

Environmental Parameter Inspection Report For Knit Concern Printing Unit.

Address: House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj,
Narayanganj-1400

1. Noise Level Monitoring Report
2. Illumination Level Monitoring Report
3. Temperature & Humidity Level Inspection Report
4. Indoor Air Quality Monitoring Report
5. Ambient Air Quality Monitoring Report
6. Stack Emission Test Report (Generator)
7. Ozone Depleting Substance (ODS)



April, 2023

Ref: ECIL/2023/2740/NLI

NOISE LEVEL INSPECTION REPORT

Factory Name : Knit Concern Printing Unit.
Factory Address : House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj, Narayanganj-1400
Sampling Date : 02nd April 2023
Reporting Date : 05th April 2023

Environmental Condition:

Ambient Temperature : 31.4 °C
Relative Humidity : 60.7% RH
Weather Condition : Sunny

Project Area



Figure: Knit Concern Printing Unit.

Description of Sampling:

Samplings were done to measure the Sound Level for every section of the facility. During the sampling procedure, all the instruction stated in the Envirocare Work Instruction EN-N_00 was followed.

Test Method:

The noise levels were measured with the help of a portable precision digital sound level meter (Model-SI-4033DS, made in Taiwan). The instrument calibration was achieved using manufacturer supplied piston phone calibrator capable of producing known sound pressure level.

Instrument's Specifications:

Instrument Name	Digital Sound Level Meter	Resolution	0.1 dB.
Measuring Range	35 to 130 dB.	Accuracy	± 5 dB.

Test Results:

Sampling Time & Duration: Samplings were done between 10.00 AM to 6.00 PM

Sl No.	Name of Sections	Location	Obtained value	Remarks	PPE Use
1	HR Office Room	5 th Floor	54.3	Acceptable	No Need
2	Inspection Room		56.7	Acceptable	No Need
3	Curing Machine Area		70.5	Acceptable	No Need
4	AQL Table Area		58.1	Acceptable	No Need
5	Printing Table Area		72.4	Acceptable	No Need
6	Color Mixing Area		61.2	Acceptable	No Need
7	Dining & Canteen Area		60.8	Acceptable	No Need
8	QC Table Area		62.7	Acceptable	No Need
9	Digital Printing Machine Area	4 th Floor	67.4	Acceptable	No Need
10	Printing Table Area		69.2	Acceptable	No Need
11	Heat Press Section		65.6	Acceptable	No Need
12	Admin Office Room		56.4	Acceptable	No Need
13	Fabrics Store	3 rd Floor	58.2	Acceptable	No Need
14	CPI Table Area		60.8	Acceptable	No Need
15	Printing Machine Area		71.4	Acceptable	No Need
16	Curing Machine Area		68.6	Acceptable	No Need
17	Color Mixing Area		67.7	Acceptable	No Need
18	Maintenance Room		61.5	Acceptable	No Need
19	Lab Room		60.8	Acceptable	No Need
20	Chemical Store		54.6	Acceptable	No Need
21	Sample Table Area		64.5	Acceptable	No Need

Note:* = Exceed ECR 1997 standard but within World Bank and OSHA Standard

Sl No.	Name of Sections	Location	Obtained value	Remarks	PPE Use
22	Printing Table Area	2 nd Floor	67.1	Acceptable	No Need
23	Color Mixing Area		62.4	Acceptable	No Need
24	Chemical Store		56.8	Acceptable	No Need
25	Curing Machine Area		66.2	Acceptable	No Need
26	Office Room		62.5	Acceptable	No Need
27	Office Area & IT Room	1 st Floor	53.8	Acceptable	No Need
28	Chemical Store		50.1	Acceptable	No Need
29	GM Sir Office Room		56.5	Acceptable	No Need
30	Conference Room		54.7	Acceptable	No Need
31	Planning & Design Room		54.2	Acceptable	No Need
32	Stone & Laser Area		55.7	Acceptable	No Need
33	Heat Press Section		59.6	Acceptable	No Need
34	Printing Machine Area		67.6	Acceptable	No Need
35	Curing Machine Area		62.4	Acceptable	No Need
36	Expose Room		57.3	Acceptable	No Need
37	Color Mixing Area		60.7	Acceptable	No Need
38	Merchandiser Room		55.2	Acceptable	No Need
39	Office Area	M.Z Floor	54.5	Acceptable	No Need
40	Sticker Section	Ground Floor	77.6*	Acceptable	Ear Plug
41	Embroidery Section		78.6*	Acceptable	Ear Plug
42	ETP Area		68.4	Acceptable	No Need
43	Child Care Room		54.3	Acceptable	No Need
44	Doctor Room		58.7	Acceptable	No Need
45	Compressor Room		73.1	Acceptable	No Need
46	Generator Room		97.6**	Not Acceptable	Ear Muff
47	Sub-Station Room		69.5	Acceptable	No Need
48	Security Room		65.3	Acceptable	No Need
49	Loading Unloading Area		61.7	Acceptable	No Need

ECR 1997 Recommendation Value is 75 Decibel (Industrial Area 75 dB (Day Time))

World Bank Recommended value (dBA) for 8 hours exposure (Indoor work place area 85 decibel)

Occupational Safety and Health Administration (OSHA) Standard is 90 Decibel

Note:* = Exceed ECR 1997 standard but within World Bank and OSHA Standard ** Exceed ECR 1997 World Bank and OSHA Standard. **M.Z**= Mezzanine

