal Ministry has notified sufficient local capacity and competition:* For these items, only Class- I local suppliers are eligible to bid irrespective of purchase value. Hence, Class- II local suppliers or Non-local suppliers, including MSEs which are Class-II local suppliers/ Non-local suppliers, are not eligible to bid. Possible scenarios can be as under:
- (i) L-1 is "MSE Class-I local supplier" - 100% of the tendered quantity is to be awarded to L-1
- (ii) L-1 is "Non-MSE but Class-I local supplier" - Purchase preference is given to MSEs as per PPP-MSE Order. Balance quantity is to be awarded to the L-1 bidder
- b) *Items reserved exclusively for procurement from MSEs as per PPP-MSE Order:* These items are reserved exclusively for purchase from MSEs. Hence, non- MSEs are not eligible to bid for these items. Possible scenarios can be as under:
- (i) L-1 is "MSE Class-I local supplier" - 100% of the tendered quantity is to be awarded to L-1
- (ii) L-1 is "MSE non-Class-I local supplier" - Purchase preference is to be given to Class-I local supplier as per PPP-MII Order. Balance quantity, is to be awarded to L-1 bidder
- c) *If items are neither notified for sufficient local capacity nor reserved for MSEs, then the process will be as follows:*

- a) Items covered under Para 3A(b) of PPP-MII Order are divisible items and both MSEs as well as Class-I local suppliers are eligible for purchase preference. Possible scenarios can be as under:
- i. L-1 is "MSE Class-I local supplier" - 100% of the tendered quantity is to be awarded to L-1
 - ii. L-1 is "Non-MSE but Class-I local supplier" - Purchase preference is to be given to MSEs, if eligible, as per PPP-MSE Order. Balance quantity is to be awarded to L-1 bidder
 - iii. L-1 is "MSE but non-Class-I local supplier" - Purchase preference is to be given to Class-I local suppliers, if eligible, as per PPP-MII Order. Balance quantity is to be awarded to L-1 bidder
 - iv. L-1 is "Non-MSE non-Class-I local supplier" - Purchase preference is to be given to MSEs as per PPP-MSE Order. Thereafter, purchase preference is to be given to Class-I local suppliers for "50% of the tendered quantity minus quantity allotted to MSEs above" as per PPP-MII Order. For the balance quantity, contract is to be awarded to L-1 bidder. (Kindly refer to the illustrative example given at the end)
- b) Items covered under Para 3A(c) of PPP-MII Order, 2017 are non-divisible items and both MSEs as well as Class-I local suppliers are eligible for purchase preference. Possible scenarios can be as under:
- i. L-1 is "MSE Class-I local supplier" - Contract is awarded to L-1
 - ii. L-1 is not "MSE Class-I local supplier" but the "MSE Class-I local supplier" falls within 15% margin of purchase preference Purchase preference is to be given to lowest quoting "MSE Class-I local supplier". If lowest quoting "MSE Class-I local supplier" does not accept the L-1 rates, the next higher "MSE Class-I local supplier" falling within 15% margin of purchase preference is to be given purchase preference and so on
 - iii. If conditions mentioned in sub paras (i) and (ii) above are not met i.e. L-1 is neither "MSE Class-I local supplier" nor "MSE Class-I local supplier" is eligible to take benefit of purchase preference, the contract is to be awarded/ purchase preference to be given in different possible scenarios as under:
 - A. L-1 is "MSE but non-Class-I local supplier" or "Non-MSE but Class-I local supplier" - Contract is to be awarded to L-1
 - B. L-1 is "Non-MSE non-Class-I local supplier" - First purchase preference to be given to MSE as per PPP-MSE Order. If MSE not eligible/ does not accept - purchase preference to be given to Class- I Local supplier as per PPP-MII Order. If Class-I Local supplier also not eligible/ does not accept - contract to be awarded to L-1
- d) *Items reserved for both MSEs and Class-I local suppliers:* These items are reserved exclusively for purchase from MSEs as well as Class-I local suppliers. Hence, only "MSE Class-I local supplier" are eligible to bid for these items. Non- MSEs/Class-II local suppliers / Non-local suppliers cannot bid for these items. Hence the question of purchase preference does not arise.
- e) Non-local suppliers, including MSEs falling in the category of Non-local suppliers, shall be eligible to bid only against Global Tender Enquiry.

