# Matrix Sweaters Ltd. (Labib Group)

## Power (Gas) Consumption Base Year 2016 (Monthwise)

| January | February | March | April | May | June | July | August | September | October | November | December | Total Diesel Consumption (M3/Year) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 216,095 | 179,098 | 167,561 | 277,745 | 277,745 | 311,204 | 176,230 | 332,355 | 343,395 | 238,484 | 236,030 | 221,523 | 2,977,467 |

## Power (Diesel) Consumption Base Year 2016 (Monthwise)

| January | February | March | April | May | June | July | August | September | October | November | December | Total Diesel Consumption (Litres/Year) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6,500 | 2,000 | 8,000 | 7,800 | 5,600 | 5,200 | 3,100 | 7,500 | 6,600 | 11,600 | 2,800 | 4,600 | 71,300 |

## Power (Electricity) Consumption Base Year 2016 (Monthwise)

| January | February | March | April | May | June | July | August | September | October | November | December | Total Electricity Consumption (KWh/Year) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22,629 | 2,263 | 2,829 | 19,801 | 59,464 | 69,019 | 74,172 | 110,240 | 74,730 | 74,730 | 155,576 | 103,350 | 768,803 |

## Total GHG Emission (Tonnes/Year) Base Year 2016

| Sl No | Description |
|---|---|
| 01 | 6251.364 Tonnes |

## Chemical Inventory Base Year 2016

| Chemical Type | Amount Litre or Kg or pcs/Year | | Emergency Contact Person |
|---|---|---|---|
| Acetone BP | N/A | Litres | Mr. Debasish Dey |
| Softner CS 450 | N/A | Litres | GM HR & Compliance |
| Deterjent NT | N/A | Litres | Cell-01730095831 |
| PAC | N/A | Litres | debasish@matrixsweatersbd.com |
| Polimar | N/A | Litres | |

## Result of Stack/Point Source Emission Analysis

Name of Industry : Matrix Sweaters Limited.
Address of the factory : Choydana, National University, Gazipur-1704
GPS Coordinate : N-23° 57.30.90"&E-90°22.50.50"
Description of Sample : Stack/Point Source Emission
Data Collection Date : November 2016
Reporting Date : December 2016

### Description of Analysis

| Sample Description | Name of Parameters | | | |
|---|---|---|---|---|
| | SPM | NOx | $SO_2$ | CO |

| Method of Analysis | Gravimetric | EPA Method (7-1) | Hydrogen perOxide | ORSAT Method |
|---|---|---|---|---|
| Emission Source from Gas Generator Exhaust (Power Capacity-1125 KVA) | 6.21 | 67.11 | 4.17 | 3.90% |
| Emission Source from Diesel Generator Exhaust (Power Capacity-550 KVA) | 14.22 | 142.21 | 156.44 | 3.40% |
| Emission Source from Diesel Generator Exhaust (Power Capacity-500 KVA) | 11.18 | 137.32 | 144.19 | 3.10% |
| Emission Source from Gas Boiler Exhaust (Bangladesh Boiler No#5182) Steam Capacity 02 ton | 4.11 | 62.24 | 3.12 | 2.90% |
| Emission Source from Gas Boiler Exhaust (Bangladesh Boiler No#6102) Steam Capacity 500 KG | 3.31 | 57.22 | 2.41 | 2.50% |
| Unit | $Mg/Nm^3$ | $Mg/Nm^3$ | $Mg/Nm^3$ | V/v |
| Duration (Minutes) | 30 | 30 | 30 | 30 |
| Bangladesh (DoE) Standard | 100 | 150 | NYS | NYS |
| Bangladesh (DoE) Standard for Generator | 350 | 30 ppm | NYS | NYS |
| IFC/World Bank Standard | 100 | 320 | 2000 | NF |
| IFC/World Bank Standard for Generator | 100 | 460 | 2000 | NF |

**Abbreviation:** SPM-Suspend particulate matter, NOx- Oxides of nitrogen, $SO_2$-Sulphur di-oxide, CO- Carbon monoxide, NYS- Not Yet Set, NF- Not found, V/v-Volume/volume and DoE-Department of Environment.

**Comment:** Stack/Point source emission from the different exhaust source which are emit from different activities has been analyzed SPM, NOx, $SO_2$ and CO emission level. It was observed that the factory emission of SPM, NOx, $SO_2$ and CO to environment were within the standard limits as per Bangladesh and IFC/World Bank. Nox from generator found higher than DoE, Bangladesh limit but within IFC/World Bank standard.

