ANNEX (3)

PERMISSIBLE LIMITS OF AIR POLLUTANTS IN EMISSIONS

Air pollutants in this context are gaseous, solid, liquid or steam pollutants emitted by various establishments within given periods and likely to impact adversely on public health, animals, plants, material, or property, or to interfere with person's exercise of his daily life. Accordingly, if the emission of these pollutants results in the presence of concentrations thereof in excess of the maximum permissible limits for outdoor air, they shall be considered air pollutants.

TABLE (1)
OVERALL PARTICLES

S. No.	**Kind of Activity**	**Maximum Limit for Emissions (mg/m^3 from Exhaust)**
1.	Carbon Industry	50
2.	Coke Industry	50
3.	Phosphates Industry	50
4.	Casting and extraction of lead, zinc, copper, and other non-ferrous metallurgical industries.	100
5.	Ferrous Industries	200 Existing 100 New
6.	Cement Industry	500 Existing 200 New
7.	Synthetic woods and fibers	150
8.	Petroleum and Oil Refining Industries.	100
9.	Other Industries	200

TABLE (2)
MAXIMUM LIMITS OF GAS AND FUME
EMISSIONS FROM INDUSTRIAL ESTABLISHMENTS

	Pollutant	**Maximum Limit for Emissions (mg/m^3 from exhaust)**
*	Aldehydes (measured as Formaldehyde)	20
*	Antimony	20
*	Carbon Monoxide	500 Existing 250 New
*	Sulphur Dioxide	
	Burning Coke and Petroleum	4000 Existing 2500 New
	Non-ferrous Industries	3000
	Sulphuric Acid Industry & other sources	1500
*	Sulphur trioxide in addition to sulphuric acid	150
*	Nitric Acid	
*	Nitric Acid Industry	2000
*	Hydrochloric Acid (Hydrogen Chloride)	100
*	Hydrofluoric Acid (Hydrogen Fluoride)	15
*	Lead	20
*	Mercury	15
*	Arsenic	20
*	Heavy elements (total)	25
*	Silicon Fluoride	10
*	Fluorine	20

	Pollutant	Maximum Limit for Emissions (mg/m^3 from exhaust)
*	Tar	
	Graphite Electrodes Industry	50
*	Cadmium	10
*	Hydrogen Sulphide	10
*	Chlorine	20
*	Carbon	
	Garbage Burning	50
	Electrodes Industry	250
*	Organic Compounds	
	Burning of organic liquids	50 0.04% of crude (oil refining)
*	Copper	20
*	Nickel	20
	Nitrogen Oxides	
	Nitric Acid Industry	3000 Existing 400 New
	Other sources	300

ANNEX (3)
MAXIMUM LIMITS OF AIR POLLUTANTS INSIDE THE WORK PLACE ACCORDING TO TYPE OF INDUSTRY

Threshold Limits are the concentrations of airborne chemical substances to which workers can be exposed day after day without adverse effects to their health and are divided into three kinds:

1- Threshold Limits – Mean time

Is the average time of an ordinary working day (8 hours) to which the worker may be exposed for 5 days a week throughout the period of his employment without suffering any damage to his health.

2- Threshold Limits - Limits of exposure for a short period

They are the limits to which the workers may be continuously exposed for a short period.

The threshold limits for short periods, are the limits of exposure for an average period of 15 minutes and which may not be exceeded under any circumstances during the working period. The period of exposure may not exceed 15 minutes nor be repeated more than four times during the same day. The period between each short exposure and the next must be at least sixty minutes.

3- The ceiling limit which may not be exceeded even for a moment. When absorption through the skin is a factor in increasing exposure, the sign "+ skin" shall be placed before the critical threshold. With respect to dust that merely causes annoyance without having tangible harmful health effects, the threshold limits shall be 10 milligrams/cubic metre for inhalable particles.

Concerning simple asphyxiate gases which have no significant physiological effects, the decisive factor shall be the concentration of oxygen in the atmosphere which may not be less than 18%.

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Acetaldehyde	100	180	150	270	
Acetic Acid	10	25	15	37	
Acetic Anhydride	5	20			+ SKIN
Acetone	750	1780	1000	2375	
Acetonitrile	40	70	60	105	+ SKIN
Tetrabromide Acetylene	1	15	1.5	20	
Acetyl Salicylic Acid (Aspirin)		5			
Acrolein	0.1	0.25	0.3	0.8	
Acrylamide		0.3		0.6	+ SKIN
Acrylic Acid	10	30			
Acrylonitrile	2				+ SKIN
Alderine		0.25		0.75	+ SKIN
Allyl Alcohol	2	5	4	10	+ SKIN
Allyl Chloride	1	3	2	6	
Aluminium Metal and Oxides	10		20		
Pyro Powders	5				
Soldering Smoke Fumes	5				
Soluble Salts	2				
Alkylates	2				
Aminopyridine	5.5	2	2	4	
Ammonia	25	18	35	27	
Ammonium Chloride (Fume)					
n-Amyl Acetate	100	530	150	800	
sec-Amyl Acetate	125	670	150	800	
Aniline and Similars	2	10	5	20	+ SKIN
Antimony and Its Compounds (Counted as antimone)		0.5			