Example explaining applicability in scenario explained in para 4 c (a)(iv)

(Scenario: Divisible items, both MSEs as well as Class-I local suppliers eligible for purchase preference and L-1 is "Non-MSE non-Class-I local supplier")

Item - Desktop computer

Qty - 50 Nos.

Details of bids received

Sr. No.	Name of bidder	Rates quoted	Price Ranking	Status of bidder
1	A	100	L1	Non-MSE non- Class-I local supplier"
2	B	110	L2	"Non-MSE but Class-I local supplier"
3	C	112	L3	"MSE but non- Class-I local supplier"
4	D	115	L4	"Non-MSE but Class-I local supplier"
5	E	118	L5	"MSE but non- Class-I local supplier"
6	F	120	L6	"MSE Class-I local supplier"

1. In this case, first purchase preference is to be given to MSEs as per PPP-MSE Order for 25% of tendered quantity of 50 Nos. i.e. 12.5 Nos. (rounded off to the next whole number say 13 Nos). Accordingly, invite L3 (bidder C), whose quoted rates falls within 15% margin of purchase preference to match L-1 price i.e. ₹100 for quantity of 13 Nos. Bidder "E" and "F", although MSEs, will not get purchase preference since their quoted rates don't fall within 15% margin of purchase preference. Bidder C will be considered for order of 13 Nos. on confirmation of reduction of price.
2. For 50% of balance quantity of 37 number (tendered quantity of 50 - 13 awarded to bidder C; assuming bidder C has confirmed to accept L-1 rates), purchase preference will be given to lowest Class-I local supplier as per PPP-MII Order. Accordingly, bidder B will be invited to match L-1 price for 50% of 37 Nos i.e. 18.5 (say 19 Nos of computers). If bidder "B" does not accept the L-1 price i.e. price of ₹100 per unit, next higher Class-I local supplier falling within 20% margin of purchase preference, i.e. bidder "D", may be invited to match L-1 price for 19 Nos. of computers and so on.
3. For remaining quantity i.e. 18 Nos (50-13-19), the contract will be awarded to lowest quoting bidder i.e. Bidder "A" who is L-1 in the example.

Annexure-G

RESTRICTIONS OF PROCUREMENT FROM COUNTRIES SHARING LAND BORDER WITH INDIA

1. Any bidder from a country which shares a land border with India, excluding countries as listed on the website of the Ministry of External Affairs, to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects (hereinafter called 'Restricted Countries'), will be eligible to bid in any procurement whether of Goods, Services (including Consultancy Services and Non-Consultancy Services) or Works (including Turnkey Projects) only if the bidder is registered with the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT) Bidders shall enclose the certificate in this regard in Section XVIII – Eligibility Declarations.
2. Further, any bidder (including bidder from India) having specified Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India, shall also require to be registered with the same Competent Authority.
3. In Bids for Turnkey contracts, including Works contracts, the successful bidder shall not be allowed to sub-contract works to any contractor from such Restricted Countries unless such contractor is similarly registered. In such cases, bidders shall enclose the certificate in this regard in Section XVIII – eligibility declarations.
4. If Bidder has proposed to sub-contract Services or incidental Goods directly/ indirectly from the vendors from such countries, such vendor shall be required to be registered with the Competent Authority. However, if Bidder procures raw material, components, and sub-assemblies from such countries' vendors, such vendors shall not require registration.
5. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
6. "Tender" will include other forms of procurement, except where the context requires otherwise.
7. "Bidder from a country which shares a land border with India" means: -
 - a. An entity incorporated, established or registered in such a country; or
 - b. A subsidiary of an entity incorporated, established or registered in such a country; or
 - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d. An entity whose *beneficial owner* is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or
 - f. A natural person who is a citizen of such a country; or
 - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above