Ambient Noise Level Inspection

SL No.	Location	Relevant Standard	Obtained value	Remarks	PPE Use
01	East Side	ECR – 75 dBA World Bank – 85 dBA OSHA – 90 dBA	57.7	Acceptable	No Need
02	West Side		59.5	Acceptable	No Need
03	North Side		60.8	Acceptable	No Need
04	South Side		58.6	Acceptable	No Need

Envirocare Expert's Comment:

According to the Environment Conservation Rules (ECR, 1997 "SRO no 212-law/2006") standard for ambient noise level in the industrial zone is 75 and 70 decibels at day and night time respectively in ambient area not for indoor work place area. On the other hand according to World Bank work place noise level standard is 85 dBA and Occupational Safety and Health Administration (OSHA) Standard is 90 Decibel. From the assessment it is revealed that the work place noise level were found acceptable level in most of the sections in comparison to the ECR-1997, World Bank Noise Quality Standard and OSHA standard. However, as the measured noise level of some area exceeded the ECR-1997 and World Bank Noise level standard, it is recommended that ear muffs should be provided to related workers to avoid occupational health hazard while working in those area.



Signature

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Ref: ECIL/2023/2741/LLI

ILLUMINATION LEVEL TEST REPORT

Factory Name : Knit Concern Printing Unit.
Factory Address : House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj, Narayanganj-1400
Sampling Date : 02nd April 2023
Reporting Date : 05th April 2023

Environmental Condition:

Ambient Temperature : 31.4 °C
Relative Humidity : 60.7% RH
Weather Condition : Sunny

Project Area



Figure: Knit Concern Printing Unit.

Sampling Meter Description

A light meter was used to measure the light Level quality. Model: LX-101A, Measuring range: 0-50000Lux. Accuracy: $\pm (5\% + 2d)$

Description of Analysis

Samplings were done between 11.30 AM– 3.30 PM

Serial No.	Name of Sections	Location	Obtained Result in Lux	BNBC 2006 Guideline standards (lux)	Remarks
1	HR Office Room	5 th Floor	198	50-200	Acceptable
2	Inspection Room		1426	450-1500	Acceptable
3	Curing Machine Area		652	300-700	Acceptable
4	AQL Table Area		1178	450-1500	Acceptable
5	Printing Table Area		934	300-700	Acceptable
6	Color Mixing Area		1325	300-700	Acceptable
7	Dining & Canteen Area		169	50-200	Acceptable
8	QC Table Area		1223	450-1500	Acceptable
9	Digital Printing Machine Area	4 th Floor	758	300-700	Acceptable
10	Printing Table Area		869	300-700	Acceptable
11	Heat Press Section		637	300-700	Acceptable
12	Admin Office Room		234	50-200	Acceptable
13	Fabrics Store	3 rd Floor	N/A	--	--
14	CPI Table Area		1136	450-1500	Acceptable
15	Printing Machine Area		867	300-700	Acceptable
16	Curing Machine Area		562	300-700	Acceptable
17	Color Mixing Area		1129	300-700	Acceptable
18	Maintenance Room		167	50-200	Acceptable
19	Lab Room		239	50-200	Acceptable
20	Chemical Store		N/A	--	--
21	Sample Table Area		576	300-700	Acceptable
22	Printing Table Area	2 nd Floor	897	300-700	Acceptable
23	Color Mixing Area		1226	300-700	Acceptable
24	Chemical Store		N/A	--	--
25	Curing Machine Area		567	300-700	Acceptable
26	Office Room	268	50-200	Acceptable	
27	Office Area & IT Room	1 st Floor	196	50-200	Acceptable
28	Chemical Store		N/A	--	--
29	GM Sir Office Room		375	50-200	Acceptable
30	Conference Room		287	50-200	Acceptable
31	Planning & Design Room		216	50-200	Acceptable
32	Stone & Laser Area		509	300-700	Acceptable

Reference: BNBC 2006 guidelines chapter 1, part 8, table (8.1.5, 8.1.7, 8.1.9 & 8.1.10)

Note: N/A = Not Applicable,

Serial No.	Name of Sections	Location	Obtained Result in Lux	BNBC 2006 Guideline standards (lux)	Remarks
33	Heat Press Section	1 st Floor	627	300-700	Acceptable
34	Printing Machine Area		884	300-700	Acceptable
35	Curing Machine Area		823	300-700	Acceptable
36	Expose Room		120	50-200	Acceptable
37	Color Mixing Area		1132	300-700	Acceptable
38	Merchandiser Room		236	50-200	Acceptable
39	Office Area	M.Z Floor	247	50-200	Acceptable
40	Sticker Section	Ground Floor	878	300-700	Acceptable
41	Embroidery Section		854	300-700	Acceptable
42	ETP Area		364	300-700	Acceptable
43	Child Care Room		168	50-200	Acceptable
44	Doctor Room		187	50-200	Acceptable
45	Compressor Room		120	50-200	Acceptable
46	Generator Room		178	50-200	Acceptable
47	Sub-Station Room		135	50-200	Acceptable
48	Security Room		154	50-200	Acceptable

Reference: BNBC 2006 guidelines chapter 1, part 8, table (8.1.5, 8.1.7, 8.1.9 & 8.1.10)

Note: N/A = Not Applicable, M.Z = Mezzanine

Comment: The result was found satisfactory in all of the sections and the workplace light level Condition is good comparison to light level standard of BNBC Guideline, 2006. According to the Bangladesh National Building Code 2006 in Chemical room, Store room is not allowed to electricity connection. It is highly recommended that if authority wants to enter these places please bring a torch spot lamp to avoid undesirable firing.






