

**ANDREW YULE & COMPANY LIMITED
(A Government of India Enterprise)
BRENTFORD UNIT, Electrical Division
P-25, TRANSPORT DEPOT ROAD
KOLKATA 700 088**

TENDER DOCUMENTS FOR TRANSFORMER OIL

ANDREW YULE & CO. LTD. invites e-Tender under single stage two part system (**Part I: Techno-Commercial Bid and Part II: Price Bid**) from bona fide and reputed **Company/Firm** for supply, the details of which are available in Annexure-III "**Scope of Work / Technical Specification**" as specified in this tender document.

Tender document may be downloaded from MSTC website www.mstcecommerce.com/eprochome/aycl. Corrigenda or clarifications, if any, shall be hosted on the above mentioned websites only.

AYCL reserves the right to accept or reject any tender.

Brief Description :-

- I) EHV GRADE TRANSFORMER OIL CONFIRMING TO IS 335/1993 (WITH LATEST AMENDMENTS) both in tanker as well as barrels for 33 KV operation

Approximate Quantity : 197 KL supplied In Barrel

- II) Uninhibited TRANSFORMER OIL CONFIRMING TO IEC 60296/2012 (WITH LATEST AMENDMENTS) as per specification sheets (Annexure I) both in tanker as well as barrels.

Approximate Quantity : 4 KL supplied In Barrel

PLEASE CONFIRM THAT " Polychlorinated biphenyles is not used in the Oil as it is banned by Ministry of Environment".

The quantity mentioned in the Tender is our approximate requirement up to 31.12.2016

The quantities mentioned are indicative only and the order will be released based on actual requirement.

Andrew Yule reserves the right to increase the tender quantity by 30 %.

Price quoted should be FOR destination.

Schedule of Tender

1.	TENDER NO.	AYCL/KOL/173/TRF OIL/15-16/ET/001 Dated : 22.04.2016
2.	MODE OF TENDER	e-Procurement System Online submission of Part I - Techno-Commercial Bid and Part II - Price Bid through www.mstcecommerce.com/eprochome/aycl The intending bidders are required to submit their offer electronically through this e-tendering portal. No physical tender is acceptable by AYCL/MSTC
3.	E-Tender No. / Event No.	AYCL/Electrical Division -KO/2/15-16/ET98
4.	Date of publication of e-Tender through publication MSTC/AYCL websites and Central Public Procurement Portal	22.04.2016
5.	Date of availability of NIT to the Vendors for downloading	22.04.2016
6.	Earnest Money Deposit	<ul style="list-style-type: none"> • “Earnest Money Deposit” of Rs.50,000 (Rupees Fifty Thousands only) should be paid through RTGS / NEFT . • Other document as described in Annexure I, Sl. No.2
7.	Last date of submission of EMD & other documents to AYCL Ltd.	06.05.2016 - 3.00 PM
8.	Date of Starting of e-Tender for submission of Online Techno-Commercial Bid and Price Bid at www.mstcecommerce.com/eprochome/aycl	22.04.2016 -, 12.00 PM
9.	Date of closing of Online e-tender for submission of Techno-Commercial Bid & Price Bid at www.mstcecommerce.com/eprochome/aycl	06.05.2016 – 3.00 PM
10.	Date & time of opening of Part-I (Techno-Commercial Bid)	07.05.2016 – 12.00 PM
11.	Date & time of opening of Part-II (Price Bid)	To be intimated to the eligible vendor separately by email as well as through Corrigendum in the website.

List of Annexure

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Important Instructions for E-procurement

This is an e-procurement event of ANDREW YULE & COMPANY LTD Ltd.

You are requested to read the Terms & Conditions (Annexure- II,III,IV) of this tender before submitting your online tender. Tenderers who do not comply with the Conditions with documentary proof (wherever required) will not qualify in the Tender for opening of Price Bid.

1. Process of E-tender:

A) **Registration:** The process involves vendor's registration with MSTC e-procurement portal which is free of cost. Only after registration, the vendor(s) can submit his/their bids electronically. Electronic Bidding for submission of Techno-Commercial Bid as well as Price Bid over the internet will be done. The Vendor should possess Class III signing type Digital Signature Certificate. Vendors are to make their own arrangement for bidding from a PC connected with Internet. MSTC is not responsible for making such arrangement. (Bids will not be recorded without Digital Signature).

SPECIAL NOTE: THE PRICE BID AND THE COMMERCIAL BID HAS TO BE SUBMITTED ONLINE AT www.mstcecommerce.com/eprochome/aycl

- 1) Vendors are required to register themselves online with www.mstcecommerce.com → e-Procurement → PSU / Govt. depts. → Register as Vendor under AYCL- Filling up details and creating own user id and password → Submit.
- 2) Vendors will receive a system generated mail confirming their registration in their email which has been provided during filling the registration form.

In case of any clarification, please contact MSTC/AYCL (before the scheduled time of the e-Tender).