8. The *beneficial owner* for the purpose of 4 above will be as under:

- i. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means. Explanation—
 - a) "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent. of shares or capital or profits of the company;
 - b) "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholder agreements or voting agreements;
 - ii. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;
 - iii. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
 - iv. Where no natural person is identified under (i) or (ii) or (iii) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
 - v. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.
9. An "Agent" is a person employed to do any act for another, or to represent another in dealings with third person.
10. *[To be inserted in tenders for Works contracts, including Turnkey contracts]* The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of "contractor from a country which shares a land border with India" shall be as in paragraph 4 above.
11. The Registration shall be valid at the time of submission of bid and at the time of acceptance of bid. If the bidder was validly registered at the time of acceptance/ placement of order, registration shall not be relevant consideration during contract execution.

Model Certificate for Tenders

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate for Tenders for Works involving possibility of sub-contracting

"I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfils all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]"

Model Certificate in cases of specified ToT

I have read the clause regarding restrictions on procurement from a bidder having Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India; I certify that this bidder does not have any ToT arrangement requiring registration with the Competent Authority.

OR

I have read the clause regarding restrictions on procurement from a bidder having Transfer of Technology (ToT) arrangement with an entity from a country which shares a land border with India. I certify that this bidder have valid registration to participate in this procurement.

(Authorised Signatory of the bidder firm with date)

(Seal)

Annexure-H

Declaration & Undertaking by Micro & Small Scale Enterprises / Start-up Companies / Entities seeking purchase preference under Make In India Policy / Women entrepreneurs / Registration with TReDS/GeM

(To be filled in the Company letter head)

Date:

Sl. No	Particulars	Details
1	Is your organization Proprietary / Partnership / Private Limited Company / Public Limited Company?/ Others
2	Does your organization belong to Micro / Small Scale Industry / Start-up / Class-I local supplier / others (Please tick mark appropriate box. Bidders may tick more than one, if eligible)	<ul style="list-style-type: none"> • Micro • Small Scale • Start-up Company • Class-I local supplier • Others
3	In case you belong to Micro / Small Scale Enterprises, whether you are a Manufacturer for the tendered items (supply) / Service Provider for the tendered services (Please tick mark the appropriate box)	<ul style="list-style-type: none"> • Manufacturer for supply items • Service Provider for services • Trader/dealer/reseller/distributor/ authorized agent • Non MSE Bidder
4	In case you belong to Micro / Small Scale Enterprises, whether you are registered under SC / ST Category. <i>If yes, valid documentary evidence to be submitted</i> (Please tick mark the appropriate box)	<ul style="list-style-type: none"> • Yes • No If yes, whether <ul style="list-style-type: none"> • SC • ST
5	In case you belong to Micro / Small Scale Enterprises, whether your firm/ organization is owned by Women entrepreneurs? <i>If yes, valid documentary evidence to be submitted</i> (Please tick mark the appropriate box)	<ul style="list-style-type: none"> • Yes • No

*National Expression of Interest (EOI) for identifying suitable suppliers for supply of raw materials required for manufacturing varnish and inks for banknote printing - Varnika , BRBNMPL, Mysuru
EOI 001/MYS/MMD/2024-25 dated 17.01.2025*

6	Are you registered under TReDS (Trade Receivable Electronic Discounting System approved by RBI) Applicable for Micro, Small and Medium Enterprises (Please tick mark the appropriate box)	<ul style="list-style-type: none"> • No • Yes If yes, whether <ul style="list-style-type: none"> • RXIL <input type="checkbox"/> A-Treds <input type="checkbox"/> M1Xchange (Tick agency with whom you are registered along with Regn No.)
		Regn No.
7	Has your firm/organization registered your items/services in Government e-Marketplace (GeM)	<ul style="list-style-type: none"> • Yes • No
8	In case you are both a valid MSE bidder and Class-I local supplier (Make in India Policy), please give your preference. (Please tick any one)	<ul style="list-style-type: none"> • MSE • Class-I local supplier
9	In case you are claiming benefits under Make in India Policy, whether you are meeting the minimum local content as mentioned in the tender document/ concerned Ministry guidelines/Policy.	<ul style="list-style-type: none"> • Yes, Local Content _____% • Not applicable for this tender