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Ref: ECIL/2023/2742/H&T

TEMPERATURE & HUMIDITY INSPECTION REPORT

Factory Name : Knit Concern Printing Unit.
Factory Address : House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj, Narayanganj-1400
Sampling Date : 02nd April 2023
Reporting Date : 05th April 2023

Environmental Condition:

Ambient Temperature : 31.4 °C
Relative Humidity : 60.7% RH
Weather Condition : Sunny

Project Area



Figure: Knit Concern Printing Unit.



Description of Sampling:

The Temperature level inspection has been done in every sections of the factory. The whole inspection has conducted following the instruction stated in the Envirocare Work Instruction EN-T&H 00.

Test Method:

Temperature Level is measured in °C by semiconductor sensor and Humidity level is measured in RH (%) based instrument. Ambient Temperature is measured by changes in electrical resistance due to heat, which is shown Celsius. The inspection has been carried out according to the Standard Operating Procedure SOP-2.

Instrument's Specifications:

Instrument Name	digital humidity/temperature meter	Resolution	0.1°C. Accuracy: 0.1% RH for humidity
Measuring Range	Humidity 10% to 95% and Temperature 0°C to 50°C	Accuracy	0.1% RH for humidity and 0.1°C for temperature.

Test Results:

Sampling Time & Duration: Samplings were done between 10.35 AM to 3.30 PM

Sl No.	Name of Sections	Location	Result			
			Temperature (°C)	Standard	Relative Humidity (%)	Standard
1	HR Office Room	5 th Floor	AC Controlled	According to National Joint Council in Part II - Permanent Structures and Safe Occupancy of the Workplace [Section 2.2(b) Environmental Conditions]- > 40°C is considered to be an unsatisfactory condition (In those cases, operations shall be stopped and employees released from the workplace if relocation is not practicable.)	AC Controlled	Relative Humidity level 30% to 70% is considered to be an satisfactory Condition
2	Inspection Room		AC Controlled		AC Controlled	
3	Curing Machine Area		31.4		60.7	
4	AQL Table Area		31.3		60.4	
5	Printing Table Area		31.6		60.6	
6	Color Mixing Area		31.4		60.8	
7	Dining & Canteen Area		31.1		60.5	
8	QC Table Area		31.5		60.4	
9	Digital Printing Machine Area	4 th Floor	31.7		60.1	
10	Printing Table Area		31.4		60.2	
11	Heat Press Section		31.2		60.3	
12	Admin Office Room		31.3		60.6	
13	Fabrics Store	3 rd Floor	31.6		60.5	
14	CPI Table Area		31.5		60.4	
15	Printing Machine Area		31.1		60.7	
16	Curing Machine Area		31.2		60.5	
17	Color Mixing Area		31.5		60.2	

Note:

Satisfactory Condition

Unsatisfactory Condition

Sl No.	Name of Sections	Location	Result			
			Temperature (°C)	Standard	Relative Humidity (%)	Standard
18	Maintenance Room	3 rd Floor	31.3	According to National Joint Council in Part II - Permanent Structures and Safe Occupancy of the Workplace [Section 2.2(b) Environmental Conditions]- > 40°C is considered to be an unsatisfactory condition (In those cases, operations shall be stopped and employees released from the workplace if relocation is not practicable.)	60.6	Relative Humidity level 30% to 70% is considered to be an satisfactory Condition
19	Lab Room		31.6		60.4	
20	Chemical Store		31.4		60.7	
21	Sample Table Area		31.1		60.8	
22	Printing Table Area	2 nd Floor	31.2		60.9	
23	Color Mixing Area		31.5		60.5	
24	Chemical Store		31.7		60.8	
25	Curing Machine Area		31.4		60.5	
26	Office Room	1 st Floor	31.5		60.4	
27	Office Area & IT Room		AC Controlled		AC Controlled	
28	Chemical Store		31.2		60.6	
29	GM Sir Office Room		AC Controlled		AC Controlled	
30	Conference Room		AC Controlled		AC Controlled	
31	Planning & Design Room		AC Controlled		AC Controlled	
32	Stone & Laser Area		31.9		60.7	
33	Heat Press Section		31.4		60.5	
34	Printing Machine Area		31.6		60.9	
35	Curing Machine Area		31.5		60.4	
36	Expose Room		AC Controlled		AC Controlled	
37	Color Mixing Area		31.6		60.5	
38	Merchandiser Room	AC Controlled	AC Controlled			
39	Office Area	M.Z Floor	AC Controlled		AC Controlled	
40	Sticker Section	Ground Floor	31.4		60.6	
41	Embroidery Section		AC Controlled		AC Controlled	
42	ETP Area		31.3		60.2	
43	Child Care Room		31.6		60.3	
44	Doctor Room		31.5		60.2	
45	Compressor Room		31.4		60.1	
46	Generator Room		31.8		60.5	
47	Sub-Station Room		31.5		60.2	
48	Security Room		31.1		60.3	

Note:

Satisfactory Condition

Unsatisfactory Condition

Note 1: Optimum Humidity Levels are between 40% and 60% -but in any case they should be kept between 30% and 70%. Humidity Levels below 40% will begin to causes problems for worker with conditions such as sinusitis.

