



List of Major items procured on LTE basis in Nalco

SL No	Items	Annual Requirement (Approx)	Plant
1	<p><u>Sulphuric Acid:</u></p> <p>SULPHURIC ACID TECHNICAL GRADE SULPHURIC ACID AS PER IS: 266/1993 (REAFFIRMED 2003 WITH AMENDMENT-1)HAVING THE SPECIFICATIONS AS MENTIONED BELOW: 1. TOTAL ACIDITY (AS H₂SO₄): 98% MIN BY MASS. 2. RESIDUE ON IGINION :0.2%(MAX)BY MASS. 3. IRON(AS Fe) : 0.05%(MAX) BY MASS. 4. HEAVY METALS (AS LEAD):0.005 %(MAX) BY MASS. 5. ARSENIC (AS AS):0.004 %(MAX) BY MASS.</p>	700 MT	Alumina Refinery, Nalco, Damanjodi
2	<p><u>Coal Mill Liners:</u></p> <p>CYLINDRICAL LINER(HIGH CHROME)AS PER DRG NALCO/MECH/SPP/3301 SHEET 1 TO 5 MUST HAVE FOLLOWING CHEMICAL COMPOSITION AND PHYSICAL PROPERTIES: C-2.4-2.8%;CR-22.0-28.0%;MN-1.5% MAX NI-0.5%MAX;MO-0.6%MAX HARDNESS-57-62 RC RETAINED AUSTENITE:MAX 5% PRIMARY CARBIDES IN MARTENISTIC MATRIX.</p>	288 Nos	Alumina Refinery, Nalco, Damanjodi
3	<p><u>MS ERW Steel Pipe:</u></p> <p>Size: 350 NB Thickness of Pipe: 9.5 mm thick (minimum) Confirming to IS with Gr.: IS:3589, Gr. Fe 410 End Connection: Bevelled End Working Pressure: 26 Kg/sq cm(g) Test Pressure: Pipe shall be tested hydraulically as per relevant Standard at twice the working pressure. Required pipe length for each pipe segment: 10 to 12 M (preferably).</p>	7000 to 8000 Mtr	Captive power Plant, Nalco, Angul
4	<p><u>POLY ALUMINIUM CHLORIDE (LIOUID)</u> OF HIGH BASICITY USED FOR TREATMENT OF RAW WATER CONFIRMING TO IS: 15573:2005 OR LATEST REVISION</p>	600 MT	Captive power Plant, Nalco, Angul
5	<p><u>BORIC ACID GRANULAR</u></p> <p>TYPICAL CHEMICAL ANALYSIS AS PER FOLLOWING: BORIC OXIDE(B₂O₃): 56.22% WATER(H₂O) : 43.58% CHLORIDE(CL) : 0.01% SULPHATE(SO₄) : 0.1% IRON(Fe) : 0.005% ASSAY(H₃BO₃): 99.5% MINIMUM</p>	100000 KG	Smelter Plant, Nalco, Angul

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6	<p><u>THERMOCOUPLE N TYPE</u></p> <p>211 D X 270 D X L 1120 MM ELEMENT: MINERAL INSULATED THERMOCOUPLE TYPE N, MICROBELL D SEATH MATERIAL, SEATH DIA 8 MM OD INTERNAL SEATH: CERAMIC KER 710 PROTECTING TUBE- 17 OD X 13 ID MM CLOSED AT BOTTOM END EXTERNAL SEATH: SEAMLESS / EXTRUDED PROTECTION TUBE (THERMO WELL KANTHAL APM 26.67 MM OD X 20.93 MM ID CLOSED AT BOTTOM END) DIE CAST ALUMINIUM HEAD (TYPE A) WITH CERAMIC BLOCK SPECIAL CABLE ENTRY GLAND EXTENSION WIRE AS SILICON RUBBER INSULATION / FIBRE GLASS JACKET WITH SS OVER BRAIDING OVERALL (3 MTR LONG) WITH JAB IN MALE FEMALE CONNECTOR THE THERMO COUPLE SHALL BE SIMPLEX, UNDERGROUND LENGTH BELOW TERMINAL BLOCK : 1110 MM COMPLETE WITH TERMINAL BLOCK AND TERMINALS. THE ABOVE MATERIAL MUST BE SUITABLE TO WITHSTAND A MAX TEMP OF 1300 DEG CENTIGRADE FOR SHORT DURATION AND CONTINUOUS TEMP OF 1160 DEG CENTIGRADE IN CARBURISING SULPHUROUS ATMOSPHERE OR OTHER REDUCING ADVERSE CONDITION OF OUR FURNACE</p>	300 Nos	Smelter Plant, Nalco, Angul
