

PREFACE

*The booklet “**ANCILLARY ACTIVITIES & SCOPE FOR MSEs IN M&R COMPLEX**” is a maiden venture by Materials Management Department of M & R Complex. This booklet provides readymade information in brief on different spares/materials used at Mines & Refinery, which can be developed and supplied by Micro and Small Entrepreneurs. Though the information available in the booklet are not exhaustive but may be of interest to the entrepreneurs to start with.*

This booklet contains the following information on each item:

- 1. Colour Photograph*
- 2. Specification*
- 3. Annual requirement with an approximate unit basic price*

If desired, the MSEs can see these items in the Plants and further discussions with the Users / Technical Departments can be arranged.

The booklet is also informative in brief on downstream industries & service providing units those can be established by interested entrepreneurs in and around Damanjodi for mutual benefit of the entrepreneurs and NALCO.

It has been the endeavor of NALCO, since inception, to expand it’s vendor base and preference is always given to the entrepreneurs within the state. With the various policies enforced by Government of India for development of MSEs and the facilities extended by Nalco, it is felt that this booklet shall be of help to the MSEs to be the business partners of this Company.

**Damanjodi
(Materials)
5th June 2013**

**General Manager

M&R Complex.**

NALCO



National Aluminium Company Limited (NALCO), the Asia's largest integrated Aluminium Complex, in the Public Sector, incorporated in 1981 encompassing Bauxite Mining, Alumina Refining, Aluminium Smelting & Power Generation, Rail and Port Operations. Commissioned during 1985-87, Nalco has emerged to be a star performer in production, export of Alumina and Aluminium, and more significantly, in propelling a self-sustained growth.

The Bauxite Mines and Alumina Refinery Plant of NALCO are situated at Damanjodi in Koraput District. The Smelter & Captive Power Plant are situated in Angul District of Odisha and the Port Facilities at Visakhapatnam, Andhra Pradesh.

BAUXITE MINES



*Bauxite is the primary raw material to produce Alumina. NALCO has a fully mechanized open cast **Bauxite Mines** on Panchpatmali hills of Koraput District of Odisha having a capacity of mining 63 lakh tons per annum, which serves to feed stock to Alumina Refinery at Damanjodi. The transportation of bauxite is done through a 14.6 Km long variable speed, single flight, multi-curve, cable belt conveyor. The capacity of the conveyor is 900 to 1800 Tons Per Hour. The bauxite received at Refinery is processed to produce Alumina Hydrate and Calcined Alumina.*

ALUMINA REFINERY



*The **Alumina Refinery Plant** of NALCO is situated in the picturesque valley of Damanjodi. The energy efficient Refinery Plant has four parallel streams of equal capacity. The annual production capacity of the plant is 21 lakh tons.*

The Refinery is designed to feed Alumina to NALCO's Smelter Plant at Angul & exports the balance Alumina to overseas markets through Visakhapatnam Port. Alumina is transported through Nalco's own dedicated BTAP wagons. In addition to above, a considerable quantity of alumina is sold to the indigenous customers, which are transported by road.

ALUMINIUM SMELTER



*The 4,60000 TPA capacity **Aluminium Smelter**, located at Angul in Odisha, is based on advanced technology of smelting and pollution control. The plant manufactures Ingots, Sows, Billets, Wire Rods, Strips and Rolled Products, besides T.Ingot and Chequered Sheets.*

CAPTIVE POWER PLANT



Close to the Aluminium Smelter at Angul, a Captive Power Plant of 1200 MW Capacity has been established for firm supply of power to the Smelter. The coal demand of the Plant is met from a nearby mine of Mahanadi Coalfields Limited. The plant is also connected with the State Grid for sale of surplus power.

PORT FACILITIES

On the inner harbor of Visakhapatnam Port on the Bay of Bengal, Nalco has mechanized storage and ship handling facilities for export the Alumina and import of caustic soda. Nalco also exports metal from the ports of Paradeep and Kolkata.

REFINERY ITEMS OF INTEREST TO MSEs



HYPER STEEL GRINDING MEDIA BALLS

Size- 75mm/90mm/100mm

Annual requirement - 450 MT

Approximate Unit Price: Rs. 52,000.00

Specification:

Hyper Steel Grinding Media Ball

as per IS: 6079/1989 Grade 2.

Chemical Composition

Carbon 1.60 % - 1.90%

Silicon 1.0 %Max.

Manganese 1.20% – 1.50%

Chromium 1.50% - 2.00%

Sulphur 0.06% Max

Phosphorus 0.06% Max

Hardness (Tested in accordance with IS 1500:1983) = 375 BHN (Minimum)



HIGH CHROME GRINDING MEDIA BALLS

High Chrome Grinding media 50 mm dia, 90 mm dia

Chemical composition:

Element	Min(%)	Max(%)
Carbon-	1.8	3.5
Manganese-	0.5	1.5
Chromium	11	18
Nickel		2
Molybedenum		2.5
Copper		2
Silicon		1
Sulphur		0.1
Phosphorous		0.1

Hardness- 57 HRC minimum

Retained austenite 15% maximum

Annual requirement - 150 MT

Approximate Unit Price: Rs. 66,000.00



SILPAULINE:

Material Code: 87507060290

Specification

Silpaulin 150 gsm with Aluminium Eyelets

Size: 24' x 21'

Annual requirement : 20 Nos

Approximate Unit Price : Rs. 2500/-



HDPE LAMINATED WOVEN BAGS

Material Code : 88101009541

Specification:

Bag Size : 24 x 36 Inch

Mesh : 10 X10 (Uniform)

Linear density of tapes :111 Tex (1000 Denier)