Note 2: The Comparative temperature Standard according to **ASHARE Standard 55- 2010- “Thermal Environmental Conditions for Human Occupancy”** is given below:

Conditions	Acceptable Operating Temperature
Summer (Light Clothing) If 30% then	24.5 -28 °C
If 60% then	23 - 25.5°C
Winter (Warm Clothing) If 30% then	20.5 -25.5°C
If 60% then	20 - 24°C

Certain steps can be taken to reduce discomfort. These include:

- Using fans or air conditioning
- Wearing light, loose fitting clothing
- Taking more frequent rest breaks
- Drinking cold beverages (ones that do not have caffeine or alcohol)
- Allowing flexibility to permit less physically demanding activities during peak temperature periods.
- Using screens or umbrellas to create shade.

Envirocare Expert’s Comment:

The workplace Temperature and Humidity level at most of the sections of the factory has been found satisfactory according to Bangladesh weather condition. According to **National Joint Council in Part II** Standard tested temperature and Humidity is within the standard.



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Ref: ECIL/2023/2743/IAQ

INDOOR AIR QUALITY INSPECTION REPORT

Factory Name : Knit Concern Printing Unit.
Factory Address : House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj, Narayanganj-1400
Sampling Date : 02nd April 2023
Reporting Date : 05th April 2023

Environmental Condition:

Ambient Temperature : 31.4 °C
Relative Humidity : 60.7% RH
Weather Condition : Sunny

Project Area

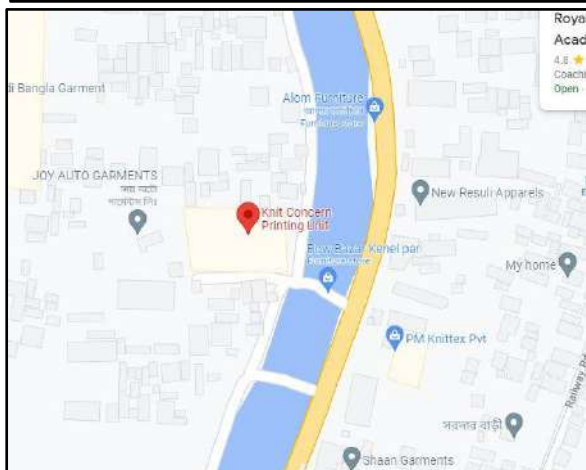


Figure: Knit Concern Printing Unit.



Sampling Location : Different sections of the factory

Description of Test Method

Tests have been performed to monitor CO and CO₂ in the indoor air following Continuous Ambient Air Monitoring Method by using Digital Gas analyzer. The analyzer is designed to meet **BS 8494** standard. CO is monitored using electrochemical sensor and CO₂ is monitored by using electromagnetic Sensor. Oxygen was measured using a continuous combustion analyzer which was designed to meet **BS EN 50319** standard. The suspended Particulate Matter (SPM, PM_{2.5}, and PM₁₀) test was conducted by using Respirable Dust Sampler.

Instrument Details

Particulate Counter Specification:

Size Range : 0.2µm~10µm
 Flow Rate : 2.83 Liter/min (0.1cfm)
 Counting Efficiency : 50±20%@0.3µm; 100±10%@0.5µm

Air Analyzer Specification:

Parameter	Resolution	Accuracy	Specified Range	Over Range
Carbon Dioxide	1ppm	±5 ppm < 100ppm ±5% > 100ppm ±10% > 1000ppm	1000ppm	2000 ppm
Carbon Monoxide	1ppm	±5 ppm < 100ppm ±5% > 100ppm ±10% > 1000ppm	200-4000 ppm	9999ppm
Oxygen	0.1%	± 2%	0-21%	-

Test Result

Sampling has been done between 10:30 AM to 5:00 PM according to the *Envirocare Work Instruction WI-02*.

Test Result										
SL No	Name of Sections	Location	Indoor Air Quality Result							
			SPM µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	NO _x µg/m ³	SO ₂ µg/m ³	VOC ppm	CO ppm	CO ₂ ppm
1	HR Office Room	5 th Floor	124	30	63	2.3	9.1	0.01	0.2	427
2	Inspection Room		126	29	68	2.6	9.0	0.01	0.1	424
3	Curing Machine Area		132	28	70	2.4	9.1	0.02	0.2	431
4	AQL Table Area		131	27	68	2.5	10.1	0.01	0.2	429
5	Printing Table Area		134	38	85	2.8	10.0	0.08	0.2	432
6	Color Mixing Area		129	37	73	2.7	9.0	0.14	0.1	442
7	Dining & Canteen Area		125	32	71	2.4	9.7	0.02	0.2	433
8	QC Table Area		124	32	70	3.2	9.4	0.01	0.1	431
9	Digital Printing Machine Area	4 th Floor	132	30	71	3.5	10.0	0.07	0.2	437
10	Printing Table Area		134	32	73	3.3	9.7	0.08	0.1	439
11	Heat Press Section		129	36	65	3.6	9.7	0.02	0.1	432
12	Admin Office Room		122	29	68	3.5	9.8	0.02	0.2	430
13	Fabrics Store	3 rd Floor	125	29	66	2.8	9.7	0.02	0.1	432
14	CPI Table Area		123	26	64	2.4	9.8	0.01	0.2	430
15	Printing Machine Area		125	32	69	2.4	9.7	0.05	0.2	433
Method of Analysis			Gravimetric	Gravimetric	Gravimetric	Electro-Chemical Sensor	West-Gaeke	Jacob and Hochheiser	CO Meter	CO₂ Meter