## Result of Stack/Point Source Emission Analysis

Name of Industry : Matrix Sweaters Limited.
Address of the factory : Choydana, National University, Gazipur-1704
GPS Coordinate : N-23o 57.30.90"&E-90o22.50.50"
Description of Sample : Indoor Air Quality in the project Area
Data Collection Date : November 2016
Reporting Date : December 2016

### Description of Analysis

| Sample Description | Name of Assessment Parameters | | | | |
|---|---|---|---|---|---|
| | $PM_{2.5}$ | $PM_{10}$ | VOC | CO | $CO_2$ |
| Unit | µg/m3 | µg/m3 | µg/m3 | µg/m3 | ppm |

| Method of Analysis | Gravimetric (EPA Standard) | West-Geake(EPA Standard) | Electrochemical Sensor | Electrochemical Sensor | Electrochemical Sensor |
|---|---|---|---|---|---|
| Test Result In Knitting Section (Ground Floor) | 47 | 78 | 714 | 180 | 627 |
| Test Result In Finishing Section (Second Floor) | 39 | 65 | 414 | 120 | 564 |
| Test Duration (Hours) | 8 | 8 | 8 | 8 | 8 |
| Bangladesh (DoE) Standard for ambieent Air | 65 | 150 | NF | 10000 | NF |
| International/World Bank Standard | 75 | 150 | 750µg/m3 | 10000 | <1100ppm |

**Abbreviation:** Fine particulate matter (PM2.5 ), Respirable dust content (PM10 ), Volatile Organic Compound (VOC), Carbone mono-oxide (CO), Carbone di-oxide (CO2) and DoE- Department of Environment, NF-Not found, NYS – Not yet set, WB – World Bank, IFC - International Finance Corporation.

**Comments:** The above result for ambient air quality monitoring shows the PM2.5, PM10, SO2, NOx, CO and CO2, concentrations of the ambient air. From the above analysis it is observed that the concentrations of all these parameters are far below the allowable limit as per DoE Bangladesh Standard and international Standard for ambient air. The weather was sunny. Since the wind direct was from the North-west to South-East corner.

# Waste Inventory

## Waste Inventory Base Year 2016

| Waste Streams | Source of Waste | Waste Production (Kg/Year) | Waste Classification | On SiteTreatment | Waste Disposal Route |
|---|---|---|---|---|---|
| Jhut | Knitting, Linking Mending, Sewing & Finishing Section | 286,449.20 | Non-Hazardous | No | Sold to contractor |
| Carton and Wastage Paper | Finishing, Store & office room | 41,185.80 | Non-Hazardous | No | Sold to contractor |
| Plastic | Finishing & Office Section | - | Hazardous | No | Sold to contractor |

| | | | | | |
|---|---|---|---|---|---|
| Poly | Finishing Section | 3,111.20 | Non-Hazardous | No | Sold to contractor |
| Empty Steel Dram | Store Room | - | Non-Hazardous | No | Sold to contractor |
| Wastage Pipe | Construction Work | - | Non-Hazardous | No | Sold to contractor |
| Chemical Empty Dram (i.e. spot lifter and others) | Finishing & Chemical Store Section | 3,010.00 | Hazardous | No | Send to our concern Department |
| Knife and Niddle | Linking Mending & Sewing Section | - | Hazardous | No | Sold to contractor |
| Thread Cone | Production & Yarn Store Floor | 69,253.80 | Non-Hazardous | No | Sold to contractor |
| Electric Waste (i.e. light, wire etc.) | All Section | 23.00 | Non-hazardous | No | Send to Manufacture |
| Reject Wood | Construction Work | - | Non-hazardous | No | Sold to contractor |
| Battery | Sub Station | 15.00 | Hazardous | No | Sold to contractor |
| Medical | All Section | 3.00 | Non-Hazardous | No | Send to City Corporation |
| **Total** | | **403,051.00** | | | |

## Waste Water Parameter (Tested By Bureau Veritas BD)

### Waste Waste Water Parameter Base Year 2016

### Report No_(6816)296-0104

| | |
|---|---|
| Date of Sample Pick up | 20 October, 2016 |
| Date of Report Submitted | 31 October, 2016 |
| Client | H&M |
| Initiated By | H&M Initiated |

| | |
|---|---|
| Sample Type | Grab Sample |
| Test Period | 20 October, 2016 to 31 October, 2016 |
| Sample Description | Samples received is started to be, Wastewater after treatment (ETP Outlet) |

| Test Parameter | Result | Unit | Test Method |
|---|---|---|---|
| Tested Item(s) | I001 | ~ | ~ |
| pH Value | 7.4 at 22˚C | ~ | APHA 4500-H B:2012 & U.s. EPA 150.2 |
| Total Suspended Solids (TSS) | 46 | mg/L | APH2540 D:2012 |
| Chemical Oxygen Demand (COD) | 96 | mg/L | APHA 5220 B:2012 & U.S. EPA 410.3 |
| Biochemical Oxygen Demand ($BOD_5$) | 30 | mg/L | APHA 5210 B:2012 |

# Waste Water Parameter (Tested By Bureau Veritas BD)

## Waste Waste Water Parameter Base Year 2016

## Report No_(6816)342-0216

| | |
|---|---|
| Date of Sample Pick up | 06 December, 2016 |
| Date of Report Submitted | 14 December, 2016 |
| Client | H&M |
| Initiated By | H&M Initiated |

| | |
|---|---|
| Sample Type | Grab Sample |
| Test Period | 06 December, 2016 to 14 December, 2016 |
| Sample Description | Samples received is started to be, Wastewater after treatment (ETP Outlet) |

| Test Parameter | Result | Unit | Test Method |
|---|---|---|---|
| Total Suspended Solids (TSS) | 7 | mg/L | With Referance to APHA 2540 D:2012 |