Av. Breaking strength of fabric :69 Kgf(Min) Length wise
87 Kgf (Min)-Width wise

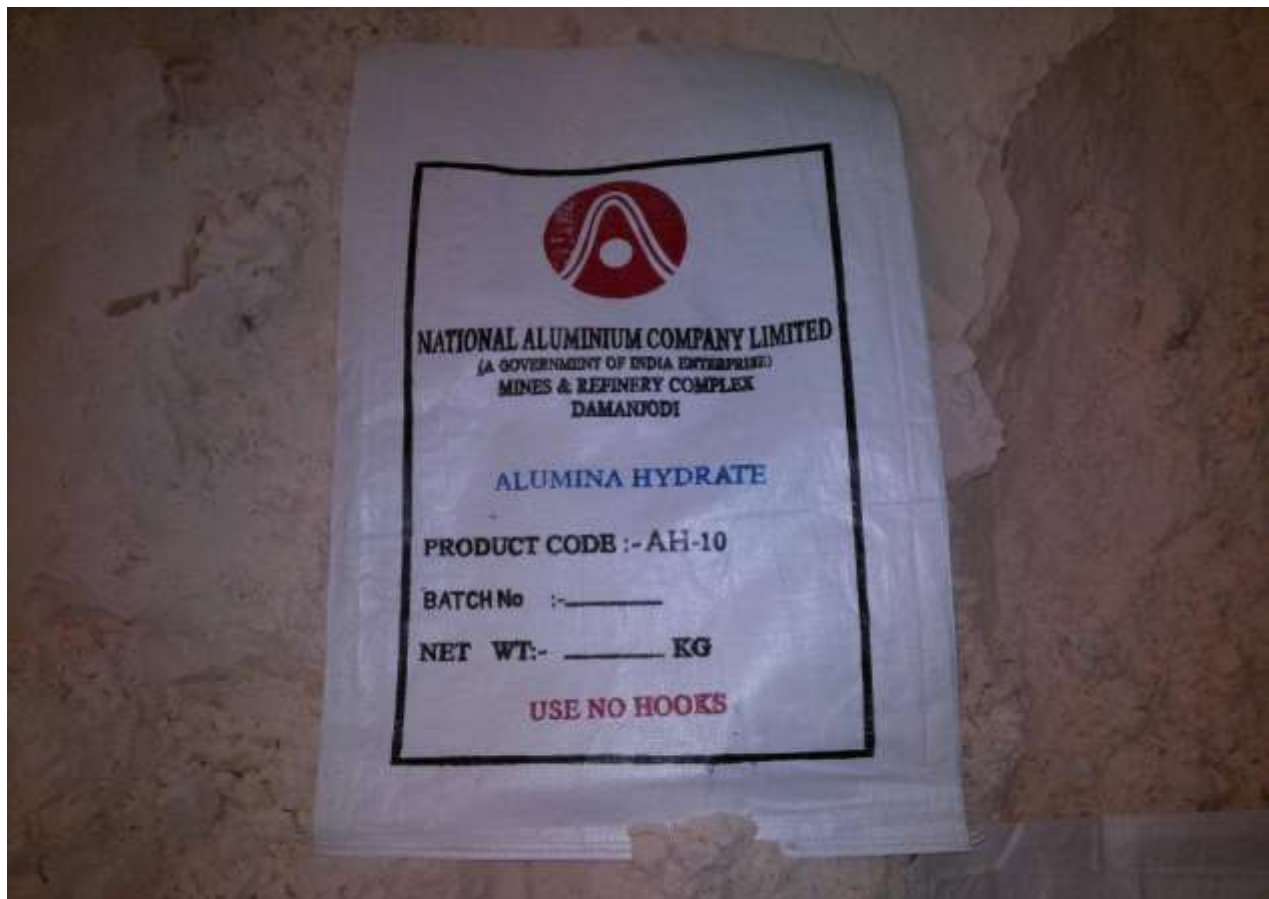
Average weight of bag : 150 grams

Stitching : As per IS 10789

Printing : Printing matter legible

Annual requirements : 10, 00,000 Nos

Approximate Unit Price : Rs.15.30



HAND GLOVES

Material Code : 94605006860

Size: 12", 14" & 16"

Specifications:

Leather canvas hand gloves made out of 140z heavy drill cotton with palm and front facing fingers made of natural soft split single palm type leather hand gloves in 1.5mm thickness confirming to is 6994

Annual requirements: 1800 Nos.

Approximate Unit Price : Rs.70.00



NOSE MASK:

Material Code: 94608025190

Specification:

Anti dust respirator

3m 8710 in dust/mist respirator, filtration capacity 0.03 microns.

Annual requirement : 800 Nos

Approximate Unit Price : Rs. 48/-



POLYTHENE SHEET

Material Code : 87507004140

Specification :

Polythene sheet 250 gauge. width 10 ft.

Annual requirements: 2000 Kg

Approximate Unit Price : Rs. 133/-



REFRACTORY BRICKS

The Annual requirement of Refractory Bricks is about 3600 Numbers of of different variety bricks. The approximate unit cost on average is about Rs. 180/-.



COAL PIPE BEND:

Material code: 14601056630

Specification:

Coal Pipe Bend R-650, L-811

Nalco Drawing Reference: NALCO/MECH/SPP/2837

MOC: Cast Steel IS 2856 Gr.III

Annual requirement : 25 Nos.

Approximate Unit Price : Rs. 32,000/-



EMERGENCY COOLING WATER NOZZLE **ASSY. BOTTOM:**

Material Code : 13900341210

Drawing No.NALCO/MECH/MISC/2456, Rev-1

Annual Requirement : 03 Nos.

Approximate Unit Price: Rs.8,000/-



INNER SHAFT FOR AIR CLASSIFYING MILL:

Material Code:166021070220
Drawing No.NALCO/MECH/3648

Annual Requirement: 02 Nos.
Approximate Unit Price: Rs. 3,150/-



ECW NOZZLE ASSEMBLY (MIDDLE):

Material Code : 13900341140

Drawing No.NALCO/MECH/MISC/2457, Rev-1

Annual Requirement : 02 Nos.