Contact person (, ANDREW YULE & COMPANY LTD):

1. Mr. GAUTAM BANDYOPADHYAY

Manager (Purchase)

Ph. No: (033) 6550-0348

Email: gautam.bandyopadhyay@andrewyule.com

Contact person (E-Commerce, MSTC Ltd):

1. Mr. Arindam Bhattacharjee

Deputy. Manager (E-commerce)

Mobile No: 09330102643

Email: arindam@mstcindia.co.in

2) Mr. Sabyasachi Mukherjee

Assistant Manager (E-commerce)

Mobile- 07278030407

Email: smukherjee@mstcindia.co.in

Landline: (033) 22901004

3. Ms Sumona Maity
Management Trainee (E-Commerce)
Mobile-09831155225
Email: smaity@mstcindia.co.in

System Requirement:

- i) Windows XP-SP3 or above / Windows 7 Operating System
- ii) IE-7 or above Internet browser.
- iii) Signing & Encryption type digital signature
- iv) JRE 7 update 79 software to be downloaded and installed in the system. Security level should be medium
- v) To enable ALL active X controls and disable 'use pop up blocker' under Tools → Internet Options → custom level (Please run IE settings from the page www.mstcecommerce.com once)

2. Part-I: Submission of EMD & other Documents:

Within specified Date & time the vendor must UPLOAD the following documents at www.mstcecommerce.com/eprochome/aycl

- Earnest Money of Rs.50000.00 (Rupees Fifty thousand only) favouring Andrew Yule & Co. Ltd. Payment should be made through RTGS/NEFT and the UTR details should be uploaded. If the EMD exemption is sought the necessary documents (MSME certificate/turnover details) should be uploaded
- Tender fees of Rs. 500.00 (Rupees five hundred only) should be made through RTGS/NEFT and the UTR details should be uploaded.
- General information, under Annexure-II complete in all respect along with desired document.
- Acceptance of Techno-Commercial Terms for Transformer Oil, under Annexure-III along with desired information/Data under Annexure-II(A).

In case of failure to submit the EMD within the stipulated time, the Tender may be rejected.

Bidding in e-Tender:

- a. No interest will be paid on EMD. EMD of the unsuccessful bidder(s) will be refunded by ANDREW YULE & COMPANY LTD. EMD to be paid along with the Document within the last date as mentioned in SOT.
- b. The process involves Electronic Bidding for submission of Techno Commercial Bid as well as Price Bid.
- c. The bidder(s) who have submitted the above fees and submitted documents to Andrew Yule will be short listed by Andre Yule and those qualified bidders can only submit their Techno Commercial Bids and Price Bid through internet in MSTC website www.mstcecommerce.com → e-procurement → Psu / Govt depts. → Login under AYCL→ My Menu → Auction Floor Manager → live event → Selection of the live event.
- d. The bidder should allow to run an application namely en Apple by accepting the risk and clicking on run. This exercise has to be done twice immediately after opening of Bid floor. Then they have to fill up Common terms /Commercial specification and save the same. After that clicking on the Techno-Commercial bid, if this application is not run then the bidder will not be able to save / submit his Techno-Commercial bid.
- e. After filling the Techno-Commercial Bid, bidder should click 'save' for recording their Techno-Commercial bid. Once the same is done, the Price Bid link becomes active and the same has to be filled up and then bidder should click on "**Save**" to record their Price Bid. Then once both the Techno-Commercial bid & Price Bid has been saved, the bidder can click on the "**Submit**" button to register their bid.
- f. Vendors are instructed to use link in **My Menu** to **Upload Documents** in document library. Multiple documents can be uploaded. Maximum size of single document for upload is 5 MB.
- g. Once documents are uploaded in the library, vendors can attach documents through *Attach Document* link against the particular tender. For further assistance please follow instructions of vendor guide.
- h. In all cases, bidder should use their own ID and Password along with Digital Signature at the time of submission of their bid.
- g. During the entire e-tender process, the bidders will remain completely anonymous to one another and also to everybody else.
- h. The e-tender floor shall remain open from the pre-announced date & time and for as much duration as mentioned above.
- i. Techno-Commercial bid will be opened electronically on specified date and time as given in the NIT. Bidder(s) can download Technical Comparative statement.

- j. Price bid will be opened electronically on specified date and time given in the NIT. Bidder(s) can download Price Comparative statement.
- k. All entries in the tender should be entered in online Technical & Commercial Formats without any ambiguity.
- l. All electronic bids submitted during the e-tender process shall be legally binding on the bidder. Any bid will be considered as the valid bid offered by that bidder and acceptance of the same by the Buyer will form a binding contract between Buyer and the Bidder for execution of supply. Such successful tenderer shall be called hereafter **SUPPLIER**.
- m. It is mandatory that all the bids are submitted with Digital Signature Certificate otherwise the same will not be accepted by the system.
- n. Buyer reserves the right to cancel or reject or accept or withdraw or extend the tender in full or part as the case may be without assigning any reason thereof.
- o. No deviation of the terms and conditions of the tender document is acceptable. Submission of bid in the e-tender floor by any bidder confirms his acceptance of terms & conditions for the tender.
- p. Unit of Measure (UOM) is indicated in the e-tender Floor. Rate to be quoted should be in Indian Rupee as per UOM indicated in the e-tender floor/tender document.