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
ANTU (Alpha Naphtyl Thiourea)		0.3		0.9	
Arsenic and Its Soluble Compounds (Counted as Arsenic)		0.2			
Arsine Gas	0.05	0.2			
Petroleum asphalt Fumes		5		10	
Atrazine		5			
Methyl Azynphos		0.2		0.6	+ SKIN
Barium and Its Soluble Compounds (Counted as Barium)		0.5			
Benzene (Petrol)	10	30	25	75	
Benzyl Chloride	1	5			
Beryllium		0.002			
Diphenyl	0.2	1.5	0.6	4	
Bismuth Telluride	10		20		
Sodium tetra borate (Anhydrous)		1			
Sodium tetra borate (Decahydrate)		5			
Sodium tetra borate (Pentahydrate)		1			
Boron Oxide		10		20	
Boron Tribromide	1	10	3	30	
Boron Trifluoride	1	3			+ CEILING
Bromine	0.1	0.7	0.3	2	
Bromine pentafluoride	0.1	0.7	0.3	2	
Bromoform	0.5	5			

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Butadiene	1000	2200	1250	2750	
Butane	800	1100			
n-Butyl Acetate	150	710	200	150	
sec- Butyl Acetate	200	950	250	1190	
tert-Butyl Acetate	200	950	250	1190	
Butyl Acrylate	10	55			
n-Butyl Alcohol	50	150			+ SKIN
sec- Butyl Alcohol	100	305	150	450	
tert- Butyl Alcohol	100	300	150	450	
Butyl Amines	5	15			+ SKIN
Tetra Butyl Chromate Counted as Chromium Oxide(CrO_3)		0.1			+ SKIN CEILING
Butyl Lactate	5	25			
Butyl Mercaptan	0.5	1.5			
Cadmium Dusts and Salts (Counted As Cadmium)	0.05		0.2		
Cadmium Smokes	0.05				CEILING
Calcium Carbonate				20	
Calcium Hydroxide		5			
Calcium Oxide		2		10	
Carbaryl		5		10	
Carbofuran		0.1			
Carbon Black		3.5		7	
Carbon Dioxide	5000	9000	15000	27000	
Carbon Disulphide	10	30			+ SKIN
Carbon Monoxide	50	55	400	440	
Carbon Tetra Chloride	5	30	20	125	

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Carbon Tetra Bromide	0.1	1.4	0.3	4	
Chlordane		0.5		2	+ SKIN
Chlorinated Camphene		0.5		1	+ SKIN
Chlorinated Diphenyl Oxide		0.5		2	
Chlorine	1	3	3	9	
Chlorine Dioxide	0.1	0.3	0.3	0.9	
Chloro Acetaldehyde	1	3			CEILING
Chlorobenzene	75	350			
Chlorodiphenyl (42%)		1		2	
Chlorodiphenyl (45%)		0.5		1	
Chloroform	10	50	50	225	
Di (chloromethyl) Ether	0.001	0.005			
Chloropicrin	10	45			
Chlorpyrifos		0.2		0.6	+ SKIN
Chromium and Its Compounds (Counted on The Basis of Chromium)		0.5			
Hexavalent Chromium Compounds (Counted on The Basis of Chromium)		0.05			
Volatile Coal Tar Products Which Are Soluble In Benzene		0.2			
Cobalt and its Dust and Smokes		0.1			
Copper Smokes		0.2			
Copper Dust and Sprinkles (Counted as Copper)		1		2	
Raw Cotton Fluff		0.2		0.6	
Cresoles	5	22			+ SKIN

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Cyanide Salts, Counted as Cyanide		5			SKIN
Cyanogen	10	20			
Cyanogen Chloride	0.3	0.6			CEILING
Cyclohexane	300	1050	375	1300	
Cyclopentadiene	75	200	150	400	
Cyclopentane	600	1720	900	2580	
D.D.T		1		3	
Decaborane	0.05	0.3	0.15	0.9	SKIN
Diazinon		0.1		0.3	+ SKIN
Diazomethane	0.2	0.4			
Diborane	0.1	0.1			
Dichloro acetylene	0.1	04			CEILING
o-Dichlorobenzene	50	300			CEILING
para - Dichlorobenzene	75	450	110	675	
1, 2 - Dichloro ethylene	200	790	250	1000	
Dichloroethyl ether	5	30	10	60	+ SKIN
Dichlorvos	0.1	1	0.3	3	+ SKIN
Dichrotofos		0.25			+ SKIN
Dieldrin		0.25		0.75	+ SKIN
Diethanolamine	3	15			
Dimethylaniline	5	25	10	50	+ SKIN
Dinitrobenzene	0.15	1	0.5	3	+ SKIN
Dinitro- O - Cresol		0.2		0.6	+ SKIN
Dinitrotoluene		1.5		5	+ SKIN
Dioxin	25	90	100	360	+ SKIN