7	<p><u>ALUM {NON-FERRIC}</u></p> <p>TECHNICAL GRADE CONFORMING TO IS: 260/2001 OF LATEST REVISION (SUPPLIED IN 500GM TO 3KG PIECES PACKED IN 40KG NEW HDPE BAG.</p> <p>DEVIATION IN PRODUCT PURITY WOULD BE ACCEPTED WITH PRORATA DEDUCTION WHICH IS AS FOLLOWS:</p> <p>i. ALUMINA CONTENT BELOW 17% UP TO 15% WILL BE ACCEPTABLE WITH PRORATA PRICE DEDUCTION FOR EVERY 0.1% VARIATION @ 0.6% ON LANDED COST. BEYOND THIS RELAXATION, THE MATERIAL SHALL BE OUTRIGHTLY REJECTED.</p> <p>ii. PH VALUE OF 5% SOLUTION UP TO 2.8 (MIN.) WITH PENALTY FOR EVERY 0.1% VARIATION @ 0.2% ON THE LANDED COST.</p> <p>iii. INSOLUBLE MATTER UP TO 0.3% (MAX.) WITH PENALTY FOR EVERY 0.01% VARIATION @ 0.05% ON THE LANDED COST.</p> <p>iv. IRON CONTENT UP TO 0.01% (MAX.) WITH PENALTY FOR EVERY 0.001% VARIATION @ 1% ON THE LANDED COST.</p>	720 MT	Smelter Plant, Nalco, Angul



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8	<p><u>STEEL SHOTS OF SS-1400 GRADE.</u></p> <p>HEAT TREATED STEEL SHOTS, GRADE: SS-1400 & AS PER IS-4606 OF 1983(AS AMENDED UPTO- DATE) SIZE:- 2.00MM - ALL PASS. 1.40MM-85% MIN. ETAIN, 1.18MM-12% MAX. RETAIN PAN-3% MAX.RETAIN NOTE: Chemical Composition: Carbon-0.6 to 1.25% Manganese-1.25% max. Silicon-0.2 to 1.1% Sulphur-0.08% Max. Phosphorous-0.08% Max. Hardness-400-550HV Packing- Steel Shots shall be packed in double line bag each weighing 25KG.</p>	360 MT	Smelter Plant, Nalco, Angul
9	<p><u>Flue wall Bricks for ABF I</u> Consisting following item:</p> <ol style="list-style-type: none"> 42-44% AL₂O₃ REFRACTORY BRICKS WITH IDENTIFICATION MARK ' A-229' A-182 43% Al₂O₃ BRICK. MARK: A - 182.DRG.NO:NAL/05/ABF/FW/BS/126. 42-44% AL₂O₃ REFRACTORY BRICK WITH IDENTIFICATION MARK ' A-277' TextB1-460 BRICKS 43% Al₂O₃ BRICK. MARK:B1-460 .DRG. NO: NAL/05/ABF/FW/BS/124. B2-46043% Al₂O₃ BRICK. MARK: B2-460. DRG.NO:NAL/05/ABF/FW/BS/125. REFRACTORY BRICKS MARK T-260.5.DRG.NO:NAL/05/ABF/FW/BS/118 ABF MORTAR. 	240 sets	Smelter Plant, Nalco, Angul
