

COMPLETED PROJECT (2023-24)

ONGOING 2024-25

Standards

AIR QUALITY STANDARDS
(as per Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000)

TABLE I

CATEGORY	POLLUTANT	TIME WEIGHTED AVERAGE	CONCENTRATION IN AMBIENT AIR	METHOD OF MEASUREMENT
1	2	3	4	5
New Coal Mines (Coal Mines commenced operation after the date of publication of this notification)	Suspended particulate Matter (SPM)	Annual Average * 24 hours **	360 ug/m ³ 500 ug/m ³	High Volume Sampling (Average flow rate not less than 1.1 m ³ /minute)
	Respirable particulate Matter (size less than 10 um) (RPM)	Annual Average * 24 hours **	180 ug/m ³ 250 ug/m ³	Respirable particulate Matter sampling and analysis
	Sulphur Dioxide as SO ₂	Annual Average * 24 hours **	80 ug/m ³ 120 ug/m ³	1. Improved West and Gacke method 2. Ultraviolet fluorescence
	Oxide of Nitrogen as NO ₂	Annual Average * 24 hours **	80 ug/m ³ 120 ug/m ³	1. Jacob & Hochheiser Modified (Na-Arsenic) Method 2. Gas phase Chemiluminescence.

TABLE II

CATEGORY	POLLUTANT	TIME WEIGHTED AVERAGE	CONCENTRATION IN AMBIENT AIR	METHOD OF MEASUREMENT
1	2	3	4	5
Existing Coal fields/ Mines given below Karanpura, Ramgarh, Giridih, Rajhara, Wardha, Nagpur, Silewara, Pench, Kanhan, Patharkhera, Umre, Korba, Chirimiri, Central India Coalfields (including Baikunthpur, Bishrampur), Singrauli, Ib Valley, Talcher, Godavary Valley and any other	Suspended particulate Matter (SPM) Respirable particulate Matter (size less than 10 um) (RPM) Sulphur Dioxide (SO ₂) Oxide of Nitrogen as NO ₂	Annual Average * 24 hours **	430 ug/m ³ 600 ug/m ³ 215 ug/m ³ 300 ug/m ³ 80 ug/m ³ 120 ug/m ³ 80 ug/m ³ 120 ug/m ³	High Volume Sampling (Average flow rate not less than 1.1 m ³ /minute) Respirable particulate Matter sampling and analysis 1. Improved West and Gaeke method 2. Ultraviolet fluorescence 1. Jacob & Hochheiser Modified (Na-Arsenic) Method 2. Gas phase Chemiluminescence.

TABLE-III

CATEGORY	POLLUTANT	TIME WEIGHTED AVERAGE	CONCENTRATION IN AMBIENT AIR	METHOD OF MEASUREMENT
1	2	3	4	5
Coal Mines located in the coalfields of - Jharia - Raniganj - Bokaro	Suspended particulate Matter (SPM)	Annual Average * 24 hours **	500 ug/m ³ 700 ug/m ³	High Volume Sampling (Average flow rate not less than 1.1 m ³ /minute)
	Respirable particulate Matter (size less than 10 um) (RPM)	Annual Average * 24 hours **	250 ug/m ³ 300 ug/m ³	Respirable particulate Matter sampling and analysis
	Sulphur Dioxide as SO ₂	Annual Average * 24 hours **	80 ug/m ³ 120 ug/m ³	1. Improved West and Gaeke method 2. Ultraviolet fluorescence
	Oxide of Nitrogen as NO ₂	Annual Average * 24 hours **	80 ug/m ³ 120 ug/m ³	1. Jacob & Hochheiser Modified (Na-Arsenic) Method 2. Gas phase Chemiluminescence.

Note :

* Annual Arithmetic mean for the measurements taken in a year, following the guidelines for frequency of sampling laid down in clause 2.

** 24 hourly / 8 hourly values shall be met 92 % of the time in a year. However, 8% of the time it may exceed but not on two consecutive days.

Unauthorized construction shall not be taken as a reference of nearest residential or commercial place for monitoring.

In case any residential or commercial or industrial place falls within 500 meters of any dust generating sources, the National Ambient Air Standards notified under Schedule VII shall be applicable.

Ambient Air Quality Standards in Respect of Noise is notified under Noise Pollution (Regulation and Control) Rules, 2000.

Area Code	Category of Area/ Zone	Limit in dB(A) Leq*	
		Day Time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

Note:

1. Day time shall mean from 6 AM to 10 PM
2. Night time shall mean from 10 PM to 6 AM
3. Silence Zone is defined as areas up to 100 meters around such premises as hospitals, educational institutes and courts. The Silence Zones are to be declared by competent authority.
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

*dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A “decibel” is a unit in which noise is measured.

“A”, in dB (A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear. Leq: It is energy mean of the noise level over a specific period.