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Dipropylene Glycol Methyl Ether	100	600	150	900	+ SKIN
Diquat		0.5		1	
Disulfiram		2		5	
Endosulfan		0.1		0.3	+ SKIN
Endrin		0.1		0.3	+ SKIN
Epichlorohydrin	2	10	5	20	+ SKIN
Ethyl Acetate	400	1400			
Ethanol	1000	1900			
Ethanolamine	3	8	6	15	
Ethylbenzene	100	435	125	545	
Ethyl butyl ketone	50	230	75	345	
Ethyl chloride	1000	2600	1250	3250	
Ethylene diamine	10	25			
Ethylene oxide	10	20			
Ethylene dichloride	10	40	15	60	
Ethylene glycol (particles)		10		20	
Ethylene glycol (Vapour)	50	125			Ceiling
Ethyl mercaptan	0.5	1	2	3	
Ferro vanadium Dust		1		0.3	
fibrous Glass Dust		10			
Fluorides (Counted on The Basis of Fluorine)		2.5			
Fluorine		2	2	4	CEILING
Formaldehyde	2	3			CEILING
Formic Acid	5	9			

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Gasoline	300	900	500	1500	
Heptachlor		0.5		2	+ SKIN
Heptane	400	1600	500	2000	
Hexachloro Cyclopentadiene	0.01	0.1	0.03	0.3	
Hexachloro-Naphthalene		0.20		0.60	+ SKIN
n- Hexane	50	180	1000	3600	
Hexane Isomers	500	1800	1000	3600	
Hydrogen Bromide	3	10			
Hydrogen Cyanide	10	10			CEILING
Hydrogen Fluoride	3	2.5	6	5	
Hydrogen Sulphide	10	14	14	21	
Iodine	0.1	1			CEILING
Iron Oxide Smokes	3	5		10	
Iron Pentacarbonyl	0.1	0.8	0.2	0.16	
Isobutyl Alcohol	50	150	75	225	
Isopropyl Alcohol	400	980	500	1225	
Lead Dust and Smokes Non Organic (as Lead)		0.15		0.45	
Lead Arsenate		0.15		045	
Lead Chromate		0.05			
Lindane		0.5		0.5	+ SKIN
Liquified Petroleum Gases	1000	1800	1250	2250	
Magnesium Oxides Smokes		10			
Malathion		10			+ SKIN
Manganese Dusts and Compounds (as Manganese)		5			CEILING
Manganese Smokes		1		3	

Substance	Threshold Limits				
	Mean time		Limits of exposure for a short period		Remarks
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Mangenese Tetra Oxide		1			
Mercury (as Mercury)					+ SKIN
Alkyl Compounds		0.01		0.03	
Smokes Of All Other Compounds Except Alkyl		0.05			
Aryl Compounds and Inorganic Compounds		0.1			
Methomyl		2.5			+ SKIN
Methoxychlor		10			
Methyl Alcohol	200	260	250	310	+ SKIN
Methyl Bromide	5	20	15	60	
Methyl butyl ketone	5	20			
Methyl chloride	50	105	100	205	
Methyl chloroform	350	1900	450	2450	
Diphenylmethane Diisocyanate (MDI)	0.02	0.2			CEILING
Methylene Chloride	100	360	500	1700	
Methyl Ethyl Ketone	200	590	300	885	
Methyl Hydrazine	0.02	0.35			+ SKIN
Methyl Isocyanate	0.02	0.05			+ SKIN
Methyl Mercaptan	0.5	1			
Methyl Parathion		0.2		0.6	+ SKIN
Mevinphos	0.01	0.1	0.03	0.3	+ SKIN
Monocrotophos					
Naphthalene	10	50	15	75	
Nickel Carbonyl (as Nickel)	0.05	0.53			
Nickel Metal		1			
Soluble Compounds (as Nickel)		0.1		0.3	
Nicotine		0.5		1.5	+ SKIN