E-tender cannot be accessed after the due date and time mentioned in NIT.

All notices / corrigendum and correspondence to the bidder(s) shall be sent by email only during the process till finalization of tender by ANDREW YULE & COMPANY LTD/MSTC LTD. Hence the bidders are required to ensure that their corporate email I.D. provided is valid and updated at the stage of registration of vendor with MSTC. Bidders are also requested to ensure validity of their DSC (Digital Signature Certificate).

Any order resulting from this open e-tender shall be governed by the terms and conditions mentioned therein.

No deviation to the technical and commercial terms & conditions are allowed.

ANDREW YULE & COMPANY LTD has the right to cancel this e-Tender without assigning any reason thereof.

The online tender should be submitted strictly as per the terms and conditions and procedures laid down in the website www.mstcecommerce.com/eprochome/aycl of MSTC Ltd.

The bidders must upload all the documents required as per terms of NIT. Any other document uploaded which is not required as per the terms of the NIT shall not be considered.

The bid will be evaluated based on the filled-in technical & commercial formats.

Bidders are requested to read the vendor guide and see the video in the page www.mstcecommerce.com/eprochome/mstc of MSTC Ltd. to familiarize them with the system before bidding.

Annexure-II

**ANDREW YULE & COMPANY LIMITED
Brentford Unit, Electrical Division-Kolkata**

General Information

Ref. Tender No.: AYCL/KOL/173/TRF OIL/15-16/ET/001
(This document should be dully filled up and attached along with EMD)

The applicants are required to furnish full information to the queries included in this form. In giving the particulars, the supporting documents/certificates as called for per queries at places, must be tagged with the application for evidencing the information furnished in the application.

1. Name of the firm in full :

2. Address, Telephone No.,
Fax No. & E-mail :
a) Address :

b) Telephone No. :

c) Fax No. :

d) E-mail ID :

3. Status of the organization :

4. Trade License No.
**(Please attach a photo
copy of the license)** :

5. Banker's Details
(a) Name of the Bank :

(b) Name of the Branch :

(c) Account No.

(d) IFSC Code :

Note : A copy of Banker's Certificate to be attached.

6. Sales tax Registration No.

(a) Central :

(b) State / VAT :

7. I. T. Permanent Account No.:

8. Financial Capacity : Year (2014-2015)

(a) Fixed capital :

(b) Working capital :

I/we hereby certify that the particulars furnished by me/us above are true to the best of my / our knowledge and belief and mis-representations of facts will render me/us liable to my/our action as may be deemed fit by Andrew Yule & Co. Ltd. (Electrical Division) & have the sole discretion to reject or accept my/our candidature.

(Signature of the Applicant)
Office Stamp/Seal.

Place :

Date ;

List of Enclosures :

Annexure II (A)

The following documents are to be uploaded online at
www.mstcecommerce.com/eprchome/aycl

1. EMD Rs: 50000/= *

*Bidder may request for exemption from submitting EMD (Refer details given in SI No 1 of Annexure-IV, General terms & condition).

2. Tender fees of Rs: 500 /= by RTGS/NEFT
3. Customer List.
4. Copies of purchase orders & Performance Certificate from at least three reputed transformers manufacturers for having supplied Transformer Oil for transformers for 11/33 KV rating during the year 2014-2015. Offers received without copies of performance certificate will be rejected.
5. Balance sheets and P&L Account. (2012-2013, 2013-2014 & 2014-2015).
6. Copy of the certificate for having tested your Oil as per IS 335/1993 at CPRI / ERDA.
7. Copy of valid ISO 9001 - 2008 edition certificate
8. Copy of BIS Certificate for the Product.

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Our Bank details for making RTGS payment.

Bank Name and Address	IDBI BANK 44, SHAKESPEARE SARANI. KOLKATA – 700 017
IFSC Code	IBKL0000012
Account No	012103000000718
Account Name	ANDREW YULE & COMPANY LIMITED

TECHNO-COMMERCIAL TERMS FOR TRANSFORMER OIL
(**To be filled online in mstc portal**).