Approximate Unit Price: Rs.12,000/-



CALCINER- A/B FURNACE BUBBLE CAP NOZZLE:

Material Code : 13900292440
Drawing No.NALCO/MECH/MISC-1300

Annual Requirement : 30 Nos.
Approximate Unit Price: Rs. 2,450/-



RING PLATE

Mat code: 13900296370

Ring Plate Calciner-C Furnace Bubble Cap

Drawing Reference: NALCO/MECH/3170, Rev-01, Item no.4

Annual Requirement : 35 Nos.

Approximate Unit Price: Rs.1,800/-



SCREW CONVEYOR GREASE RING:

Material Code:13900277740
Drawing No.NALCO/MECH/MISC-299

Annual Requirement: 16 Nos.
Approximate Unit Price: Rs. 275/-



CALCINER A/B BUBBLE CAP:

Material code:13900401060

Drawing No.NALCO/MECH/MISC-1609

Annual Requirement: 20 Nos

Approximate Unit Price: Rs. 5,050/-



CALCINER-C FURNACE BUBBLE CAP:

Material code:13900296130

Drawing No. NALCO/MECH/3170, Rev-01, Item no.1

Annual Requirement : 30 Nos.

Approximate Unit Price: Rs. 8,800/-



KELLY FILTER CARRIAGE WHEEL **ASSEMBLY:**

Material code:13101023010
Drawing No.NALCO/P&D/M-256

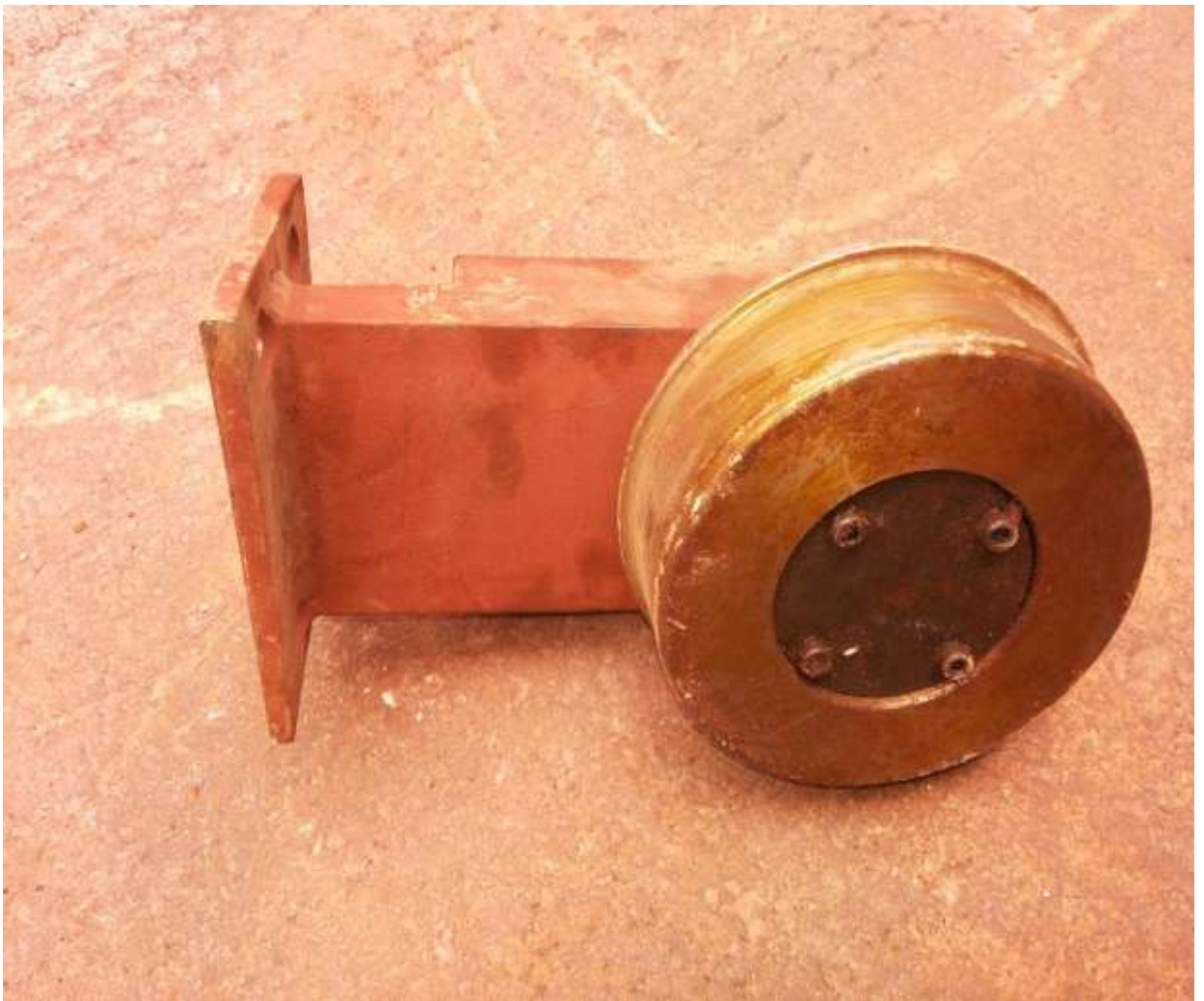
Annual Requirement : 27 Nos.
Approximate Unit Price : Rs. 2,650/-



CHUTE GUIDE WHEEL ASSEMBLY:

Material code: 13310009160
Drawing No. NALCO/MECH/2976

Annual Requirement: 07 Nos.
Approximate Unit Price :Rs.1595/-



TIE ROD FOR DISC FILTER:

Material code:13310008590

Drawing No. NALCO/MECH/DF0313, R-4

Annual Requirement:81 Nos.