Effluent Water Standards

Sl	Parameter and Unit	Detection Limit	*MOEF - SCH-VI STANDARD S Class 'A'	BIS Standard & Method of analysis
1	Ammonical Nitrogen, mg/l	0.02	50.0, Max	IS 3025/34:1988, R : 2009, Nessler's Method
2	Arsenic (as As), mg/l	0.002	0.2 , Max	IS 3025/37:1988 R : 2003, AAS-VGA, Method
3	B.O.D (3 days 27°C), mg/l	2.00	30.0 , Max	IS 3025 /44:1993, R:2003 3 day incubation at 27°C
4	Cadmium(as Cd), mg/l	0.0004	2.0, Max	APHA, 24 th Edition AAS-GTA Method, 2017
5	COD, mg/l	4.00	250.0, Max	APHA, 24 th Edition, Closed Reflux, Titrimetric: 2017
6	Copper (as Cu), mg/l	0.02	3.0 , Max	IS 3025/42: 1992, R : 2009, AAS (Air-Ac- Flame)
7	Dissolved Phosphate (as PO ₄ ⁻³) mg/l	0.30	5.0 , Max	APHA, 24 th Edition Molybdovanadate Method,
8	Fluoride (as F ⁻) mg/l	0.02	2.0 , Max	APHA, 24 th h Edition, SPADNS Method, 2017
9	Free Ammonia, mg/l	0.02	5.0 , Max	IS 3025/34:1988, R : 2009, Nessler's Method
10	Hexavalent Chromium (as Cr ⁺⁶), mg/l	0.01	0.1, Max	APHA, 24 th Edition, Diphenylcarbohydrazide, 2017
11	Iron (as Fe), mg/l	0.04	3.0 , Max	IS 3025 /53: 2003, R: 2009, AAS-(Air-Ac-Flame)
12	Lead (as Pb), mg/l	0.001	0.1, Max	APHA, 24 th Edition AAS-GTA Method, 2017
13	Manganese(as Mn), mg/l	0.01	2.0 , Max	IS-3025/59:2006, AAS (Air-Ac-Flame) Method
14	Nickel (as Ni), mg/l	0.003	3.0 , Max	APHA, 24 th Edition 3120 B ICP Method, 2017
15	Nitrate Nitrogen (as NO ₃ -N) mg/l	0.50	10.0 , Max	APHA, 24 th Edition, UV- Spectrophotometric Method,
16	Oil & Grease, mg/l	2.00	10.0, Max	IS 3025/39:1991, R : 2003, Partition Gravimetric Method
17	pH value	1.0	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric Method
18	Phenolic compounds (as C ₆ H ₅ OH),mg/l	0.001	1.0 , Max	APHA, 24 th Edition, 4- Amino Antipyrine Method,
19	Selenium (as Se), mg/l	0.0005	0.05, Max	IS 3025/56:2003 AAS-VGA Method
20	Sulphide (as S ²⁻), mg/l	0.005	2.0 , Max	APHA, 24 th Edition Methylene Blue Method, 2017
21	Temperature (°C)	Shall not exceed 5° C above the receiving temp.		IS-3025/09:1984 Thermometric
22	Total Chromium (as Cr), mg/l	0.002	2.0 , Max	APHA, 24 th Edition 3120 B ICP Method, 2017
23	Total Kjeldahl Nitrogen, mg/l	1.00	100.0 , Max	APHA, 24 th Edition, Kjeldahl Method: 2017
24	Total Residual Chlorine, mg/l	0.02	1.0 , Max	APHA, 24 th Edition, DPD Method, 2017
25	Total Suspended Solids, mg/l	10.00	100.0 , Max	IS 3025/17:1984, R :1996, Gravimetric Method
26	Zinc (as Zn), mg/l	0.005	5.0 , Max	IS 3025 /49: 1994, R : 2009, AAS (Air-Ac- Flame)

*The Environment (Protection)Rule,1986, Schedule-VI (General Standards for Discharge of Environmental Pollutants Part-A: Effluent)