Note: SPM= Suspended Particulate Matter, SO₂= Sulphur Di Oxide, NO_x= Oxides of Nitrogen, CO= Carbon Monoxide, CO₂= Carbon Di Oxide, O₂=Oxygen, NYS= Not Yet Set, PPM= Parts per Million, VOC = Volatile organic Compound, 1µg/m³ =0.001ppm

Test Result										
SL No	Indoor Air Quality Result									
	Name of Sections	Location	SPM µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	NO _x µg/m ³	SO ₂ µg/m ³	VOC ppm	CO ppm	CO ₂ ppm
16	Curing Machine Area	3 rd Floor	130	31	68	2.3	9.0	0.01	0.2	428
17	Color Mixing Area		132	35	69	3.4	10.3	0.11	0.4	431
18	Maintenance Room		125	31	61	3.1	9.8	0.02	0.3	437
19	Lab Room		126	29	69	3.3	9.7	0.01	0.2	430
20	Chemical Store		128	30	64	4.2	9.9	0.12	0.3	439
21	Sample Table Area		132	35	69	3.2	9.0	0.05	0.2	429
22	Printing Table Area	2 nd Floor	133	28	69	3.5	10.1	0.07	0.2	443
23	Color Mixing Area		131	35	68	4.1	9.0	0.14	0.2	441
24	Chemical Store		130	36	78	2.2	9.9	0.05	0.2	433
25	Curing Machine Area		132	30	75	2.6	10.3	0.01	0.2	428
26	Office Room		123	27	67	2.3	9.8	0.02	0.3	437
27	Office Area & IT Room	1 st Floor	125	28	69	2.1	9.7	0.01	0.2	434
28	Chemical Store		130	32	76	2.7	9.9	0.08	0.3	439
29	GM Sir Office Room		123	32	73	3.4	9.9	0.02	0.2	421
30	Conference Room		129	32	65	2.3	9.0	0.01	0.2	429
31	Planning & Design Room		124	30	69	2.8	9.8	0.02	0.3	432
32	Stone & Laser Area		129	29	64	2.3	9.8	0.01	0.3	435
33	Heat Press Section		125	31	74	2.1	9.7	0.02	0.2	430
34	Printing Machine Area		128	32	69	3.3	9.7	0.10	0.2	428
35	Curing Machine Area		133	33	74	4.2	9.9	0.02	0.3	434
Method of Analysis			Gravimetric	Gravimetric	Gravimetric	Electro-Chemical Sensor	West-Gaeke	Jacob and Hochheiser	CO Meter	CO₂ Meter

Note: SPM= Suspended Particulate Matter, SO₂= Sulphur Di Oxide, NO_x= Oxides of Nitrogen, CO= Carbon Monoxide, CO₂= Carbon Di Oxide, O₂=Oxygen, NYS= Not Yet Set, PPM= Parts per Million, VOC = Volatile organic Compound, 1µg/m³ =0.001ppm

Test Result										
SL No	Indoor Air Quality Result									
	Name of Sections	Location	SPM µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	NO _x µg/m ³	SO ₂ µg/m ³	VOC ppm	CO ppm	CO ₂ ppm
36	Expose Room	1 st Floor	129	31	69	2.3	9.0	0.10	0.2	437
37	Color Mixing Area		126	29	62	2.6	9.2	0.12	0.3	429
38	Merchandiser Room		119	28	64	2.4	9.3	0.01	0.2	428
39	Office Area	M.Z Floor	125	32	72	2.5	9.8	0.02	0.5	434
40	Sticker Section	Ground Floor	129	30	64	2.8	9.3	0.01	0.2	431
41	Embroidery Section		131	35	68	4.1	9.0	0.14	0.2	441
42	ETP Area		132	32	75	2.7	9.5	0.02	0.3	429
43	Child Care Room		127	35	74	2.4	9.2	0.01	0.2	423
44	Doctor Room		129	34	70	3.2	9.3	0.02	0.4	431
45	Compressor Room		130	36	70	2.2	9.9	0.02	0.2	433
46	Generator Room		132	30	68	2.6	10.3	0.01	0.2	421
47	Sub-Station Room		128	31	69	2.3	9.8	0.02	0.3	430
48	Security Room		129	30	64	2.8	9.3	0.01	0.2	437
Method of Analysis			Gravimetric	Gravimetric	Gravimetric	Electro-Chemical Sensor	West-Gaeke	Jacob and Hocheiser	CO Meter	CO ₂ Meter

Note: SPM= Suspended Particulate Matter, SO₂= Sulphur Di Oxide, NO_x= Oxides of Nitrogen, CO= Carbon Monoxide, CO₂= Carbon Di Oxide, O₂=Oxygen, 1µg/m³=0.001ppm, PPM= Parts per Million, VOC = Volatile organic Compound M.Z= Mezzanine

Relevant Standards									
Regulatory Body (Indoor Air Quality)	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO _x	CO	CO ₂	O ₃	VOC
	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	ppm	µg/m ³	ppm
Environmental Conservation Rules-1997 (Amended, 2005)	500 (8h)	65 (24h)	150 (24h)	365 (24h)	100 (Annual)	10 (8h)	NYS	157 (8h)	NYS
Air Pollution (Control) Rules-2022	NYS	65 (24h)	150 (24h)	80 (24h)	80 (24h)	5 (8h)	NYS	100 (8h)	NYS
IFC/ WB standard	230 (24h)	75 (24h)	150 (24h)	125 (24h)	40 (Annual)	7 (24h)	NYS	160 (8h)	NYS
WHO International Standard for VOC									0.75

Envirocare Expert's Comment:

Indoor air quality of the factory has been analyzed for the concentration of parameters CO, CO₂, SO₂, NO_x, VOC and Suspended Particulate Matter (SPM, PM₁₀, PM_{2.5}) of different sizes within the range of 0.2µm~10µm. From the analysis it has been observed that in most of the sections the value of CO, CO₂, SO₂, NO_x, and SPM, PM₁₀, PM_{2.5} VOC are below the maximum permissible limit of DOE guideline. After all it is recommended to provide mask to the relevant workers of those sections to avoid occupational health hazard and install sufficient ventilation system form removing dust concentration.