SL NO	TERMS & CONDITIONS	VENDOR RESPONSE
1 a	EHV GRADE TRANSFORMER OIL SHOULD CONFIRM TO IS 335/1993 (WITH LATEST AMENDMENTS).	AGREE
1 b	Uninhibited TRANSFORMER OIL SHOULD CONFIRM TO IEC 60296/2012 (WITH LATEST AMENDMENTS).as per specification sheets (Annexure I)	AGREE
2	Transformer oil should be supplied as per our specification given in Annexure VI and will be inspected as per our inspection plan no. QAP 001 Rev.0	AGREE
3	You should have own refinery for processing TOBS.	AGREE
4	<p>Distribution of Tender quantity among all the qualified bidders.</p> <p>Negotiated L1 price will be counter-offered to other bidders whose price bid was opened. The tender quantity will be split among bidders who will match the L-1 landed price as per the discretion of the management which is as follows.</p> <p>a) The order quantity is to be placed on all the vendors, who have agreed to match the Negotiated L1 price & Terms, provided preference will be given to original L-1 which will be more than 50% considering his technical and commercial ability and the remaining quantity will be procured from L-2, L-3 etc bidders. where preference will be given to L-2 considering the original value. The quantity for L2 will who has matched the negotiated L-1 price will depend upon his Technical & Commercial ability and should not be more than 30% of the total quantity. Balance will go to L3 and other Vendors following same principle.</p> <p>b) If none of the other bidders whose price bids have been opened agree to match the negotiated L-1 price, Andrew Yule reserves the right to order the entire Tender quantity on the L-1 bidder.</p>	AGREE

5	Risk purchase clause: The company reserve the right to impose risk purchase clause as " For delay in execution / supply we shall have every right to do the same through some other agency/s which shall deemed fit and the additional cost of the same (Incidental/Consequential) shall be to your account which with respect to our intimation or observation whatsoever. Please confirm acceptance.	AGREE
6	Security Deposit - The EMD amount of the successful Bidder will be retained as security deposit towards the execution of the order and the same will be released after completion of order. Please confirm acceptance.	AGREE
7	Liquidated damage - If the delivery is delayed beyond the date of scheduled date of despatch in the purchase order, penalty will be levied @ 1/2% per week subject to a maximum of 5% . Please confirm acceptance.	AGREE
8	Legal condition: Any contract entered against this tender will be as per the following legal condition- a) -"It is recorded that this purchase order / contract / agreement is executed and concluded by and between the parties hereto at premises P-25, TRANSPORT DEPOT ROAD, KOLKATA 700 088 and 14, MAYURBHANJ ROAD, (Electrical Division) KOLKATA-700 023 and in the event any dispute arises out of this agreement between the parties only the appropriate Civil Court in the City of Kolkata shall have the exclusive jurisdiction to entertain, try and determine the said proceedings in exclusion of all other courts.	AGREE
9	Validity of offer: Your offer should be valid for acceptance for a period of 90 days from the date of opening of techno-commercial bid.	AGREE
10	Validity of price : The price quoted should be valid for orders placed up to 31.12.2016 with PVC.	AGREE
11	QUANTITY VARIATION: Andrew Yule reserves the right to increase the tender quantity by 30 %.	AGREE
12	PV Clause : Prices shall be variable as per IEEMA 's PV Cir No. IEEMA /PVC/ TR-OIL / 2011 , effective from 1 ST. JULY 2011. The Base price reference as per IEEMA circular shall be applicable on the 1st working day of MARCH'2016.	AGREE
12A	PRICE BASIS The price quoted above should be for free delivery at our KOLKATA works of Andrew Yule as given below:	AGREE

	<p>a) ANDREW YULE & COMPANY LIMITED BRENTFORD UNIT, (Electrical Division) P-25, TRANSPORT DEPOT ROAD. KOLKATA 700 088</p> <p>b) ANDREW YULE & COMPANY LIMITED 14, MAYURBHANJ ROAD, (Electrical Division) KOLKATA-700 023</p>	
13	CREDIT PERIOD : The credit period will start from the date of receipt of material at Andrew Yule, KOLKATA WORKS.	AGREE
14	<p>PAYMENT TERMS: - Direct Credit In case it is agreed for direct credit, write AGREED in the remarks column, please fill 14A with number of days of direct credit otherwise write DISAGREED in the remarks column and fill 14A with 0 (zero)</p>	AGREE / DISAGREE
14A	Please indicate the number of days of direct credit. (Andrew Yule's payment terms is minimum 90 days direct credit. If the offered payment terms is less than 90 days , bids will be opened at the sole discretion of Andrew Yule & price will be loaded as per Andrew Yule's norms) (TEXT BOX - Max 3 Character)	WRITE NO. OF CREDIT DAYS
14b	<p>PAYMENT TERMS: - Against L/c Bidders, who wish to quote with L/c terms, write AGREE in REMARKS column in 14b & fill 14C with number of days of credit. Bidders, who have selected AGREED in 14 and filled credit days in 14A should write Disagree in 14 b and fill 14 C with 0 (zero)</p>	AGREE / DISAGREE
14C	Please indicate the number of days of credit against L/c , (Andrew Yule's payment term is minimum 90 days of direct credit. For bidders offering L/c payment terms , bids will be opened at the sole discretion of Andrew Yule & price will be loaded as per Andrew Yule's norms) (TEXT BOX - Max 3 Character)	WRITE NO. OF CREDIT DAYS
15	If a bidder select AGREE in both 14 & 14 B, their offer will not be accepted	AGREE
16	Test Certificate: Test Certificate to be submitted along with your Challan. Please confirm Acceptance.	AGREE
17	Inspection / Testing: Initial inspection should be done at your works before despatch and report submitted. Oil supplied should withstand all parameters as per IS 335/1993 (with latest amendments) standard including BDV. Oil when taken from the tanker should withstand all tests confirming to IS 335/1993 (with latest amendments) and including BDV test. On receipt of material Test can be done at our works or through	AGREE