10	<p><u>Flue wall Bricks for ABF II & III</u> Consisting following item:</p> <ol style="list-style-type: none"> DENSE REFRACTORY BRICKS, TYPE-K1 FOR ABF-II & III. DENSE REFRACTORY BRICKS, TYPE-K2 FOR ABF-II & III. DENSE REFRACTORY BRICKS, TYPE-K3 FOR ABF-II & III. DENSE REFRACTORY BRICKS, TYPE-L1 FOR ABF-II & III. DENSE REFRACTORY BRICKS, TYPE-L2 FOR ABF-II & III. DENSE REFRACTORY BRICKS, TYPE-L3 FOR ABF-II & III. DENSE REFRACTORY BRICKS, TYPE-M FOR ABF-II & III. DENSE REFRACTORY BRICKS, MARK-E FOR ABF-II & III. AIR SETTING CEMENT MORTAR FOR ABF-II & III. 80%AL₂O₃ CALCINED BAUXITE MARK-CB FOR ABF-II & III. 	240 sets	Smelter Plant, Nalco, Angul
11	<p><u>Anode Carrying Pallets</u> ANODE CARRING PALLET FOR RODDED ANODE TRANSPORTATION ANODE CARRYING PALLETS FOR RODDED ANODE AND BATH TRANSPORTTION. AS PER OUR DRAWING NO :ROD/GA/MECH/A0/4281 REV.02 MATERIALS: CARBON STEEL AS BELOW : A) IS-226 (FOR 5MM TO 20 MM THICK PLATE) B) IS-2062 (FOR 20MM PLATE AND ABOVE)</p>	50 EA	Smelter Plant, Nalco, Angul

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12	<p><u>SULPHURIC ACID</u> SULPHURIC ACID TECHNICAL GRADE SULPHURIC ACID AS PER IS: 266/1993 (REAFFIRMED 2003 WITH AMENDMENT-1)HAVING THE SPECIFICATIONS AS MENTIONED BELOW: 1. TOTAL ACIDITY (AS H₂SO₄): 98% MIN BY MASS. 2. RESIDUE ON IGINION :0.2%(MAX)BY MASS. 3. IRON(AS Fe) : 0.05%(MAX) BY MASS. 4. HEAVY METALS (AS LEAD):0.005 %(MAX) BY MASS. 5. ARSENIC (AS AS):0.004 %(MAX) BY MASS.</p>	Approx 700 MT	Alumina Refinery, Nalco, Damanjodi
13	<p><u>COAL MILL LINERS</u> CYLINDRICAL LINER(HIGH CHROME)AS PER DRG NALCO/MECH/SPP/3301 SHEET 1 TO 5 MUST HAVE FOLLOWING CHEMICAL COMPOSITION AND PHYSICAL PROPERTIES: C-2.4-2.8%;CR-22.0-28.0%;MN-1.5% MAX NI-0.5%MAX;MO-0.6%MAX HARDNESS-57-62 RC RETAINED AUSTENITE:MAX 5% PRIMARY CARBIDES IN MARTENISTIC MATRIX.</p>	Approx 288 Nos	Alumina Refinery, Nalco, Damanjodi
14	<p><u>DIASTAR FILTER BAGS</u> Diastar filter bags made of tetex monofilament polypropylene - Mono 05-1020-SK 025 of Sefar Fyltis or PP26210Z of Clear Edge Filtration. Heat set and laquered on both sides for 6 channel (Six Channel) Diastar filter bags of Gaudfrin security filter.</p>	Approx 2,000 Nos	Alumina Refinery, Nalco, Damanjodi
15	<p><u>POWER CABLE</u> 3CX50 (POWER CORE) + 3CX16 (EARTH CORE) SQMM , 6.6KV(UE) MULTISTRAND FLEXIBLE TRAILING COPPER CABLE, GENERALLY CONFIRMING TO IS:9968(PART-2)-2002. POWER CORE: 3X50 SQMM POWER CORE, ANNEALED ,FLEXIBLE,TINNED COPPER CONDUCTOR (CLASS-5 CONF.TO IS:8130/84), CONDUCTOR SCREENED WITH BLACK EXTRUDED SEMI CONDUCTING COMPOUND.EPR (TYPE:IE-3 TO IS:6380/84), INSULATED, CORES SCREENED WITH BLACK EXTRUDED SEMI CONDUCTING COMPOUND AND COMPOSITE BRAID OF ATC & NYLON, CORE IDENTIFICATION RED, YELLOW & BLUE.EARTH CORE:3X16 SQMM EARTH CORE, ANNEALED, FLEXIBLE, TINNED COPPER CONDUCTOR (CLASS-5 CONF.TO IS:8130/84), COVERING WITH BLACK EXTRUDED HR ELASTOMERIC COMPOUND. CORES IDENTICAL WITH OPEN SPIRAL OF COLOURED PC TAPED HAVING COLOUR GREEN. 