

FILE NAME: Asbestos in India (IND)

DATE: 1982-1991

DOC#: IND022

DOCUMENT DESCRIPTION: Air Emission Inventory

1982 monitoring
Hydram Engineering
Pvt. Ltd. Ghatkopar

Table 4.2 Air Emission Inventory

S. No.	Industry	Installed Capacity	Estimated Emissions (kg/day) :	Composition of Dust
1.	Allied Nippon Ltd. Sahibabad (Gzbd) U.P.	750 MT/Annum	31.25 Kg/day (70% asbestos dust, rest other)	28.03 Kg/day (Based upon monitoring data)
2.	Asbestos Packing & Mfg Co. Andheri (E) Bombay	800 MT/Annum	26.67 Kg/day N.A (Based upon monitoring and questionnaire) (90% asbestos dust, rest other)	
3.	Eternit Everest Ltd. Mullund (W), Bombay	39, 700 MT/Annum	281.87 Kg/day (15-20% asbestos dust, rest cement dust, smoke etc.)	48.0 Kg/day (Only for asbestos & mini silo of cement, Monitoring data)
4.	Eternit Everest Ltd. Calcutta	45,750	324.83 Kg/day (flyash, cement dust, smoke etc.)	
5.	Eternit Everest Ltd. Coimbatore (TN)	42,700	303.17 Kg/day (-----do-----)	
6.	Eternit Everest Ltd. Kymore (MP)	79,300	563.03 Kg/day (-----do-----)	
7.	Ferolite Jointing Ltd. Ghaziabad (UP)	745 MT /Annum	24.83 Kg/day (65% asbestos dust and other process emissions rest is from boilers etc.)	16.45 Kg/day (Based upon monitoring and questionnaire)
8.	Hindustan Ferodo Ltd. Ghatkopar, Bombay	8,375MT/Annum	348.96 Kg/day (60% of asbestos related 40% others – oven/boilers)	65.92 Kg/day (Based upon Monitoring & questionnaire)

Last date in report 1991

(Contd.)

S.No.	Industry	Installed Capacity	Estimated Emission (Kg/day) :	Composition of Dust
9.	Hyderabad Indsutries Ltd. Ballabhgarh (Haryana)	1,37,300MT/Annum (closed)	974.83 Kg/day (20% asbestos related, Rest others-cement SPM, Boilers etc.)	91.36 Kg/day (Asbestos operations; based upon Monitoring and questionnaire)
10.	Hyderabad Indsutries Ltd. Jaisidih (Bihar)	30,000 MT/Annum	213 Kg/day (15% Asbestos dust, rest other)	
11.	Hyderabad Industries Ltd. Sanat Nagar (A.P.)	1,50,000 MT/Annum	1,065.0 Kg/day (30% Asbestos dust, rest others)	
12.	Malabar Building Products Ltd. Trichur, Kerala	36,000	255.6 Kg/day (15-20% asbestos fibrous dust)	
13.	Newkem Products Ltd. Bhandup, Bombay	Stopped use of asbestos since 1984		
14.	Ramco Industries Ltd. Maksi (M.P)	75,000 MT/Annum	532.5 Kg/day (15-20% asbestos fibrous dust)	
15.	Rane Brake Linings Ltd. Madras (T.N.)	3,720 MT/Annum	155.0 Kg/day (100% asb. related mixed dust)	
16.	Reinz Talbros Ltd. Ghaziabad (U.P)	2700 MT/Annum (2,200:CAF) (500 : BTA)	90 Kg/day (30% asbestos dust and others process emission rest from boilers)	69.77 Kg/day (based upon monitoring and questionnaire)
17.	Rohats Industries Ltd. Dalmianagar (Bihar)	36,000	255.60 Kg/day (15-20% asbestos fibrous dust)	

(Contd.)

S.No.	Industry	Installed Capacity	Estimated Emissions (Kg/day):	Composition of Dust
18.	Shree Digvijay Cement Co. Ltd Ahmedabad (Gujrat)	1,04,000	738.40 Kg/day (15-20% asbestos fibrous dust)	
19.	Shree Pipes Ltd Hamirgarh Bhilwara (Rajasthan)	30,000	213.0 Kg/day (15% asbestos fibrous dust)	
20.	Southern Asbestos Cement Ltd. Karur Dharuvar (Karnataka)	N.A	N.A.	
21.	Southern Asbestos Cement Ltd. Makai, Shajapur, (M.P)	N.A.	N.A.	
22.	Standard Clutches & Spares Ltd. Washind (Thane) (Maharashtra)	480 MT/Annum	16 Kg/day (90% asbestos dust rest Others)	N.A. (Based upon monitoring and questionnaire)
23.	Sundaram Abex Ltd. Padi Madras (T.N.)	2,580 MT/Annum	107.5 Kg/day (100% asbestos related mixed dust)	
24.	Swastik Industries Ltd. Chinchwad, Pune, (Maharashtra)	24,000	170.40 Kg/day 15-20% asbestos fibrous dust, rest others	
25.	Tamilnadu Asbestos, Alangulam, Kamrajar (T.N.)	30,000	213. Kgs/day 15-20% asbestos fibrous dust, rest others	
26.	Tamilnadu Asbestos, Mayanur Trichy (T.N.)	30,000	213.0 Kg/day (15-20% asbestos fibrous dust, rest others)	
27.	U.P. Asbestos Ltd. Hazratganj Lucknow (U.P)	36,000	255.60 Kg/day (15-20% asbestos fibrous dust, rest others)	
28.	Utkal Asbestos Ltd. Dhenkanal	30,000	213.0 Kg/day (15-20% asbestos fibrous dust, rest other)	