	CPRI / ERDA (at our cost). In no case deviation from IS standard shall be accepted. Please Confirm acceptance	
18	Packing: Supply will be made in Non-Returnable new Drums.	AGREE
19	UPLOADING OF DOCUMENTS : Please UPLOAD the following documents and write UPLOADED in the remarks column of AGREED WITH REMARKS	AGREED WITH REMARKS
19.1	Balance sheets and P&L Account. (2012-2013, 2013-2014 & 2014-2015)	UPLOADED
19.2	EMD – Attach copy of UTR details	UPLOADED
19.3	Tender Fees - Attach copy of UTR details	UPLOADED
19.4	Vendor form as per Annexure - II	UPLOADED
19.5	Customer list	UPLOADED
19.6	Copy of BIS Certificate for the Product.	UPLOADED
19.7	Copy of valid ISO 9001 - 2008 edition certificate	UPLOADED
19.8	Copies of purchase orders & Performance Certificate from at least three reputed transformers manufacturers for having supplied CRGO for transformers above 5 MVA rating during the year 2014-2015. Offers received without copies of performance certificate will be rejected	UPLOADED
19.9	Certificate for having tested your Oil as per IS 335/1993 at CPRI / ERDA.	UPLOADED
20	START DATE FOR RATE CONTRACT : EFFECTIVE DATE FOR START OF RATE CONTRACT : 01/07/2016	AGREE

GENERAL TERMS AND CONDITIONS

- 1 EMD : Rs.50,000/- (Rupees Fifty Thousand only) by way of RTGS / NEFT. Bank Guarantee from any Nationalised / Scheduled / Multinational Bank for the EMD amount can also be accepted and the BG should be as per the specimen enclosed and reach AYCL before due date.

For bidders already enlisted with AYCL- Electrical Division, having outstanding amount more than the EMD amount or who have already submitted the EMD against our earlier tenders or those who have security deposit with Andrew Yule may apply for adjustment of the same. The total EMD should be Rs: 50,000/=

Bidders who are MSMED units may apply for exemption from furnishing EMD by making a specific request in writing and enclosing the necessary document in support of the same.

Bidders whose turnover is more than Rs: 50 crores may apply for exemption from furnishing EMD by making a specific request in writing and attaching the necessary document in support of the same

If reason for non-submission of EMD or adjustment against the outstanding balance for EMD is not mentioned in Techno-commercial bid of tender, the tender will be rejected.

2. Bidder should have tested their Oil as per IS 335/1993 at CPRI / ERDA and obtained the certificate .A copy of the certificate should be submitted.
3. Bidders organization should be certified for ISO 9001 - 2008 edition. A copy of the certificate should be submitted.
4. Bidder should have been obtained BIS Certificate for the Product. A copy of the certificate should be submitted.
5. Bidder should submit/upload copies of purchase orders & Performance Certificate from at least three reputed transformers manufacturers for having supplied Transformer Oil for transformers upto 5 MVA rating during the year 2014-2015.Offers received without copies of performance certificate will be rejected
6. Bidders should have a minimum turnover of Rs.5 crores per annum. Please enclose copy of last 3 years Balance sheets and P&L Account. (2012-2013, 2013-2014, 2014-2015).
7. Bidders should pay the amount of Rs: 500 /= RTGS / NEFT towards cost of tender document.

8. THE RIGHTS OF THE COMPANY

The company reserves the right to reject any tenderer based on their past performance

PRICE FORMAT FOR 197 KL OIL IN BARREL :-

SI. NO	DESCRIPTION	UNIT (Quantity)	Basic Price (RS./L)	ED & Ces as on ED(%)	CST (%) Only bidders outside West Bengal to indicate	WB VAT (%) Only West Bengal bidders to indicate	Freight & Insurance (e) (in Rs/L.)	Total per unit cost (T) (In Rs/L)
	EHV GRADE TRANSFORMER OIL CONFIRMING TO IS 335/1993 (WITH LATEST AMENDMENTS) In Barrels	KL	(a)	(b)	(c)	(d)	(e)	T = a+b+c or d+e

PRICE FORMAT FOR 5 KL OIL IN BARREL:-

SI. NO	DESCRIPTION	UNIT (Quantity)	Basic Price (RS./L)	ED & Ces as on ED(%)	CST (%) Only bidders outside West Bengal to indicate	WB VAT (%) Only West Bengal bidders to indicate	Freight & Insurance (e) (in Rs/L.)	Total per unit cost (T) (In Rs/L)
	Uninhibited TRANSFORMER OIL CONFIRMING TO IEC 60296/2012 (WITH LATEST AMENDMENTS).as per specification sheets In Barrels	KL	(a)	(b)	(c)	(d)	(e)	T = a+b+c or d+e