Declaration: I/We hereby declare that the above data submitted are true and back-up documents are attached as proof of the same. In case any submitted data are found to be incorrect/false, my/our bid is liable to be rejected and I/we am/are liable for suitable actions as per relevant BRBNMPL Policy.

I/We also understand that in case I/we am/are not claiming benefits under Make in India Policy, or under MSEs Order as per tender requirements, then purchase preference shall apply to other bidders who have quoted accordingly as per policy.

A. Categorization of MSE/SC-ST & Women Vendors

1. In case of Micro/Small scale Enterprises, kindly attach Registration Certificate issued by DIC/KVIC/KVIB/Coir Board/NSIC/Directorate of Handicrafts and Handlooms, or any other body specified by MSME for authentication such as Udyog Aadhaar Memorandum/ Acknowledgment.

2. SC/ST and Women entrepreneurs registered under MSEs need to submit valid documentary evidence.

B. Categorization of Start-up Companies

Bidder who intends to participate as 'Start-up' company should enclose the Certificate of Recognition issued by Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Govt. of India and his eligibility shall be valid as on bid closing date.

C. Declaration in case of MSE Bidders / Start-up Companies

In terms of Tender Conditions applicable for Micro & Small Enterprises (MSEs) / Start-ups, we hereby declare as under: -

- a. We are a Micro / Small Enterprise, as on bid closing date of this tender.
- b. We are a Manufacturer of the quoted supply item(s)/service provider for quoted services and valid documentary evidence for same is submitted.
- c. MSE certificate submitted by us is authentic & valid as on bid closing date of this tender.
- d. We are a 'Start-up' company and we are enclosing copy of certificate of recognition issued by Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Govt. of India.
- e. We are a Micro / Small Enterprise which is owned by SC-ST/women entrepreneurs and we are submitting valid documentary evidence for the same.

D. Declaration in case of entities seeking purchase preference under Make in India Policy

We have read carefully the terms and conditions for availing the benefits of purchase preference under Make in India Policy and we are meeting all the requirements of Local Content and duly certified documents for proving the stipulated local content along with details of the location(s) where local value addition is made as mentioned in this document are enclosed.

We declare the above details are true. In case any of the details are found to be false/untrue, our offer will be liable for rejection /cancellation of order/subjected to appropriate actions as per tender Terms & Conditions.

.....

Authorized Signatory

(With Company Seal & Signature)

Statement of Financial Standing

- i. Submission of audited books of accounts bearing valid UDIN is required for firms whose sales, turnover or gross receipts is more than ₹1 crore. However, for firms whose cash receipts are limited to 5% of the gross receipts or turnover, and whose cash payments are limited to 5% of the aggregate payments, the threshold limit of ₹1 crore for tax audit is increased to ₹10 crore with effect from AY 2021-22 (FY 2020-21).
- ii. Firms whose sales, turnover or gross receipts is less than ₹1 crore, submission of audited books of accounts is not necessary. However, such firms have to submit a Statement of Financial Standing in the following format bearing a valid UDIN along with the bid in order to ensure the compliance of the bidder against the financial standing criteria.
- iii. This statement has to be certified by a certified accountant e.g. Chartered Accountant (CA) in India with valid UDIN and Certified Public Accountants / Chartered Accountants / Members of Certified Accounting Body of the government of the Bidder's country in case of foreign bidders.

Name of the Bidder:

Sl. No.	Financial Year	Annual Turnover	Net worth	Remarks
1	2021-22			
2	2022-23			
3	2023-24			

.....

