

Report Number: ITS-ENV-2024-06-1
Date : 28 April, 2024

Mobile Air Emission Inventory Report

Factory/project title: **IRIS Fabrics Limited**
Factory/Project address: Zirani Bazar, Kashimpur, Gazipur

Sampling description: **Mobile Air Emission Inventory**
Sampling time: 9:15 AM-2:25 PM (Running Condition)
Sampling date: 31 March 2024
Sampling Device Name: ESS-100 air quality sampler by Echotech.

Introduction

A non-point source air emission inventory involves the comprehensive assessment and documentation of diffuse or widespread emissions that stem from various activities within the industry's supply chain and operations. Unlike point sources, which are specific and identifiable, non-point source emissions are more broadly dispersed and often result from activities that are challenging to pinpoint to a single location. These emissions primarily originate from mobile sources, such as transportation, and fugitive sources, which include diffuse emissions from various stages of production and distribution.

One significant contributor to non-point source emissions is the transportation of raw materials, finished products, and other supplies. Vehicles involved in the supply chain, including trucks and ships, release emissions during the transportation process. These mobile emissions, dispersed over a wide area, contribute to the overall environmental footprint of the industry. Fugitive emissions may arise from various stages of production and distribution.

The emissions from the mobile sources include powered motor vehicles (e.g., forklifts, trucks, passenger vehicles), heavy machinery (e.g., mobile cranes or lifts) small engines (lawnmowers or other landscaping equipment) can emit particulate matter (PM) and oxides of sulphur and nitrogen (SO_x and NO_x) from fuel combustion.

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Method of Analysis:

The following methods were used to analyze the parameters of Mobile emission:

Parameters	Methods	Sampling Period
SPM (Suspended Particular Matter)	Gravimetric	10minutes
PM _{2.5}	Gravimetric	
PM ₁₀	Gravimetric	

Inspection Instrument:

To assess this stack air emission ECR, 1997, WHO, DoE, World Bank standard was followed etc. To measure the particulate matter in the flue gas, a well-known versatile ESS-100 air quality sampler by Echotech was used.

High Volume Sampler:

Parameter	Measuring Range
SPM	0 – 1000 mg
PM ₁₀	0 – 1000 mg
PM _{2.5}	0 – 1000 mg
Air flow	0-40 lpm
Flue Temperature	0-650°C

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Description of Utilities:

Sl. No.	Brand Name	Model No & CC	Fuel	Capacity
Vehicles - 01	Micro Bus Hiace	TRH200-0034904 MODEL 2006, CC 2000	Octane & CNG	1780 KG
Vehicles -02	Micro Bus Toyota M.CROP. 2009	TRH200-0107461 MODEL 2009 CC 2000	Octane & CNG	1780 KG
Vehicles -03	Cargo Van Ashoke Leyland	MB1A3HFC8NEEJ1244 MODEL 2022, CC 5759	Diesel	15 Ton
Vehicles -04	Cargo Van Ashoke Leyland	MB1A3HFC1NEEJ1263 MODEL 2022, CC 5759	Diesel	15 Ton
Vehicles -05	FORKLIFT	Model - DP20NT, Serial No : T18C-20222	Diesel	275KVA

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Standard Permissible limit:

CO (gm/km)						Applicable Regulations
Range of Light Vehicle Personal (Diesel)	0.4-0.9	Range of Light Vehicle Commercial (Diesel)	0.6-1.1	Range of Heavy Vehicle Commercial (Diesel)	0.5-1.3	1. DoE (APCR2022) 2. World Bank
Range of Light Vehicle Personal (Petrol)	1.2-2.1	Range of Light Vehicle Commercial (Petrol)	2.1-3.8	Range of Heavy Vehicle Commercial (Petrol)	2.3-4.7	
Range of Light Vehicle Personal (Gas)	0.2-0.6	Range of Light Vehicle Commercial (Gas)	0.6-1.5	Range of Heavy Vehicle Commercial (Gas)	0.8-2.2	
Hydrocarbon (gm/km)						Applicable Regulations
Range of Light Vehicle Personal (Diesel)	0.02-0.3	Range of Light Vehicle Commercial (Diesel)	0.08-0.4	Range of Heavy Vehicle Commercial (Diesel)	0.2-0.6	1. DoE (APCR2022) 2. World Bank
Range of Light Vehicle Personal (Petrol)	0.01-0.08	Range of Light Vehicle Commercial (Petrol)	0.01-0.2	Range of Heavy Vehicle Commercial (Petrol)	0.08-0.5	
Range of Light Vehicle Personal (Gas)	0.001-0.006	Range of Light Vehicle Commercial (Gas)	0.001-0.008	Range of Heavy Vehicle Commercial (Gas)	0.001-0.02	