Surface Water Standards

S.n	Parameter and Unit	Detection Limit	BIS Standard & Method of analysis
1	Arsenic (as As), mg/l	0.002	IS 3025/37:1988 R : 2003, AAS-VGA, Method
2	BOD (3 days 27°C), mg/l	2.00	IS 3025 /44: 1993, R: 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l	0.0004	APHA, 24 th Edition AAS-GTA Method, 2017
4	Chlorides (as Cl ⁻), mg/l	2.00	IS-3025/32:1988, R-2007, Argentometric Method
5	Copper (as Cu), mg/l	0.02	IS 3025/42: 1992, R : 2009, AAS (Air-Ac-Flame)
6	Disolved Oxygen	0.10	IS 3025/38: 1989, R:2003, Winkler Azide Method
7	Fluoride (as F ⁻) mg/l	0.02	APHA, 24 th Edition, SPADNS Method, 2017
8	Hexavalent Chromium, mg/l	0.01	APHA, 24 th Edition, Diphenylcarbohydrazide, 2017
9	Iron (as Fe), mg/l	0.04	IS 3025 /53: 2003, R : 2009, AAS (Air-Ac-Flame)
10	Lead (as Pb), mg/l	0.001	APHA, 24 th Edition AAS-GTA Method, 2017
11	Nitrate (as NO ₃ ⁻), mg/l	0.50	APHA, 24 th Edition, UV -Spectrophotometric, 2017
12	pH value	1.0	IS-3025/11:1983, R-1996, Electrometric Method
13	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.001	APHA, 24 th Edition, 4- Amino Antipyrine Method, 2017
14	Selenium (as Se), mg/l	0.0005	IS 3025/56:2003 AAS-VGA Method
15	Sulphate (as SO ₄ ²⁻) mg/l	2.00	APHA, 24 th Edition Turbidity Method, 2017
16	Total Dissolved Solids, mg/l	25.00	IS 3025 /16:1984 R : 2006, Gravimetric Method
17	Total Suspended Solids, mg/l	10.00	IS 3025 /17:1984, R :1996, Gravimetric Method
18	Zinc (as Zn), mg/l	0.005	IS 3025 /49: 1994, R : 2009, AAS (Air-Ac-Flame)
19	Total Hardness (CaCO ₃), mg/l	4.00	IS-3025/21:1983, R-2009, EDTA Method

Drinking Water Standards

S.no	Parameter and Unit	Detection Limit	IS:10500 Drinking Water Standards	BIS Standard & Method of analysis
1	Boron (as B), mg/l	0.20	0.5, Max	APHA, 24 th Edition Carmine Method; 2017
2	Cadmium (as Cd), mg/l	0.0004	0.003, Max	APHA, 24 th Edition AAS-GTA Method, 2017
3	Calcium (as Ca), mg/l	1.60	75, Max	IS-3025/40:1991, EDTA
4	Chloride (as Cl ⁻), mg/l	2.00	250, Max	IS-3025/32:1988, R-2007, Argentometric Method
5	Copper (as Cu), mg/l	0.02	0.05, Max	IS 3025/42: 1992, R : 2009, AAS (Air-Ac-Flame)
6	Fluoride (as F ⁻) mg/l	0.02	1.0, Max	APHA, 24 th Edition, SPADNS Method, 2017
7	Free Residual Chlorine, mg/l	0.02	0.2, Min	APHA, 24 th Edition, DPD Method, 2017
8	Iron (as Fe), mg/l	0.04	0.3, Max	IS 3025 /53: 2003, R : 2009, AAS (Air-Ac-Flame)
9	Lead (as Pb), mg/l	0.001	0.01, Max	APHA, 24 th Edition AAS-GTA Method, 2017
10	Manganese (as Mn), mg/l	0.01	0.1, Max	IS-3025/59:2006, AAS (Air-Ac-Flame) Method
11	Nickel (as Ni), mg/l	0.003	0.02 , Max	APHA, 24 th Edition, 3120 B, ICP Method: 2017
12	Nitrate (as NO ₃ ⁻), mg/l	0.5	45, Max	APHA, 24 th Edition, UV- Spectrophotometric, 2017
13	Odour	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	1.0	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric Method
15	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.001	0.001, Max	APHA, 24 th Edition,4-Amino Antipyrine, 2017
16	Selenium (as Se), mg/l	0.0005	0.01, Max	IS 3025/56:2003 AAS-VGA Method
17	Sulphate (as SO ₄ ⁻²) mg/l	2.00	200, Max	APHA, 24 th Edition. Turbidity Method, 2017
18	Total Alkalinity (CaCO ₃), mg/l	4.00	200, Max	IS-3025/23:1986,R: 2009, Titration Method
19	Total Arsenic (as As), mg/l	0.002	0.01, Max	IS 3025/ 37:1988 R : 2003, AAS-VGA: 1998
20	Total Chromium (as Cr), mg/l	0.002	0.05, Max	APHA, 24 th Edition, 3120 B, ICP Method: 2017
21	Total Dissolved Solids, mg/l	25.00	500, Max	IS 3025 /16:1984, R :2006, Gravimetric Method
22	Total Hardness (CaCO ₃), mg/l	4.00	200, Max	IS-3025/21:1983, R-2009, EDTA Method
23	Turbidity, NTU	1.0	1.0, Max	IS-3025/10:1984 R-1996, Nephelometric Method
24	Zinc (as Zn), mg/l	0.005	5.0, Max	IS 3025 /49: 1994, R : 2009, AAS (Air-Ac-Flame)