ANNEXURE - I

60296 © IEC:2003

Table 2 – General specifications

Property	Test method	Limits	
		Transformer oil	Low temperature switchgear oil
1 – Function			
Viscosity at 40 °C	ISO 3104	Max. 12 mm ² /s	Max. 3,5 mm ² /s
Viscosity at –30 °C *	ISO 3104	Max. 1 800 mm ² /s	–
Viscosity at –40 °C *	IEC 61868	–	Max. 400 mm ² /s
Pour point *	ISO 3016	Max. –40 °C	Max. –60 °C
Water content	IEC 60814	Max. 30 mg/kg ¹ / 40 mg/kg ²	
Breakdown voltage	IEC 60156	Min. 30 kV / 70 kV *	
Density at 20 °C	ISO 3675 or ISO 12185	Max. 0,895 g/ml	
DDF at 90°C	IEC 60247 or IEC 61620	Max. 0,005	
2 – Refining/stability			
Appearance	–	Clear, free from sediment and suspended matter	
Acidity	IEC 62021-1	Max. 0,01 mg KOH/g	
Interfacial tension	ISO 6295	No general requirement ¹	
Total sulfur content	BS 2000 Part 373 or ISO 14596	No general requirement	
Corrosive sulfur	DIN 51353	Not corrosive	
Antioxidant additive	IEC 60606	(U) uninhibited oil: not detectable (T) trace inhibited oil: max. 0,08 % (I) inhibited oils: 0,08 – 0,40 %	
2-Furfural content	IEC 61198	Max. 0,1 mg/kg	
3 – Performance			
Oxidation stability ¹	IEC 61125 (method C) Test duration: (U) Uninhibited oil: 164 h (T) Trace inhibited oil: 332 h (I) Inhibited oil: 500 h		
- Total acidity		Max. 1,2 mg KOH/g ¹	
- Sludge		Max. 0,8 % ¹	
DDF at 90 °C	IEC 60247	Max. 0,500 ¹	
Gassing	IEC 60628, A	No general requirement	
4 – Health, safety and environment (HSE)			
Flash point	ISO 2719	Min. 135 °C	Min. 100 °C
PCA content	BS 2000 Part 346	max. 3 %	
PCB content	IEC 61619	Not detectable	
* This is the standard LCSET for a transformer oil (see 5.1) and can be modified depending on the climatic condition of each country. Pour point should be minimum 10 K below LCSET.			
* Standard LCSET for low temperature switch gear oil.			
* For bulk supply.			
* For delivery in drums and IBC.			
* After laboratory treatment (see 6.4).			
¹ Where it is used as a general requirement, a limit of minimum 40 mN/m is recommended.			

¹ In some countries more stringent limits and/or additional requirements may be requested.

7 Specific requirements for special applications

7.1 Higher oxidation stability and low sulfur content

For transformers with higher operating temperatures or designed for extended service life, there may exist restricted limits after oxidation test (see IEC 61125, method C). Mostly, such oil is inhibited (I) ^{2, 3}.

- Total acidity: max. 0,3 mg KOH/g;
- Sludge: max. 0,05 %;
- DDF at 90 °C: max. 0,050;
- Total sulfur content: max. 0,15 %.

7.2 Electrostatic charging tendency (ECT)

For OF- or OD-cooled power transformers (IEC 60076-2) with high oil circulation speed, as e.g. HV/DC transformers, a limit may be agreed between purchaser and manufacturer.

7.3 Gassing

For equipment with high electrical field stress or special design, gas which may be formed under special stress conditions must be absorbed by the oil. Therefore the gassing tendency according to IEC 60628 must be agreed between the oil manufacturer and the user of the oil.⁴

² In some countries more stringent limits and/or additional requirements may be requested.

³ In some countries a DDF of max. 0,020 after 2 h of oxidation (see IEC 61125, method C) is considered as acceptable for application in EHV instrument transformers and bushings.

⁴ In some countries limits are available.



ANDREW YULE & CO. LTD.
BRENTFORD UNIT
KOLKATA- 700088

QAP 001

PAGE 1 OF 1

I. MATERIAL INSPECTION PLAN FOR TRANSFORMER OIL

Method of inspection :

1 Verification of manufacturer's instrumentation for the following parameters

a) Physical properties

Appearance

Density

Flash point

Kinematic viscosity

Pour point

b) Electrical properties

Dissipation factor

Electric Strength

c) Chemical properties

Water content

Neutralization value

Corrosive sulphur

Anti oxidant additives

Oxidation stability

Total acidity

Sludge % by weight

Gassing temperature

2 Check on the material at our works

a) Break down voltage

						ANDREW YULE & CO. LTD. ELECTRICAL DIVISION KOLKATA - 700083				NAME		DATE	
				TITLE <u>TRANSFORMER OIL SPECIFICATION</u>				PREPARED BY					
								CHECKED BY					
								APPROVED BY		<i>B. B. B.</i>		11/3/16	
SL NO	BY	DATE	FILE NO	SCALE									
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ANDREW YULE & CO. LTD.
BRENTFORD UNIT
KOLKATA - 700088