Approximate Unit Price : Rs.465/-



DISC FILTER SEGMENT CLAMP:

Material code:13310000280

Drawing No. NALCO/MECH/TB-1271,REV-01.

Annual Requirement: 85 Nos.

Approximate Unit Price : Rs.325/-



FILTER ELEMENT FOR UNFILLING EQUIPMENT:

Material code: 25010075930

Installed quantity: 64

Annual Requirement: 32 Nos.

Approximate Unit Price : Rs.1946.70/-



CALCINER-C TOP EMMERGENCY COOLING WATER NOZZLE ASSEMBLY:

Material code:13900293870
Drawing No.NALCO/MECH/3287

Annual Requirement: 02 Nos.
Approximate Unit Price : Rs.12,000/-



HALF LINK FOR SCREW CONVEYOR:

Material code:14602045790

Drawing No.NALCO/MECH/SPP/1703, Sh. 3 of 4

Annual Requirement : 100 Nos.

Approximate Unit Price : Rs. 175/-



PLAIN HAMMER RING:

Material code:14925001080

Drawing No.NALCO/P&D/SGP/M/005

Annual Requirement:185 Nos.

Approximate Unit Price : Rs.876/-



FULL LINKS FOR SCREW FEEDER:

Material code:14602045620

Drawing No. NALCO/MECH/SPP/1703, Sheet 3 of 4, Item 20

MOC: SAE 950 Low alloy high tensile steel

Installation quantity : 32 Nos.

Annual Requirement :100

Approximate Unit Price : Rs.112/-



BAR WITH BOTH SIDES LINERS FOR SCRAPPER CONVEYOR:

Material code:10103914720
Drawing No. NALCO/MECH/Misc/463
MOC: IS-2062 Gr.A

Annual Requirement: 28 Nos.
Approximate Unit Price : Rs. 6,700 /-



FORGED CHAIN LINK FOR RC FEEDERS:

Material code:14601054870

Drawing No. NALCO/MECH/SGP/079,Rev.3

MOC: 20 Mn Cr.5 (links) C-45/50 (Flights)

Annual Requirement : 240 Nos.

Approximate Unit Price : Rs.1,250/-



GUIDE ROLLER:

Material code:16603551210

Drawing No.NALCO:MECH/3813

Installed quantity : 32 Nos.

Annual Requirement : 08 Nos.

Approximate Unit Price : Rs.1,250/-



GUIDE ROLLER ASSEMBLY:

Material code: 16603502900

Drawing No.NALCO/MECH/3742, Assembly-2

Annual Requirement : 100 Nos.

Approximate Unit Price : Rs.542/-



DISTRIBUTOR FOR EVAPORATOR:

Material code : 72985008650

Drawing No.NALCO/MECH/MISC-862, Rev.0

Annual Requirement: 200 Nos.

Approximate Unit Price : Rs.103/-



EVAPORATOR TUBE PLUG, SMALL:

Material code:13500917640

Specification: Evaporator Tube Plug – Small

Of shape – Truncated Cone

MOC: MS

Size: D-54 mm,Length 50 MM.

Annual Requirement : 50 nos.

Approximate Unit Price : Rs.119/-



EVAPORATOR TUBE PLUG:

Material code:13500917710

Specification: Evaporator Tube Plug

Shape: Truncated Cone

MOC : M.S. Size: D-60 mm, D-50 mm , Length- 50 MM.

Annual Requirement : 200 Nos.

Approximate Unit Price : Rs. 120/-



BUSH FOR PDS TANK AGITATOR:

Material code:15622151500

Drawing No.NALCO/MECH/3080, Rev-1

Item No. 2 of Drawing

Annual Requirement : 20 Nos.

Approximate Unit Price : Rs.2,850/-



CARRYING IDLER:

Material Code: 14107000100

Size : 251mm Dia x 114.3mm

Item No.1 of Drawing No.NALCO/MECH/MISC-2244

Annual Requirement : 50 Nos.

Approximate Unit Price : Rs.478/-



RETURN IDLER:

Material code : 14107005080

Size : 750mm x114.3mm Dia

Item No.2 of Drawing No.NALCO/MECH/MISC-2244

Annual Requirement : 50 Nos.

Approximate Unit Price : Rs.940/-



IMPACT IDLERS FOR 650MM CONVEYORS:

Material Code : 14107010060
Drawing No.NALCO/MECH/1263

Annual Requirement : 50 Nos.
Approximate Unit Price : Rs.650/-



IMPACT IDLERS FOR 650MM WIDTH CONVEYORS (TYPE-B):

Material code:14107010060
Drawing No.NALCO/MECH/1263

Annual Requirement : 50 Nos.
Approximate Unit Price : Rs. 883/-



SHEAR PIN FOR RAW COAL FEEDER:

Material code:90805011310

MOC: IS C-40

Drawing No.NALCO/MECH/SGP/376,Rev.2

Annual Requirement : 2000 Nos.

Approximate Unit Price : Rs. 20.00



8" YV 2 VALVE MODIFIED DISC & SEAT

Material Code: 95507448390

Nalco Drawing Ref: NALCO/MECH/MISC/TB/1413

MOC: Z30C (F) 13 (AFNOR) ASTM A 182 F6

Carbon: 0.25 – 0.34, Si: ≤ 1.0 , Mn: ≤ 1.5 , P P (Max) : 0.06

S: 0.15, Cr: 12 – 14, Mo: 0.15-0.60, Ni: ≤ 0.5

Note: Test Certificate to be submitted from Govt. Approved Test House with supply.

Annual Requirement : 06 Nos.