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Ref: ECIL/2023/2744/AAQ

AMBIENT AIR QUALITY MONITORING REPORT

Factory Name : Knit Concern Printing Unit.
Factory Address : House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj, Narayanganj-1400
Sampling Date : 02nd April 2023
Reporting Date : 05th April 2023

Environmental Condition:

Ambient Temperature : 31.4 °C
Relative Humidity : 60.7% RH
Weather Condition : Sunny

Project Area



Figure: Knit Concern Printing Unit.

Sampling Location : Different sections of the factory

Description of Test Method

Tests have been performed to monitor CO and CO₂ in the indoor air following Continuous Ambient Air Monitoring Method by using Digital Gas analyzer. The analyzer is designed to meet **BS 8494** standard. CO is monitored using electrochemical sensor and CO₂ is monitored by using electromagnetic Sensor. The suspended Particulate Matter (SPM, PM_{2.5}, and PM₁₀, SO₂, NO_X) test was conducted by using Respirable Dust Sampler.

Instrument Details

Particulate Counter Specification:

Size Range : 0.2µm~10µm

Flow Rate : 2.83 Liter/min (0.1cfm)

Counting Efficiency : 50±20%@0.3µm; 100±10%@0.5µm

Air Analyzer Specification:

Parameter	Resolution	Accuracy	Specified Range	Over Range
Carbon Dioxide	1ppm	±5 ppm < 100ppm ±5% > 100ppm ±10% > 1000ppm	1000ppm	2000 ppm
Carbon Monoxide	1ppm	±5 ppm < 100ppm ±5% > 100ppm ±10% > 1000ppm	200-4000 ppm	9999ppm
Oxygen	0.1%	± 2%	0-21%	-

Sampling has been done between 10:00 AM to 4:20 PM according to the *Envirocare Work Instruction WI-02*.

Test Result								
SL No	Location	Ambient Air Quality Result						
		SPM µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	NO _x µg/m ³	SO ₂ µg/m ³	CO ppm	CO ₂ ppm
1	East side	122	37	89	9.9	19.6	0.3	429
2	West Side	125	38	78	8.8	19.5	0.1	433
3	North Side	128	36	79	9.8	19.1	0.2	425
4	South Side	125	35	77	9.1	19.0	0.2	427
Method of Analysis		Gravimetric	Gravimetric	Gravimetric	Jacob and Hochheiser	West-Gaeke	CO Meter	CO ₂ Meter

Note: *SPM= Suspended Particulate Matter, SO₂= Sulphur Di Oxide, NO_x= Oxides of Nitrogen, CO= Carbon Monoxide, CO₂= Carbon Di Oxide, O₂=Oxygen, NYS= Not Yet Set, PPM= Parts per Million*

Relevant Standards							
Regulatory Body (Ambient Air Quality)	SPM	PM _{2.5}	PM ₁₀	SO ₂	NO _x	CO	CO ₂
	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	ppm
Environmental Conservation Rules-1997 (Amended, 2005)	200 (8h)	65 (24h)	150 (24h)	365 (24h)	100 (Annual)	10 (8h)	NYS
Air Pollution (Control) Rules-2022	NYS	65 (24h)	150 (24h)	80 (24h)	80 (24h)	5 (8h)	NYS
IFC/ WB standard	230 (24h)	75 (24h)	150 (24h)	125 (24h)	40 (Annual)	7 (24h)	NYS

Envirocare Expert's Comment:

Ambient air quality of the factory has been analyzed for the concentration of parameters CO, CO₂, SO₂, NO_x, and Suspended Particulate Matter (SPM, PM₁₀, PM_{2.5}) of different sizes within the range of 0.2µm~10µm. From the analysis it has been observed that in most of the sections the value of CO, CO₂, SO₂, NO_x, and SPM, PM₁₀, PM_{2.5} are below the maximum permissible limit of DOE guideline.



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Ref: ECIL/2023/2745/SAG

STACK EMISSION TEST REPORT GENERATOR

Factory Name : Knit Concern Printing Unit.
Factory Address : House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj, Narayanganj-1400
Sampling Date : 02nd April 2023
Reporting Date : 05th April 2023

Environmental Condition:

Ambient Temperature : 31.4 °C
Relative Humidity : 60.7% RH
Weather Condition : Sunny

Project Area

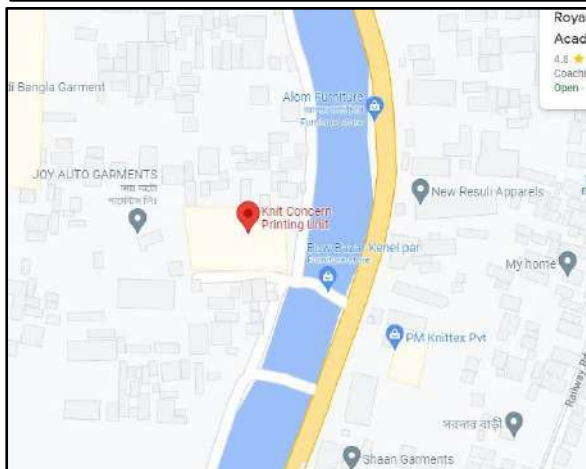


Figure: Knit Concern Printing Unit.