SPECIFICATION

PAGE 1 OF 2

SPECIFICATION FOR TRANSFORMER OIL

I. GENERAL REQUIREMENT:

- 1) TYPE: Mineral Oil
- 2) APPLICATION: Used as insulating and cooling medium in transformer

II. SPECIFICATION:

- 1) Reference Standard : IS 335/1993; BS 148
- 2) Material Composition : Napthanic/ Parafinic based low viscosity mineral oil
- 3) Material Properties: The properties/characteristics of the transformer oil is as follows

CHARACTERISTICS	UNIT	REQUIRED VALUE	TOLERANCE
Appearance		Clear, Transparent	
Density at 29.5 deg C	g/cc	0.89	Max
Kinematic Viscosity at 27 deg C	cst	27	Max
Interfacial Tension at 27 deg C	N/m	0.04	Min
Flash Point, Pensky - Marten (Closed)	deg C	140	Min
Pour Point	deg C	-30 / -6 (Napthanic / Parafinic)	Max
Neutralization Value			
a) Total Acidity	MgKOH/gm	0.03	Max
b) Inorganic Acidity / Alkalinity		NIL	
Corrosive Sulphur		Non - Corrosive	
Electric Strength			
a) New unfiltered oil	KVrms	30	Min
b) After Filtration		60	
Dielectric Dissipation factor (tan delta) at 90 deg C		0.002	Max
Specific Resistance			
a) At 90 deg C	Ohm-cm	35×10^{12}	Min
b) At 27 deg C		1500×10^{12}	
Oxidation Stability			
a) Neutralization Value after oxidation for 164 hrs at 100 deg C	MgKOH/gm	0.40	Max
b) Total Sludge 164 Hrs at 100 deg C	%	0.10	
Ageing Characteristics after accelerated ageing (Open breaker method with copper catalyst)			
a) Specific Resistance at 27 deg C	Ohm-cm	2.5×10^{12}	
Specific resistance at 90 deg C	Ohm-cm	0.2×10^{12}	
b) Dielectric dissipation factor (tan delta) at 90 deg C		0.2	
c) Total acidity	MgKOH/gm	0.05	
d) Total sudge value	%	0.05	
Anti Oxidant Additives		Shall not contain antioxidant additives	
Water Content	Ppm	50	MAX
S.K. Value	%	4 to 8	

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				TITLE TRANSFORMER OIL SPECIFICATION		PREPARED BY		CHECKED BY		APPROVED BY	
SL NO	REVISION	BY	DATE	FILE NO	SCALE			<i>Baridha</i>		11/3/16	
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SPECIFICATION

PAGE 2 OF 2

III. TESTS:

Routine Test Shall be conducted for the characteristics mentioned in Clause II.3

IV. EXTENT OF CHECK :

Sampling as per IS 6855

IV. PACKING :

Transformer Oil shall be supplied in road tankers or in non-returnable steel drums of 210 lts capacity clearly marked. It shall accompany with a typed certificate giving the following information:

- i) Manufacturer's Name
- ii) Quantity in Litres
- iii) Name of the Material
- iv) Batch No & Date

V. DOCUMENTS :

Test Certificate should accompany each consignment

VI. ACCEPTANCE CRITERIA :

As per Spec 001 (for Internal use only)

						ANDREW YULE & CO. LTD ELECTRICAL DIVISION KOLKATA - 700083				NAME		DATE		
				TITLE		TRANSFORMER OIL SPECIFICATION		PREPARED BY						
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								APPROVED BY				11/3/16		
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ANDREW YULE & CO. LTD.
BRENTFORD UNIT
KOLKATA- 700088

SPEC 001

PAGE 1 OF 1

I. ACCEPTANCE CRITERIA FOR TRANSFORMER OIL

SL NO	CHARACTERISTICS	UNIT	REQUIRED VALUE	TOLERANCE
1	Flash Point, Penkys - Marten (Closed)	deg C	140	Min
2	Pour Point	deg C	-30 / -6 (Naphtheneic / Paraffinic)	Max
3	Electric Strength a) New unfiltered oil	KVrms	40	Min
4	Dielectric Dissipation factor (tan delta) at 90 deg C		0.002	Max
5	Water Content	Ppm	50	MAX
6	Specific Resistivity a) At 90 deg C	Ohm-cm	35×10^{12}	Min
7	Oxidation Stability a) Neutralization Value after oxidation for 164 hrs at 100 deg C	MgKOH/gm	0.40	Max
	b) Total Sludge 164 Hrs at	%	0.10	