Approximate Unit Price : Rs. 9,200/-



PUMP SHAFT FOR LC 65/310

Material Code: 72945001600

Nalco Drawing Ref: NALCO/MECH/P/006/ Rev.4

MOC: EN 24/40 NI2 Cr1 Mo 28

Tolerance: As per IS 2102

Test Certificate to be submitted from Govt. Approved Test House with supply.

Annual requirement : 04 Nos.

Approximate Unit Price : Rs. 10,000/-



LINK FOR KELLY FILTER UMBRELLA

Material Code: 13101017150

Nalco Drawing Ref: NALCO/MECH/MISC/493 Rev.0

Total Length: 200mm

Hole to Hole Length: 150mm

Inclination : 45⁰

Hole Dia: 25.10mm

Thickness: 19.5mm

All tolerance as per IS 2102

Annual requirement : 39 Nos.

Approximate Unit Price : Rs. 1120/-



10" YV 2 VALVE MODIFIED DISC & SEAT

Material Code: 95507443030

Nalco Drawing Ref: NALCO/MECH/MISC/TB/1412

MOC: Z30C (F) 13 (AFNOR) ASTM A 182 F6

Carbon: 0.25 – 0.34

Si: ≤ 1.0

Mn: ≤ 1.5

P (Max) : 0.06

S: 0.15

Cr: 12 – 14

Mo: 0.15-0.60

Ni: ≤ 0.5

Test Certificate to be submitted from Govt. Approved Test House with supply.

Annual Requirement : 10 Nos.

Approximate Unit Price : Rs.10,000/-



GUIDE PULLEY FOR RAW COAL FEEDER **CHAIN LINK**

Material Code : 14601055060

Nalco Drawing Ref: NALCO/MECH/SGP/1916

MOC: EN 36

Sprocket tooth surface and guide pulley groove surface to be hardened to 45 to 50 HRC to depth of 2.5mm

Teeth Width:

Max – 50mm

Min – 30mm

Core Dia – 110 mm

Inner Radius – 153mm

Test Certificate to be submitted from Govt. Approved Test House with supply.

Annual Requirement : 10 Nos.

Approximate Unit Price : Rs. 4,500/-



RAW COAL FEEDER CHAIN LINK

Material Code : 14601041580

Nalco Drawing Ref : NALCO/MECH/SGP/079

MOC: ABRO 32 / Equivalent

Tolerance: As per IS 2102 (Fine)

Annual Requirement: 800 Nos.

Approximate Unit Price : Rs. 459.00



IMPELLER HUB CAP FOR LC 125/405

Material Code: 72946002310

Nalco Drawing Ref: NALCO/MECH/MISC/TB-1596

MOC: High Grade Alloy Steel

40 Ni 2 Cr 1 Mo 28 or

31 Ni 3 Cr 65 Mo 55 or

40 Ni 3 Cr 65 Mo 55

Min IZOD Impact Value: 3.5 Kgf M

Tensile Strength : 120-135 Kgf / mm Sq.

Tolerance : As per IS 2102 (Fine)

Annual requirement:60 Nos.

Approximate Unit Price : Rs. 990/-



IMPELLER HUB SCREW CAP FOR 65/310 PUMP

Material Code: 72945002650

Nalco Drawing Ref: NALCO/MECH/MISC-TB-1596/REV-1

Annual requirement :116 Nos.

Approximate Unit Price : Rs. 585/-



IDLER BRACKET

Material Code: 14110016190
Idler Bracket for 650mm Width Conveyor

Annual requirement : 30 Nos.
Approximate Unit Price : Rs. 1000/-



RETURN IDLER BRACKET

Material Code: 10103045530

'J' Type Return Idler Bracket for 1400mm Wide Conveyor

Nalco Drawing Ref: NALCO/P&D/M-111,Rev.0

Annual requirement : 100 Nos.

Approximate Unit Price : Rs. 167/-



SKIRT BOARDS

Material Code: 10103995400
Rubber Modular Side Skirt Boards
Hardness of Rubber 60 +/- 5 Shore A
Size: 200 W x 200mm H x 15mm Th

Annual requirement : 415 Nos.
Approximate Unit Price : Rs. 403/-



HAMMER FOR CRUSHER

Material Code: 12502000150

Hammers for Secondary Crusher

Set consisting of 36 Nos. Hammers

Nalco Drawing: NALCO/MECH/MISC-090,Rev.2

Annual requirement : 108 Nos.

Approximate Unit Price : Rs. 13,442/-



MOUTH PIECE

Material Code : 12501021880

Mouth Piece for 30mm spacing for Vibrating Screen

As per Table Sl.No.2 of Drawing : NALCO/MECH/3167, Rev.1

Annual Requirement: 500 Nos.

Approximate Unit Price : Rs. 275.00



VIBRATING SCREEN BAR

Material Code: 12501000560

Vibrating Screen Bar Dia 24mm

MOC: Alloy Steel,

Hardness : 460-480 BHN

Nalco Drawing Ref: NALCO/MECH/1454,R-0

Annual requirement : 126 Nos.

Approximate Unit Price : Rs. 1345/-



ALUBACK LINER

Material Code: 12501000700
Aluback Scrapper Rubber Liner Pre-cut
Size: 200mm W x 12mm L x 30mm Th

Annual requirement : 30 Nos.
Approximate Unit Price : Rs. 2,420/-



KELLY FILTER HEAD GASKET

Material Code: 13101101200

Kelly Filter Head Gasket

MOC: Neoprene Rubber

Nalco Drawing Ref. NALCO/MECH/MISC-1160,Rev.2

Annual requirement : 45 Nos.

Approximate Unit Price : Rs. 6,740/-



HANGING BEARING

Material Code: 16602170210

Hanging Bearing for ACM Screw Conveyor

Nalco Drawing Ref. NALCO/MECH/3560/SGH

Annual requirement : 5 Nos.