Sampling & Test Method

Sampling was done by automatic (Testo 340 Flue Gas Analyzer) and stack Sampler APM 160 connected with the analyzer. During the sampling procedure, all the instruction stated in the EC-SG-00 was followed. The machine probe was set to the center point of the exhaust. Sampling was done for specific time intervals mentioned in the work instruction and recorded in a field data collection sheet. A continuous gas analyzer and stack Sampler APM 160 were used to monitor O₂, CO, SO₂, CO₂, NO, NO_x, SPM.

Machine Description:

Key Information	Generator -1	Generator -2
Location	Ground Floor	Ground Floor
Capacity	220KVA	630 KVA
Made in	UK	UK
Model No.	Bangla Cat	Amaze Power
Supplier Name	GEH220	GT630VM
Date of Installation	2015	2016
Machine maintenance/ Repair Status	Good	Good
Fuel type	Diesel	Diesel
Last Service Date	16-01-2023	11-02-2023

Table: Standard Permissible Limit

Standard	Fuel	Pollutants					
		O ₂ %	CO mg/Nm ³	CO ₂ mg/Nm ³	NO _x mg/Nm ³	SO ₂ mg/Nm ³	SPM mg/Nm ³
ECR- 1997	Gas	NYS	NYS	NYS	56	NYS	350
	Diesel	NYS	NYS	NYS	NYS	NYS	350
Air Pollution (Control) Rules- 2022	Gas	NYS	NYS	NYS	300	250	NYS
	Diesel	NYS	NYS	NYS	400	250	200
IFC/ WB standard	Gas	15	NYS	NYS	1600	NYS	NYS
	Diesel	15	NYS	NYS	1850	2000	50-100

NYS= Not Yet Set; ECR= Environmental Conservation Rules

Test Result

Sl. No.	Test parameter	Unit	Results	
			Generator -1	Generator -2
1	O ₂	(%)	12.4	14.6
2	CO	mg/Nm ³	216	235
3	CO ₂	(%)	1.25	1.34
4	NO _x	mg/Nm ³	12	15
5	SO ₂	mg/Nm ³	5.6	6.9
6	SPM	mg/Nm ³	10	13

Note: O₂ = Oxygen, CO = Carbon mono oxide, CO₂ = Carbon di oxide, NO_x = Nitrogen oxides, SO₂ = Sulfur dioxide; SPM = Suspended Particulate Matter; NYS= Not yet set

Graphical presentation:

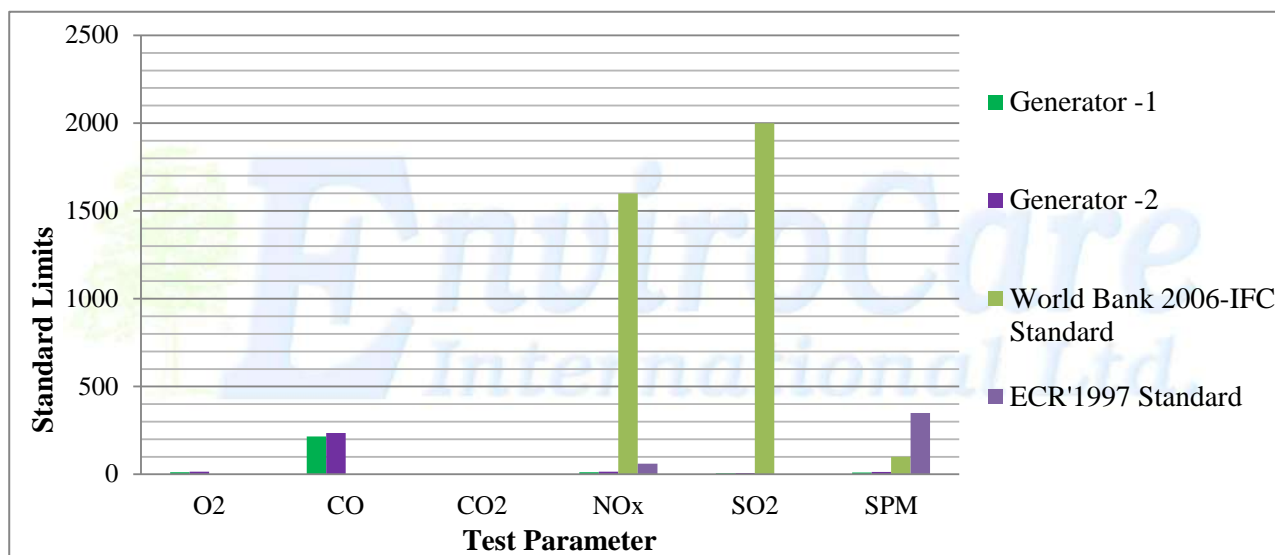


Figure: Graphical presentation of the stack emission test result from Generator

Comment:

The stack emission from the stack point of generator has been analyzed. The parameters O₂, CO, CO₂, NO_x, SO₂ and SPM are observed and evaluate with DoE, Bangladesh and IFC standard and satisfactorily declared that these parameters are within the range. The environment may affect by the gaseous emissions from the generator therefore emissions should be controlled by safe operation of generator to minimize environmental pollutions.