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Nitric Acid	2	5	4	10	
Nitric Oxide	25	30	35	45	
Para Nitroaniline		3			+ SKIN
Nitrobenzene	1	5	2	10	+ SKIN
Nitro Chlorobenzene		1		2	+ SKIN
Nitrogen Dioxide	3	6	5	10	
Nitrogen Trifluoride	10	30	15	45	
Nitroglycerin	0.02	0.2	0.05	0.5	+ SKIN
Nitrotoluene	2	11			+ SKIN
Octachloronaphthalene		0.1		0.3	+ SKIN
Mineral Oil Sprinkles		5		10	
Osmium Tetraoxide (as Osmium)	0.0002	0.002	0.0006	0.006	
Oxalic Acid		1		2	
Oxygen Difluoride	0.05	0.1	0.15	0.3	
Ozone	0.1	0.2	0.3	0.6	
Paraffin Wax Vapours		2		6	
Paraquat (Size of Inhalable Particles)		0.1			
Parathion		0.1		0.3	+ SKIN
Pentachloronaphthalene		0.5		2	
Pentachlorophenol		0.5		1.5	+ SKIN
Ethylene Dichloride	50	325			
Phenol	5	19	10	38	+ SKIN
Phenothiazine		5		10	+ SKIN
Para-Phenylene Diamine		0.1			+ SKIN
Phenylhydrazine	5	20	1	45	+ SKIN

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Phenyl Mercaptan	0.5	2			
Phosgene	0.1	0.4			
Phosphine	0.3	0.4	1	1	
Phosphoric Acid		1		3	
Yellow Phosphorus		0.1		0.3	
Picric Acid		0.1		0.3	+ SKIN
Platinum Metal		1			
Soluble Platinum Salts (as Platinum)		0.002			
Potassium Hydroxide		2			CEILING
Propionic Acid	10	30	15	45	
Propyl Alcohol	200	500	250	625	+ SKIN
Pyrethrum		5		10	
Pyridine	5	15	10	30	
Rotenone		5		10	
Selenium Salts (as Selenium)		0.2			
Selenium Hexafluoride	0.05	0.2			
Silicon				20	
Silicon Carbide				20	
Silver Metal		0.1			
Soluble Silver Salts		0.01			
Sodium Azide	0.1	0.3			CEILING
Sodium Bisulfite		5			
Sodium Fluoroacetate		0.05		0.15	+ SKIN
Sodium Hydroxide		2			CEILING
Sodium Metabisulfite		5			

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Stibine	0.1	0.5	0.3	1.5	
Protein Decomposing Enzymes (100% Pure Crystalline Enzyme)		0.00006			CEILING
Sulphur Dioxide	2	5	5	10	
Sulphuric Acid		1			
Sulphur Hexafluoride	1000	6000	1250	7500	
Sulphur Monochloride	1	6	3	18	
Sulphur Pentafluoride	0.025	0.25	0.075	0.75	
2,4,5 – Trichlorophenoxy- Acetic Acid		10		20	
TEPP (Tetra ethyl pyrophosphate)	0.004	0.05	0.01	0.02	+ SKIN
1,1,2,2, Tetrachloroethane	5	35	10	70	+ SKIN
Tetra Ethyl Lead (as Lead)		0.1		0.3	+ SKIN
Tetryl		1.5		3	+ SKIN
Soluble Thallium salts (as Thallium)		0.1			+ SKIN
Thiram		5		10	
Tin & Its Inorganic Compounds (Except Tin Tetra Oxide Counted as Tin)		2		4	
Tin Organic Compounds (as Tin)		0.1		0.2	+ SKIN
Titanium Dioxide				20	
Toluene	100	375	150	560	+ SKIN
Toluene Di-isocyanate	0.02	0.14			CEILING
o-toluidine	2	9			+ SKIN
Trichloroacetic Acid	1	5			
1,2,4, Trichlorobenzene	5	40			

Substance	Threshold Limits				Remarks
	Mean time		Limits of exposure for a short period		
	Part per million P.P.M	mg/m^3	Part per million P.P.M	mg/m^3	
Trichloroethylene	50	270	150	805	
Trichloronaphthalene		5		10	
2,4,6 – Trinitrotoluene		0.5		3	+ SKIN
Trimethylbenzene	25	125	35	170	
Triorthocresyl Phosphate		0.1		0.3	
Natural Uranium & Its soluble & insoluble Compounds (Counted as Uranium)		0.2		0.6	
Inhalable Vanadium Dusts & Smokes (Counted as Vanadium PentaOxide)		0.5			
Vinyl Chloride	5	10			
Warfarin		0.1		0.3	
Soldering Smokes		5			
Solid Timber Dusts		1			
Soft Timber Dusts		5		10	
Xylene	100	435	150	655	+ SKIN
Zinc Chloride Smokes		1		2	
Zinc Oxide Smokes		5		10	
Zirconium Compounds (Counted as Zirconium)		5		10	