Approximate Unit Price : Rs. 1,055/-



HEAD PULLEY BUSHING

Material Code: 14603201760

Head Pulley bushing for Head Pulley Drive assembly

ID:22mm x OD:44.5mm, 40.2mm Length

Inside the bush shall be brass lined having thickness of 4mm

Butyle Rubber with Hardness : 65 +/- Shore A

Annual requirement : 400 Nos.

Approximate Unit Price : Rs. 300/-



RIFFLE DISTRIBUTOR ASSEMBLY

Material Code: 14602110830

Riffle Distributor Assembly (Small 10 Plates)

Drawing Ref: NALCO/MECH/SGP/1133

Consists of Item No. 1 to 9 of Drawing

MOC:

C : 0.23-0.27%,

Mn : 1.95-2.05%

Si : 1.4-1.6%

Cr : 24-26%

Ni : 19-22%

Hardness: 84-90 RC

Tensile Strength: 92-98

Annual requirement : 25 Nos.

Approximate Unit Price : Rs. 46,950/-



COAL NOZZLE TIP

Material Code: 14602101160

Coal Nozzle Assembly Type A (A-1,A-2,A-3,A-4)

Drawing Ref: NALCO/MECH/SPP/1466

Annual requirement : 60 Nos.

Approximate Unit Price : Rs. 68,500/-



U-LINK SHACKLE WITH CHAIN

Material Code: 10103915080

U Link Shackle with Locking Plate and Nuts for Scrapper Conveyor
1600mm Wide, 22x86mm

Drawing Ref: SK/NG/04/Rev.0

Annual requirement : 50 Nos.

Approximate Unit Price : Rs. 1,125/-



ESP BEARING

Material Code: 14700042280

Plain Bearing for Emitting Rapping Mechanism

As per BHEL 1-78-716-00238, Item No. 2

ESP Model : FAA-7x 36-60100-2

Annual requirement : 300 Nos.

Approximate Unit Price : Rs. 350/-



IMPACT PAD

Material Code: 10103220710

Impact Pad with mountings and fastners for 1000mm width Conveyor Belt to Absord shock and to arrest spillage. Specification of belt – Belt speed 2.3M/Sec. capacity 600 TPH. Usually runs at 10% over load.

Material Handled: Raw Coal with free fall of 2 Mtrs.

Annual requirement : 30 Nos.

Approximate Unit Price : Rs. 38,000/-



RETURN IDLER 1000mm WIDTH

Material Code: 10103028140

Return Idler for 1000mm Belt

Drawing Reference: NALCO/SPP/3077, Item No. 1

Annual requirement : 50 Nos.

Approximate Unit Price : Rs. 1,600/-



RETURN IDLER 800mm WIDTH

Material Code: 10103026830

Return Idler for 800mm Wide Conveyor Belt

Drawing Reference: NALCO/SPP/CHP/3077, Item No. 1A

Annual requirement : 150 Nos.

Approximate Unit Price : Rs. 1,200/-



CARRYING IDLER 1000mm WIDTH

Material Code: 10103207080

Carrying Idler Roller for 1000mm Coal Conveyor Belt

Dia: 139.7mm, Length: 352mm

Drawing Reference: NALCO/SPP/3569,Rev.0

Annual requirement : 100 Nos.

Approximate Unit Price : Rs. 800/-



GUIDE ROLLER ASSEMBLY

Material Code: 13311075380

Guide Roller Complete Assembly fitted with shaft, Bearing etc. (Total 11 items)

Drawing Reference: NALCO/MECH/3268

Annual requirement : 24 Nos.

Approximate Unit Price : Rs. 2,885/-



COTTON WASTE

Material Code: 88100012550

Cotton Waste as per IS:5485/1980, Type 1

Annual requirement : 15000 Kg

Approximate Unit Price : Rs. 43.00



MARKIN CLOTH

Material Code: 88106014020

Size: 1 Mtr x 1 Mtr

Annual requirement : 25000 Mtr.

Approximate Unit Price : Rs. 40.00



BAR CONNECTOR WITH BOLT

Material Code: 10103914890

Bar Connector with bolts for scrapper conveyor
1600mm Wide, 22x86mm

Drawing Ref: SK/NG/04

Annual requirement : 56 Nos.

Approximate Unit Price : Rs. 3,000/-



PTFE INSERTS

PTFE Inserts of different sizes for different types of Valves.

Annual requirement : 150 Nos.

Approximate Unit Price : Rs. 650/-



DISC ASSEMBLY

Material Code: 95590466620

Disc Assembly for Klein Valve of 4" Size
Including SS Seat Ring (Stellited), PTFE insert.

Annual requirement : 10 Nos.

Approximate Unit Price : Rs. 8,000/-



STEM FOR TANK BOTTOM VALVE

Material Code: 95590822641

Stem for 14" Klein make Tank
Bottom Valve

Annual requirement : 07 Nos.
Approximate Unit Price : Rs. 16,000/-



STEM FOR TANK BOTTOM VALVE

Material Code: 9557461090

Stem for 12" Klein make Tank
Bottom Valve

Annual requirement : 07 Nos.

Approximate Unit Price : Rs. 14,500/-



SEAT RING

Material Code: 95507166560

Seat Ring for 12" Poyam Valve

Annual requirement : 06 Nos.

Approximate Unit Price : Rs. 14,000/-



SEAT RING

Material Code: 95514005010

Seat Ring Size 12"

Drawing Reference: NALCO/INST/3605, Item 3

Annual requirement : 10 Nos.