3 POWER CORES ARE LAID UP AROUND AND HR ELASTOMERIC CENTRE WITH THE EARTH CORES PLACED AT THE OUTER INTERSTICES.BINDER TAPED, INNER SHEATHED WITH BLACK HD HOFr PCP(TYPE:SE-4 CONF.IS:6380/84), REINFORCED WITH OPEN BRAID OF NYLON AND OUTER SHEATHED WITH BLACK HD HOFr PCP (TYPE:SE-4 CONF.IS:6380/84). THE CABLE MUST BE 440 METER IN A SINGLE LENGTH WITH METER MARKING. THE LENGTH OF CABLE CAN BE +2.5%, BUT NOT ON MINUS SIDE, I.E NEGATIVE TOLERANCE NOT ACCEPTABLE. THE CABLE SHALL BE SUITABLE FOR REELING AND UN REELING APPLICATION.</p>	Approx 2000 mtrs	Alumina Refinery, Nalco, Damanjodi

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16	<p><u>CONTROL CABLE</u> 1100/650V STRANDED CU.ARMoured PVC CONTL.CABLE 2CORE X 1.5SQ.MM 2 CORE * 1.5 SQ MM PVC,ARMoured CONTROL CABLE WITH THE FOLLOWING SPECIFICATION: CONDUCTOR:SIZE IS 1.5 SQ MM,STRANDED,NO OF STRANDS/DIA OF EACH STRAND(MM)=7/0.5 ,ANNEALED,TINNED COPPER CONDUCTOR,HR PVC TYPE C INSULATED, EXTRUDED HR PVC INNER SHEATHED,SINGLE LAYER OF ROUND GALVANISED STEEL WIRE ARMoured AND OVERALL HR PVC SHEATHED TYPE ST-2,UNSCREENED CABLE SUITABLE FOR 1100 VOLTS GRADE CONFIRMING TO IS:1554(PART-1) / IS:5831 WITH LAT- EST AMMENDMENT. STANDARD LENGTH OF THE DRUM:500 +/- 5%MTR.</p>	Approx 1000 mtrs	Alumina Refinery, Nalco, Damanjodi
17	<p><u>SIGNAL CABLE</u> (3 PAIR X 0.5 SQMM) 06 core SIGNAL CABLE OF SINGLE STRAND ANNEALED BARE COPPER CONDUCTOR , EXTRUDED PVC TYPE-A INSULATED, TWISTED AND INDIVIDUAL SCREENED WITH AL-MYLAR TAPE WITH OVERALL SCREEN WITH LENGTH MARKER. GALVANISED STEEL WIRE / STRIP ARMoured EXTRUDED PVC ST-1 OUTER SHEET 600 GRADE SIGNAL CABLE 3 PAIR (6 CORE) X 0.5 SQRMM. STANDARD LENGTH OF THE DRUM: 500 MTR +/-5%. LENGTH OF THE CABLE IN METER SHALL BE EMBOSSED ON THE BODY.</p>	Approx 500 Mtrs	Alumina Refinery, Nalco, Damanjodi
18	<p><u>TELEPHONE CABLE</u> POLYTHENE INSULATED JELLY FILLED ARMoured 100/0.5M JELLYFILLED U/GROUND ARMoured TELEPHONE CABLES ANNEALED PLAIN HIGH CONDUCTIVITY COPPER CONDUCTOR ,POLYTHENE INSULATED COLOUR CODED CORE TWISTED WATER RESISTANT PETROLEUM JELLYFILLED POLYALTAPE COATED POLYTHENE SHEATHED SHEATH HELICALLY LAPED WITH WATERPROOF COTTON/POLYTHENE TAPE ARMoured WITH GALVANISED DOUBLE STEEL TAPE CONFORMING TO ITD SPFN G/CUG-01/02 FEB'96 SIZE. 0.51MM X 100 PAIRS. DRUM OF SINGLE LENGTH 1000 MTR +- 5%, TOLERANCE: +/- 5% OF OVERALL LENGTH. VENDOR SHOULD PROVIDE VENDOR TEST CERTIFICATE ALONG WITH THE MATERIAL.</p>	Approx 500 Mtrs	Alumina Refinery, Nalco, Damanjodi