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SPM (gm/km)						Applicable Regulations
Range of Light Vehicle Persona 1 (Diesel)	0.002-0.03	Range of Light Vehicle Commercial 1 (Diesel)	0.008-0.04	Range of Heavy Vehicle Commercial 1 (Diesel)	0.02-0.05	1. DoE (APCR2022) 2. World Bank
Range of Light Vehicle Persona 1 (Petrol)	0.001-0.008	Range of Light Vehicle Commercial 1 (Petrol)	0.001-0.02	Range of Heavy Vehicle Commercial 1 (Petrol)	0.008-0.05	
Range of Light Vehicle Persona 1 (Gas)	0.0001-0.0006	Range of Light Vehicle Commercial 1 (Gas)	0.0001-0.0008	Range of Heavy Vehicle Commercial 1 (Gas)	0.0001-0.002	
NOx (gm/km)						Applicable Regulations
Range of Light Vehicle Persona 1 (Diesel)	0.02-0.3	Range of Light Vehicle Commercial (Diesel)	0.08-0.4	Range of Heavy Vehicle Commercial 1 (Diesel)	0.2-0.6	1. DoE (APCR2022) 2. World Bank

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Vehicle's Air Emission Inspection Results:

Basic Information		Concentration of Pollutants Emitted (gm/km)				Standards and Testing				
Vehicle Type	Fuel Type	SPM	Hydrocarbons	NO _x	CO	Determined By	Run Time	Control Devices In Place	Applicable Regulations	Testing Required
Micro Bus Hiace	Octane & CNG	0.0005	0.006	0.005	0.3	Calculated	432130km	N/A	1. DoE (APCR2022) 2. World Bank	Annually
Micro Bus Toyota M.Crop. 2009	Octane & CNG	0.0006	0.004	0.006	0.5	Calculated	330209km	N/A	1. DoE (APCR2022) 2. World Bank	Annually
Cargo Van Ashoke Leyland	Diesel	0.04	0.5	0.6	0.9	Calculated	7832km	N/A	1. DoE (APCR2022) 2. World Bank	Annually
Cargo Van Ashoke Leyland	Diesel	0.05	0.5	0.4	0.8	Calculated	7880km	N/A	1. DoE (APCR2022) 2. World Bank	Annually
Forklift	Diesel	0.03	0.3	0.2	0.5	Calculated	5838 Hr	N/A	1. DoE (APCR2022) 2. World Bank	Annually

**Abbreviations and Acronyms: SPM = Suspended Particulate Matter, NO_x = Nitrogen Oxides, CO = Carbon Monoxide

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Discussion and Recommendation:

Intertek Bangladesh has hired GREENBUD Testing & Inspection Services Private Limited to inspect their emission of 05 (five) Vehicles of **IRIS FABRIC LTD.** GREENBUD has inspected the particulate matters according to the ECR, STeP-OEKO TEX and the IFC/World Bank emission standard. According to the inspection result the findings are given below:

- Dust Emission from vehicles have been found within the DoE and World Bank standard emission limit.

However, the proponent needs to consider that the concentration of particulate matter presented in this report is instantaneous data which had been found during inspection and may vary over the period.

Obtaining above results, for further improvement recommendations are given below:

- ✓ The authority must check emission from vehicles periodically.

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Annexure

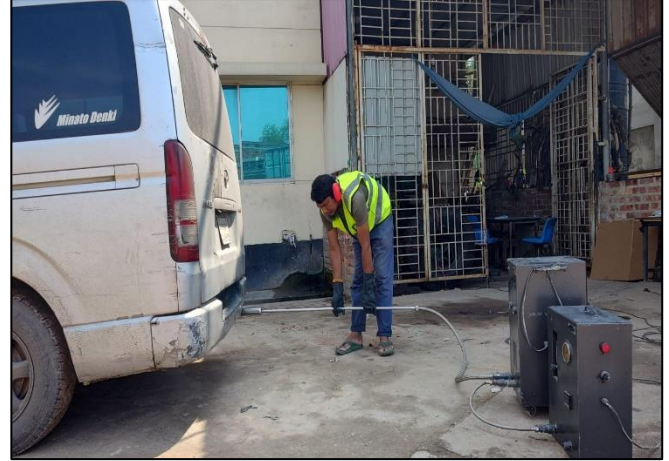


Fig: Vehicle Emission Sampling

Report prepared by

Mohammad Waliullah
Auditor
Supplier Management
Business Assurance
ITS Labtest Bangladesh Ltd.

Report authorized by

Shoriful Islam
Head of Business Assurance
Supplier Management
Business Assurance
ITS Labtest Bangladesh Ltd.