Approximate Unit Price : Rs. 13,500/-



SAGGAR FOR TUNNEL KILN CAR

Material Code: 81601197121

Specification:

Cumlite HF-NS* Rev.01

Bulk Density: 2.75 – 2.85 g/cc

Cold Crushing Strength: 900 – 1200 Kg/Sq.cm

Apparent Porosity: 18.0 – 21.0 %

Raw Material base: Fused Mullite & Sintered Alumina

Al₂O₃ : 86.5 – 88.0%

SiO₂ : 8.5 – 10.5 %

Fe₂O₃ : 0.10 – 0.15 %

Drawing Reference: NALCO/CIVIL/3701

Annual requirement : 10000 Nos.

Approximate Unit Price : Rs. 1784/-



SAGGAR BASE PLATE FOR TUNNEL KILN

Material Code: 81601197121

Specification:

Cumlite HF-NS* Rev.01

Bulk Density: 2.75 – 2.85 g/cc

Cold Crushing Strength: 900 – 1200 Kg/Sq.cm

Apparent Porosity: 18.0 – 21.0 %

Raw Material base: Fused Mullite & Sintered Alumina

Al₂O₃ : 86.5 – 88.0%

SiO₂ : 8.5 – 10.5 %

Fe₂O₃ : 0.10 – 0.15 %

Drawing Reference: NALCO/CIVIL/3700

Annual requirement : 4000 Nos.

Approximate Unit Price : Rs. 852/-



KNUCKLE PIN

Material Code: 77505006060
Knuckle Pivot Pin with Washer
CBC SK62724 Item 4

Annual requirement : 70 Nos.
Approximate Unit Price : Rs. 345/-



RUBBER PAD FOR SIDE BEARER

Material Code: 77505053370

Specification:

Rubber pad for side bearer arrangement
Metal bonded rubber pad to latest RDSO Approved
Drawing PI/SBP/001 or latest RDSO specification to
STR/03/Misc/86 Rev.3 of Nov 2001.

Annual requirement : 350 Nos.
Approximate Unit Price : Rs. 900/-



ELASTOMER PAD

Material Code: 77505047270

Specification:

Elastomeric Pad Modified Elastomeric Pad to Latest RDSO approved Drawing PI/MEP-001. STR No. 20-Misc-95 Rev(@) Amdt.4 of Nov 2001

Annual requirement : 200 Nos.
Approximate Unit Price : Rs. 800/-



MINES ITEMS OF INTEREST TO MSEs



575MM GROOVE DIA PULLEY ASSEMBLY:

Mat Code: 89302002390

Nalco Drawing No. NALCO/M/MECH/101 Rev-03

Annual requirement : 23 nos.

Approximate Unit Price : Rs.39,980/-



POLLY PULLEY HUB

Material code:10101180260

Nalco Drawing No. NALCO/MINES/MECH/C&C/170, Rev-01

Annual requirement :1250 Nos.

Approximate Unit Price : Rs.4480/-



ROCKERS :

Material code:10101281460

Nalco drawing No. NALCO/MECH/C&C/MINES/149, Item no.1

Annual requirement :1555 Nos.

Approximate Unit Price : Rs.650/-

ROCKER PIN:

Material code:10101281770

Nalco Drawing No. Item No.2,3 &4 of NALCO/MECH/C&C/MINES/149

Annual requirement: 1800 Nos.

Approximate Unit Price : Rs.525/-



SAFETY PIN FOR CRUSHER –II

Material code:10350000490

Nalco drawing No.NALCO/MINE/MECH/C&C/126

Anuual requirement:2000 Nos.

Approximate Unit Price : Rs.97/-



SAFETY PIN FOR CRUSHER-I

Material code:10301000410

Nalco Drawing No. NAL/MINE/MECH/C&C/023

Annual Requirement: 2300 Nos.

Approximate Unit Price : Rs.137.70



PULLEYS (305MM GROOVE DIA):

Material code:89302000220

Nalco Drawing No. NALCO/MECH/C&C/MINES/019, Rev-1

Annual Requirement: 20 Nos.

Approximate Unit Price : Rs.7999/-



L- PLATE FOR LINE STAND:

Material code:10101336300

Nalco Drawing No. NALCO/MECH/C&C/MINES/144, ITEM NO.3

MOC: HOT As per IS2629:1966

Annual Requirement: 500Nos.

Approximate Unit Price : Rs.150/-



SHAFT FOR POLLY PULLEY HUB:

Material code:10101040160

Nalco Drawing No. NALCO/MECH/C&C/MINES/164

Annual Requirement: 1000 Nos.

Approximate Unit Price : Rs.118/-



TOP CROSS TUBE (PLAIN):

Material code: 10101024960

Nalco Drawing No. NALCO/MECH/MINES/C&C/TB/085

Annual Requirement: 115 Nos.

Approximate Unit Price : Rs.4925/-



PURLIN, SIZE:2600MM (L21)

Material code:10101294060

Nalco Drawing No. NALCO/MINES/C&C/049 (L21)

Annual Requirement: 10 Nos.

Approximate Unit Price : Rs.852/-

PURLIN, SIZE:4700MM (L6)

Material code:10101292510

Nalco Drawing No. NALCO/MINES/C&C/049 (L6)

Annual Requirement: 150 Nos.

Approximate Unit Price : Rs.1540/-



POLYRIM WITH POLYURETHANE LINER:

Material code: 10101040470

Nalco Drawing No. NALCO/MINES/C&C/055, Rev-1

Annual Requirement: 24000 Nos.