				ANDREW YULE & CO. LTD ELECTRICAL DIVISION KOLKATA - 700083		NAME		DATE
TITLE TRANSFORMER OIL SPECIFICATION				PREPARED BY				
				CHECKED BY				
				APPROVED BY		<i>Branda</i>		11/3/16
SL NO	BY	DATE	FILE NO	SCALE				
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IEEMA/PVC/TR-OIL/2011

Effective from: 1st July 2011

PRICE VARIATION CLAUSE FOR TRANSFORMER OIL

The price quoted/confirmed is based on the cost of raw materials/components as on the date of quotation and the same is deemed to be related to prices of TOBS and drum as specified in the price variation clause given below. In case of any variation in these prices, the price payable shall be subject to adjustment up or down, in accordance with the following formula:

$$P = P_0 + 1.2 (TB - TB_0) + 4.8 (D - D_0)$$

Wherein,

P = Price (in Rs/KLtr) payable as adjusted in accordance with the above formula.

P₀ = Price (in Rs/KLtr) quoted/confirmed for transformer oil supplied in drums and confirming to IS:335-1993 and amended from time to time.

TB₀ = Price of TOBS (refer notes).

This price is as applicable on first working day of the month, ONE month prior to the date of tendering.

D₀ = Price of drums (refer notes).

This price is as applicable on first working day of the month, ONE month prior to the date of tendering.

For example, if the date of tendering falls in July 2011, the applicable prices of TOBS (TB₀) and drums (D₀) should be prevailing as on 1st June 2011.

The above prices are as published by IEEMA vide circular reference number IEEMA(PVC)TR-OIL(R)/_//_ prevailing as on first working day of the month i.e., ONE month prior to the date of tendering.

TB = Price of TOBS (refer notes).

This price is as applicable on first working day of the month, ONE month prior to the date of delivery.

D = Price of drums (refer notes).

This price is as applicable on first working day of the month, ONE month prior to the date of delivery.

For example, if the date of delivery in terms of clause given below falls in December 2011 the applicable prices for TOBS (TB) and drums (D) should be as published by IEEMA as prevailing on 1st November 2011.

The "date of delivery" is the date on which the Transformer Oil is notified as being ready for inspection/dispatch. (In the absence of such notification the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

IEEMA/PVC/TR-OIL/2011/1/2

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IEEMA/PVC/TR-OIL/2011

Effective from: 1st July 2011

Notes: (a) All prices of raw materials are exclusive of modvat/excise/CV duty amount and exclusive of any other central, state or local taxes, Octroi etc.

(b) All prices are as on first working day of the month.

(c) The details of prices are as under:

1. The price of TOBS considered is the average price (in Rs./KLtr) as quoted by Transformer oil manufacturers (including applicable customs duty, if imported).
2. The price of drum (in Rs) is the ex-works price as quoted by a drum manufacturer for drum of capacity of 210 liters.


Authorized Signatory

IEEMA/PVC/TR-OIL/2011/2/2

BG SPECIMEN

(To be typed on Rs.100/- non-judicial stamp paper)
BANK GUARANTEE FOR EARNEST MONEY DEPOSIT

TO BANK GUARANTEE NO....
M/S ANDREW YULE & CO. LTD
ELECTRICAL DIVISION – KOLKATA OPERATION,
14, MAYURBHUNJ ROAD,
KOLKATA -700 023

IN ACCORDANCE WITH YOUR TENDER for supply of CRGO Lamination, M/s (hereinafter called the "Bidder") having its Registered Office at, wish to participate in the said bid for the supply CRGO LAMINATION AS PER OUR DRAWING as an irrevocable Bank Guarantee against Earnest Money Deposit for an amount of Rs. (Rupees.....) valid up to 31.03.2017, is required to be submitted by the bidder as a condition precedent for participating in the said bid, which amount is liable to be forfeited by the Purchaser on (1) the withdrawal or revision of the offer by the bidder within the validity period, (2) Non acceptance of the Letter of Intent / Purchase order by the Bidder when issued within the validity period, (3) failure to execute the contract as per contractual terms and condition with in the contractual delivery period and (4) on the happening of any contingencies mentioned in the bid documents.

During the validity of this Bank Guarantee: -

We,(Bank name) having its registered Office atguarantee and undertake to pay immediately on first demand by Andrew Yule & Company Ltd., Kolkata 700 023, the amount of Rs.....(Rupees.....) without any reservation, protest, demur and recourse. Any such demand made by the purchaser shall be conclusive and binding on the Bank irrespective of any dispute or difference raised by the Bidder.

The Guarantee shall be irrevocable and shall remain valid up to 31.03.2017. If any further extension is required, the same shall be extended to such required period on receiving instruction from the Bidder, on whose behalf this Guarantee is issued.

Notwithstanding anything contained herein:

* Our liability under this Bank Guarantee shall not exceed
Rs. (Rupees.....)

* This Bank Guarantee shall be valid up to 31.03.2017.

- We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if you serve upon us a written claim or a demand on or before 31.03.2017.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on
..... day of 2016 at.....