19	<p><u>TELEPHONE DROP WIRE 0.9X2 CORE</u> DROP WIRE CADMIUM COPPER CONDUCTOR 2 CORE X 0.9MM USED FOR TELEPHONE CONNECTION. MINIMUM SINGLE LENGTH 500 MTRS, TOLERANCE: +/- 5%.</p>	Approx 200 mtrs	Alumina Refinery, Nalco, Damanjodi

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20	<p>HT motors of various specification like</p> <p>3 Phase AC Squirrel cage Induction motor of following specification: 350KW, Voltage: 6600Volts (+/-) 10%, Frequency: 50Hz (+/-) 5%, Poles: 4, RPM: 1478 RPM, Bidirectional, Enclosure: CACA with steel tube, insulation class: F, Connection: Star, Degree of protection: IP55, Mounting: B3, Duty: S1, Confirming to IS: 325, Frame: 400. Method of cooling: IC611, DOL starting, ambient of 47degree Celsius.</p> <p>SQUIRREL CAGE INDUCTION MOTOR, 320KW,STAR CONNECTION, 6600V(+/)10%,50HZ (+/-)3%,1485 RPM,35AMP, FRAME:AVMW450ML, B3 MOUNTING, IP55,TETV.</p>	Approx 5 Nos	Alumina Refinery, Nalco, Damanjodi
21	<p>LT motors of various specification like</p> <p>0.75KW,3PH.AC,SCIM SUITABLE FOR 415V(+/-10%),50HZ(+/-5%), FRAME:-80, DUTY;S4, RPM:1480, MOUNTING:B5, INS.CLASS-F,TEFC,IP-55, . MOTOR IS SUITABLE FOR DOL STARTING. MOTOR SHALL CONFORM TO IS-325 .</p> <p>0.75KW,3PH.AC,SCIM SUITABLE FOR 415V(+/-10%),50HZ(+/-5%), FRAME: ILB4036-6 (FRAME-80) DUTY;S4, RPM:885, MOUNTING:B3, INS.CLASS-F,TEFC,IP-55, . MOTOR IS SUITABLE FOR DOL STARTING. MOTOR SHALL CONFORM TO IS-325 .</p> <p>3.7KW, 3PH.AC,SCIM SUITABLE FOR 415V(+/-10%),50HZ(+/-5%), FRAME:-100L, DUTY;S4, RPM:1425, MOUNTING:B35, INS.CLASS-F,TEFC,IP-55, . MOTOR IS SUITABLE FOR DOL STARTING. MOTOR SHALL CONFORM TO IS-325 .</p> <p>15KW, 3PH.AC,SCIM SUITABLE FOR 415V(+/-10%),50HZ(+/-5%), FRAME:-160L, DUTY;S4,CDF 40%, RPM:960, MOUNTING:B3, INS.CLASS-F,TEFC,IP-55, . MOTOR IS SUITABLE FOR DOL STARTING. MOTOR SHALL CONFORM TO IS-325 .</p> <p>0.25KW, 3PH.AC,SCIM SUITABLE FOR 415V(+/-10%),50HZ(+/-5%), FRAME:-QU71MCBT, DUTY;S1, RPM:860, 2.1A,MOUNTING:B5, INS.CLASS-F,TEFC,IP-55, . MOTOR IS SUITABLE FOR DOL STARTING. MOTOR SHALL CONFORM TO IS-325 .</p> <p>0.75 KW, 3PH.AC,SCIM SUITABLE FOR415V(+/-10%),50HZ(+/-5%),4 POLE, EFFICIENCY CLASS:IE2,INSULATION CLASS-F.TEMP RISE UPTO CLASS B.FRAME-80 , B5 MOUNTING,IP:55,COOLING:TEFC. STARTING: DOL START.DUTY-S1.AMBIENT TEMP. :50 DEG.CENT,ALTITUDE:1000MT,ENVIRONMENT:CAUSTIC & LIME DUST IS CONFIRMATION:12615& 325</p> <p>22KW, 3PH.AC,SCIM SUITABLE FOR415V(+/-10%),50HZ(+/-5%),2 POLE,EFFICIENCY CLASS:IE2,INSULATION CLASS-F.TEMP RISE UPTO CLASS B.FRAME-180ML ,B3 MOUNTING,TERMINAL BOX POSITION:RHS(VIEWED FROM DE END). GREASING PROVISION:BOTH ENDS. IP:55,COOLING:TEFC. STARTING: DOL START.DUTY-S1. AMBIENT TEMP. :50</p>	Approx 30 Nos	Alumina Refinery, Nalco, Damanjodi