Approximate Unit Price : Rs.1775/-



List of other items of M&R Complex
Which can be supplied by Micro & small Industries

SI No	Products	Specification	Annual requirement	Approximate value (₹)
1	Sodium silicate	Sodium Silicate liquid Alkaline type-2 as per IS 381-1995	6000 MT	7 Crores
2	Soda ash	Soda Ash light Tech. Grade conforming to IS: 251/1998	325 MT	50 Lakhs
3	Alum	Alum (Ferric) as per IS 299/1989 (Fourth revision) Gr-II, Type-II specification : AL ₂ O ₃ = 15.0 (min)% FE ₂ O ₃ = 0.7 (max) % Insoluble Matter=0.50(max) PH (5% Aquous Solution) = 2.30 (min)	450 MT	45 Lakhs
4	Wheat bran	Moisture - 15% Max. Mineral matter = 7% MAX. Cellulose = 15-30%. Pentason = 20-35%. Apparent Density = 0.35-0.40 MT/CU Mtr	3200 MT	4.5 Crores
5	HDPE bags	HDPE Laminated woven Bag as per IS: 9755-2003 Size : 610x920 mm	10,00,000	1.5 Crore
	Liner bags	Polythene Liner Bags Size : 66cm x 100cm Thickness: 150 gauge Weight: 50+/- 5 gram	8,00,000	40 Lakhs
6	Safety items like hand gloves, ear plugs, helmet & nose mask etc		Gloves- 18000 nos Helmet- 400 nos Ear plugs- 1500 nos Nose mask- 800 nos	15 Lakhs
7	Refractory materials like Castables, Bricks, Saggars & base plates		Castables-260 MT Bricks- 30,000 nos Saggars- 13000 nos Base plates- 5000 nos	5 Crores
8	Industrial gas like O ₂ , DA, Nitrogen, ammonia etc		6000 CM	20 Lakhs
9	Polythene sheet for plant, packets & pouches of different sizes for preservation of small size spares		2000 Kg	3 Lakhs

SCOPE FOR MSEs IN DOWNSTREAM INDUSTRIES USING NALCO'S PRODUCTS AND BY-PRODUCTS

Brief profiles of some of the possible downstream projects, utilizing Alumina, Fly ash and Red Mud are given below;

1. Fused Alumina

Fused Alumina is used in the manufacture of abrasive, high Alumina Refractory bricks.

(i)	Capacity	5000 MT of Fused Alumina per annum
(ii)	Project cost	₹ 4 Crores
(iii)	Location	In and around Damanjodi
(iv)	Raw materials	Alumina, bauxite etc.
(v)	Employment potential	100

3. Fly ash based Products:

Fly ash bricks (Details shown separately in this booklet)
Fly ash based tiles

4. Red Mud Based Products:

Red mud Bricks can be produced using red mud as the major raw material at Damanjodi

(i)	Capacity	1 million bricks per annum
(ii)	Investment	₹ 3 Crores
(iii)	Location	In and around Damanjodi
(iv)	Turnover	₹ 0.6- 0.7 Crores
(v)	Raw material	Red Mud, Clay, Talc Powder
(vi)	Major equipment & fuel	Kiln & Coal
(vii)	Employment potential	50

5. Lime Grit based products:

Fly ash bricks, Tiles & Other cement based products

6. Zeolite, Alumina hydrate, Spl. Grade Hydrate,SGA Based products:

Alumina Hydrate: For making Insulator, Alum

SGA: For making refractory bricks, Castables, Ceramic balls, synthetic marbles, paints and pigments.

Spl Grade Hydrate: For making fire retardant builder materials.

Zeolite: Used as builder material for detergents. Brand like Tide and Henkel use our product.

NOTE:

Nalco supplies Fly ash & red mud free of cost to the MSEs. Lime grit can be supplied at a cost to MSEs for their Brick Plants.

Scope for MSEs in Service Sector

- (i) Fabrication, machining and repair workshops in the vicinity of Damanjodi meeting requisite quality standards for attending to emergent repair jobs.
- (ii) Motor winding shops
- (iii) Tyre Retreading workshops in the vicinity of Mines & Alumina Plant.
- (iv) Pump repair shop
- (v) Pulley, Roller, Idlers & Polyrim manufacturing unit for belt conveyor
- (vi) Automobile and Earth moving equipment repair shop.
- (vii) Repair of Air-conditioning equipments, maintenance and supply of spares.

SCOPE FOR MSEs FOR PRODUCTION OF FLY ASH BRICKS

Fly Ash Bricks can be produced by utilizing the ash generated in Steam & Power Plant (SPP) at Alumina Refinery, Damanjodi. This is an economically viable project.

(i)	Capacity	5 million bricks per annum
(ii)	Investment	₹30 lakhs
(iii)	Location	In and around Damanjodi
(iv)	Raw materials	Fly ash (60%), Sand(30%), Lime grit(5%), Cement (5%)
(v)	Electrical Energy	50 KWH (For 1000 bricks)
(vi)	Employment potential	20 to 25

For the above plant, Fly Ash can be supplied by Alumina Refinery Free Of Cost.

Features

Some of the attributes of fly ash bricks are as follows:

- » Eco friendly
- » Low water absorption
- » Dimensional accuracy
- » High compressive strength

Advantages of Fly Ash Bricks:

Less Energy Consumption: Much energy is consumed in firing clay bricks in kilns. By using fly ash bricks instead of clay bricks, much energy is saved in brick manufacturing.



Reduces air pollution - Fossil fuel is used in heating clay bricks in kilns. Burning such fuel generates air pollution and greenhouse gas (CO₂), contributing to global warming. Fly ash bricks are manufactured at room temperature and there is no fossil fuel burning and emission of green house gas (Co₂).

High Strength: Due to high strength, there is practically no breakage during transport & use. Due to uniform size of bricks mortar required for joints and plaster reduces almost by 50%.

Less Water Consumption: Due to lower water penetration seepage of water through bricks is considerably reduced. Gypsum plaster (plaster of Paris) can be directly applied on these bricks without a backing coat of lime plaster. These bricks do not require soaking in water for 24 hours. Sprinkling of water before use is enough.

Usage of Fly Ash Bricks: Because of above advantages, Fly Ash Bricks are getting preference in construction works over the conventional clay bricks.

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