Signature of Certified Accountant

Name:

Name of Firm:

Reg. No of Firm:

Membership No:

UDIN No.:

Place:

Date:

[Copies of Balance sheet and P&L Accounts for the Financial years 2021-22, 2022-23 and 2023-24 to be submitted]

Sign & Stamp

Template for assessment of Capability of Bidder

(To be submitted on Company Letter-head)

Bidders should furnish statements and documents confirming their Capability to manufacture the Goods. The list below is indicative only. Bidders may attach more documents as required. Additional details not covered elsewhere in the bid may also be added.

Bidder's Reference No. _____ Date _____

To

[Complete address of BRBNMPL]

Ref: EOI No. _____ Date _____

- 1) Location of the manufacturing Factory.
- 2) Details of Plant and Machinery executed and function in each department.
(Monographs & description pamphlets) be supplied, if available.
- 3) Details of arrangement for quality control of products such as laboratory etc.
- 4) Details of Technical Supervisory staff-in-charge of production and quality control
 - a) Skilled labour employed.
 - b) Unskilled labour employed.
 - c) The maximum number of workers (skilled & unskilled) employed on any day during the 18 months preceding the date of application.
- 5) Installed production capacity of item(s) quoted for, with the existing plant and machinery.

*National Expression of Interest (EOI) for identifying suitable suppliers for supply of raw materials required for manufacturing varnish and inks for banknote printing - Varnika , BRBNMPL, Mysuru
EOI 001/MYS/MMD/2024-25 dated 17.01.2025*

a) The installed monthly production capacity for _____ and the type of _____

b) Average monthly production of _____ during the last 5 years on a single shift basis

d) Existing order on hand for _____

6) Have you supplied the Goods tendered for or other identical items in the past? If so, details of supplies in the last five years may be furnished.

.....

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of

.....

[Name & address of Bidder and seal of company

*National Expression of Interest (EOI) for identifying suitable suppliers for supply of raw materials required for manufacturing varnish and inks for banknote printing - Varnika , BRBNMPL, Mysuru
EOI 001/MYS/MMD/2024-25 dated 17.01.2025*

Annexure-K

Performance Statement

(Statement of Supplies during Last Five Years and Outstanding Current Orders)

[Bidders should fill up this Form their past performance highlighting their qualification to supply relevant Goods. Statements and Documents to the Performance Statement may be mentioned/ attached here. The list below is indicative only. Bidders may attach more documents as required to showcase their past performance. Additional details not covered elsewhere in the bid may also be added]

Ref.No. Date.....

To

The Senior General Manager

BRBNMPL, Note Mudran Nagar

Mysuru-570 003.

Ref: EXPRESSION OF INTEREST (EOI) FOR IDENTIFYING OF SUITABLE SUPPLIER FOR SUPPLY OF RAW MATERIAL REQUIRED FOR MANUFACTURING VARNISH AND INKS FOR BANKNOTE PRINTING FOR BRBNMPL AT MYSURU (KARNATAKA) against EOI No. 001/MYS/MMD/2024-25 dated 17/01/2025.

Sl. No.	Description of Item Supplied	Location of Work	Client Address and contact details including e-mail	PO/ WO No. and dated	Value of Contract Awarded	Period of Contract (From To date)	Date of Completion	Value of Contract Completed	Remarks
	Total								

.....

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of.....

Sign & Stamp

Terms and Conditions - Compliance

[To be submitted as part of Technical bid in e-Procurement on Company Letterhead]

Bidder's Reference No. _____

Date _____

To

[Complete address of BRBNMPL]

Ref: EOI No. _____ Date: _____

Sir/Madam,

We have gone through entire EOI document thoroughly. We confirm that we shall comply with, abide by, and accept without variation, deviation, or reservation, all terms and conditions of the EOI Document and we have no counter-conditions.

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of.....

[Name & address of Bidder and seal of company]

Dated on day of [Insert date of signing]

Place..... [Insert place of signing]