	<p>DEG.CENT,ALTITUDE:1000MT,ENVIRONMENT:CAUSTIC IS CONFIRMATION:12615&325"</p> <p>22KW, 3PH.AC,SCIM SUITABLE FOR415V(+/-10%),50HZ(+/-5%),2 POLE,EFFICIENCY CLASS:IE2,INSULATION CLASS-F.TEMP RISE UPTO CLASS B.FRAME-180ML ,B3 MOUNTING,TERMINAL BOX POSITION:RHS(VIEWED FROM DE END). GREASING PROVISION:BOTH ENDS. IP:55,COOLING:TEFC. STARTING: DOL START.DUTY-S1. AMBIENT TEMP. :50 DEG.CENT,ALTITUDE:1000MT,ENVIRONMENT:CAUSTIC IS CONFIRMATION:12615&325"</p> <p>SLIP RING INDUCTION MOTOR, 3.3 KW, 8.6A, FRAME-1LT31146 (112M), 850 RPM, 415V, INSL-B/F,PF-0.77, IP-55, ROTOR V-115V, ROTOR A-20.5A, 40CDF.MAKE- BBL OR EQUIVALENT.</p> <p>SLIP RING INDUCTION MOTOR,1.1 KW, 3.5A, FRAME- 1LT3106-6, 850 RPM, 415V, PF-0.71,INS CLASS- B/F, M/C NO. M9606890, IP 55, ROTOR V-65V ROTOR A- 13A,</p> <p>SLIP RING INDUCTION MOTOR, 2.4 KW, 6.4 A, FRAME- 1LT3113-6, 840 RPM, 415V, INS CLASS-B/F PF-0.74, IP 55, DUTY S3,40 CDF,ROTOR V- 90V, ROTOR A- 20.5A</p> <p>SLIP RING INDUCTION MOTOR, 30KW 980 RPM MC NO.- ADWT50038,V-415V,AMP -55A, INS CLASS-F, 50 Hz, DUTY -S4,FRAME 250M, ROTOR V-320V, ROTOR A- 56A,</p> <p>SLIP RING INDUCTION MOTOR, 1.5KW, 415V, AMP-4A, RPM-930, FR- 132S,DUTY- S4, INS CLASS -F ,M/C NO.- BDWF1947, AMB-47 DEG C,ROTOR V/RA: 260/3</p> <p>SLIP RING INDUCTION MOTOR, 3.7 KW, 415V, 8.5A, FRAME- 132S, RPM- 940, M/C NO.-BDWF2934, INS CLASS- F, DUTY S4, AMB -47 DEGREE C,</p> <p>SLIP RING INDUCTION MOTOR, 8.2 KW, RPM- 950, 415V, 18A, FRAME- DW 160L, M/C NO.- ADWJ50112, DUTY -S4, INS CLASS - F, 40% CDF ,IP55, BRGS- N209/6209 ,ROTOR V/RA: 350/13,</p> <p>SCIM, 0.75 KW, 415V, 2.0A,P.F.- 0.71, FRAME-90S, INS CLASS-F/B, RPM- 925, AMB-50 DEG C,S4, CDF -40%, B3 , IP 55, EFF-73%,</p> <p>83KW,280M,4P,B3 MOTOR SCIM, 83KW,415V(+/-10%),50HZ(+/-5%),FRAME-280M ,1480RPM, B3 MOUNTING,EFFICIENCY CLASS:IE2,INSULATION CLASS-F.TEMP RISE UPTO CLASS B.,TERMINAL BOX POSITION:RHS(VIEWED FROM DE END). GREASING PROVISION:BOTH ENDS. IP:55, COOLING:TEFC.CABLE ENTRY PLATE:1 RUN X 95 SQMM.STARTING: VFD START.DUTY-S1. AMBIENT TEMP. :50 , DEG.CENT, ALTITUDE:1000MT,ENVIRONMENT:CAUSTIC IS CONFIRMATION:12615 & 325</p>		
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