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Ref: ECIL/2023/2746/ODS

Ozone Depleting Substances (ODS) Leak Test Report

Factory Name : Knit Concern Printing Unit.
Factory Address : House- 274, Ward- 8, Block B, Purbapara Enayetnagor, Shiddirgonj, Narayanganj-1400
Sampling Date : 02nd April 2023
Reporting Date : 05th April 2023

Environmental Condition:

Ambient Temperature : 31.4 °C
Relative Humidity : 60.7% RH
Weather Condition : Sunny

Project Area



Figure: Knit Concern Printing Unit.

Sampling:

Leak test for ozone depleting substances (ODS) was conducted for the equipment's

Sl. No	Name of Equipment	Location	Brand	Capacity (BTU/hr)	Power Rating (Watt)	Type of Refrigerant Use	Refrigerant Capacity (kg/Ton)
1	Air Condition	Doctor Room (Ground Floor)	General	18000	1500	R 22	1.5 TON
2	Air Condition	Chairman Sir Room (1 st Floor)	General	60000	5000	R 22	5 TON
3	Air Condition	G.M Sir Room (1 st Floor)	Minister	24000	2000	R 22	2 TON
4	Air Condition	Merchandising (1 st Floor)	General	60000	5000	R 22	5 TON
5	Air Condition	Planning & Commercial (1 st Floor)	Carrier	60000	5000	R 22	5 TON
6	Air Condition	Conference Room (1 st Floor)	Carrier	24000	2000	R 22	2 TON
7	Air Condition	Sublimation (1 st Floor)	Carrier	60000	5000	R 22	5 TON
8	Air Condition	Sublimation (1 st Floor)	Carrier	60000	5000	R 22	5 TON
9	Air Condition	Store Office (1 st Floor)	Carrier	60000	5000	R 22	5 TON
10	Air Condition	Accounts Room (1 st Floor)	Carrier	30000	2500	R 22	2.5 TON
11	Air Condition	Expose Room (1 st Floor)	General	30000	2500	R 22	2.5 TON
12	Air Condition	Digital Printing (4 th Floor)	Carrier	60000	5000	R 22	5 TON
13	Air Condition	Digital Printing (4 th Floor)	General	60000	5000	R 22	5 TON
14	Air Condition	Digital Printing (4 th Floor)	General	60000	5000	R 22	5 TON
15	Air Condition	Sticker Section (Ground Floor)	Carrier	60000	5000	R 22	5 TON
16	Air Condition	Sticker Section (Ground Floor)	Carrier	60000	5000	R 22	5 TON
17	Air Condition	HR Room (5 th Floor)	General	30000	2500	R 22	2.5 TON

Methods and Procedure:

Leak test was carried out using an electronic leak detector with advanced ionization detection sensor.

Instruments:

An electronic refrigerant leak detector was used to check refrigerant leak. The detector is capable of detect CFCs, HCFCs and HFCs.

Sensitivity: 5 gms per year

Response Time: <1 second **A partial list of these gases includes:**

CFCs	R11, R12, R13 etc.
HCFCs	R22, R502, R500 etc.
HFCs	R134A, R123, R125, R33 etc.

Test Result:

Sl. No.	Sample Location	Leak Status (Yes/No)	Concentration Present in ng/m ³ (ODS Parameters)			
			CFCs (Total)	Halon (Residual Chlorine)	Carbon Tetreachloride (CCl ₄)	Methyl Chloroform (CH ₃ CCl ₃)
1	Doctor Room (Ground Floor)	NO	--	--	--	--
2	Chairman Sir Room (1 st Floor)	NO	--	--	--	--
3	G.M Sir Room (1 st Floor)	NO	--	--	--	--
4	Merchandising (1 st Floor)	NO	--	--	--	--
5	Planning & Commercial (1 st Floor)	NO	--	--	--	--
6	Conference Room (1 st Floor)	NO	--	--	--	--
7	Sublimation (1 st Floor)	NO	--	--	--	--
8	Sublimation (1 st Floor)	NO	--	--	--	--
9	Store Office (1 st Floor)	NO	--	--	--	--
10	Accounts Room (1 st Floor)	NO	--	--	--	--

Sl. No.	Sample Location	Leak Status (Yes/No)	Concentration Present in ng/m ³ (ODS Parameters)			
			CFCs (Total)	Halon (Residual Chlorine)	Carbon Tetreachloride (CCl ₄)	Methyl Chloroform (CH ₃ CCl ₃)
11	Expose Room (1 st Floor)	NO	--	--	--	--
12	Digital Printing (4 th Floor)	NO	--	--	--	--
13	Digital Printing (4 th Floor)	NO	--	--	--	--
14	Digital Printing (4 th Floor)	NO	--	--	--	--
15	Sticker Section (Ground Floor)	NO	--	--	--	--
16	Sticker Section (Ground Floor)	NO	--	--	--	--
17	HR Room (5 th Floor)	NO	--	--	--	--

Comments

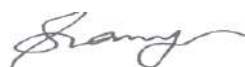
No leak was found during the ODS leak test which means there is no emission of ODS to the environment. So, the unit is not harmful to the environment.

It is recommended that the unit should be cleaned periodically.




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