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S.No.	Industry	Installed Capacity	Estimated Emission (Kg/day) :	Composition of Dust
29.	Visaka Industries Ltd. Somajiguda Hyderabad (A.P)	36,000	255.60 Kg/day (15-20% asbestos fibrous dust, rest other)	
30.	Assam Asbestos Ltd. Guwahati Assam	NA	NA	
31.	Eternit Wires (I) Ltd. Noida (U.P)	30	1.25 Kg/day	
32.	Durac Industries Ltd. Badli (Samaipur), Delhi – 42	30	1.25 Kg/day	
33.	Udai Brakers Ltd. Badli (Samaipur) Delhi – 42	35.6	1.5 Kg/day	

Table 4.3 Effluent Inventory

S.No.	Industry	Quantity of Waste Water Generated	Effluent Treatment and Disposal
1.	Allied Nippon Ltd. Sahibabad (Gzbd.) U.P.	Process 1.5 KL/day Domestic : 10 cu.m/day	Drained out after treatment No Treatment, drained out
2.	Asbestos Packing & Mfg. Co. Andheri (E) Bombay	Dry Process; Domestic : 3.7 KL/day	N/A Drained out ETP not provided
3.	Eternit Everest Ltd. Mullund (W), Bombay	Process: Closed cycle Domestic : 25 Cu.m/day	(In emergency treated and discharged) Drained out
4.	Eternit Everest Ltd. Calcutta	Process: Nil (closed cycle) Domestic:20 cu.m/day	(In emergency treated and discharged) No treatment; Discharged
5.	Eternit Everest Ltd. Coimbatore (TN)	Process : 50 cu.m/day Domestic 100 cu.m/day	ETP, discharged; Oxidation pond, discharged
6.	Eternit Everest Ltd. Kymore (MP)	Process: Zero (Closed Cycle) Domestic: 25.cu.m/day	No 'ETP' Drained without treatment
7.	Ferolite Jointings Ltd. Ghaziabad (UP)	Process 0.14 cu.m/day (boilers) Domestic 1.35 cu.m/day	Solar Evaporation No ETP, Drained without treatment
8.	Hindustan Ferodo Ltd. Ghatkopar, Bombay	Process plus boiler: 50 cu.m/day (closed Loop) Domestic:180 cu.m/day	No discharge ETP; used for gardening/discharged
9.	Hyderabad Industries Ltd. Ballabhgarh (Haryana)	Process : Nil (Closed Loop) Domestic:40 cu.m/day	In emergency treatment and drained out Soak pits & drained

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S.No.	Industry	Quantity of Waste Water Generated	Effluent Treatment and Disposal
10.	Hyderabad Industries Ltd. Jaisidihi(Bihar)	Process : Nil (Closed loop) Domestic:2 Cu.m/day	N/A Drying Beds and drained Soak pits and drained out
11.	Hyderabad Industries Ltd. Sanat nagar (A.P.)	Process : 6cu.m/day Domestic 18 cu.m/day	ETP; Sludge drying beds; and drained Drained without treatment
12.	Malabar Building Products Ltd. Trichur, Kerala	Process : 58 Cu.m/day	Balancing neutralising tanks-setting tank sludge drying beds Land use: percolation to factory's own lands
13.	Newkem Products Ltd. Bhandup, Bombay	Stopped use of asbestos since 1984	
14.	Ramco Industries Ltd. Maksi (M.P.)	Process: Nil (closed loop) Domestic: 2 Cu.m/day; Others : 2 Cu.m/day	drained for gardening
15.	Rane Brake Linings Ltd. Madras (T.N.)	Process: Dry Process Domestic : N.A.	Nil N.A.
16.	Reinz Talbros Ltd. Ghaziabad (U.P)	Process (Only BTA): 30 cu.m/day Domestic : 3 Cu.m/day Boilers Etc : 3 Cu.m/day	only filtration and drained Discharged " "
17.	Rohtas Industries Ltd. Dalmianagar (Bihar)	Process : Zero (closed cycle) Domestic : N.A.	N.A.
18.	Shree Digvijay Cement Co. Ltd. Ahmedabad (Gujrat)	Process: Negligible Domestic: 100 Cu.m/day	Treated and discharged; No treatment, discharged

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S.No.	Industry	Quantity of Waste Water Generated	Effluent Treatment and Disposal
19.	Shree Pipes Ltd. Hamirgarh Bhilwara (Rajasthan)	Process: Nil (closed cycle) Domestic: 20 Cu.m/day	Treatment details not available Gardening use
20.	Southern Asbestos Cement Ltd. Karur Dharwar (Karnataka)	N.A.	N.A.
21.	Southern Asbestos Cement Ltd. Maks, Shajapur (M.P.)	N.A.	N.A.
22.	Standard Clutges & Spares Ltd. (Thane) (Maharashtra)	Process: Zero Dry Proc. Domestic : 200 Gallons/day	No treatment, drained
23.	Sundram Abex Ltd. Padi Madras (T.N.)	Process : Dry Proc Domestic : 30 cu.m/day	Nil Treatment and drained
24.	Swastic Industries Ltd. Chinchwad, Pune (Maharashtra)	Process: Nil (Closed cycle); Domestic 0.5 Cu.m/day	Nil N.A.
25.	Tamilnadu Asbestos, Alangulam, Kamrajar (T.N.)	2.5 Cu.m/day Process : 0.5 Domestic : 2.0	No treatment Drained to nallah and eventually to nearby river
26.	Tamilnadu Asbestos, Mayanur, Trichy (T.N.)	125 KL/day	Solar evap. Pond for boiler blow down losses. Drained to Nallah, Eventually to river

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S.No.	Industry	Quantity of Waste Water Generated	Effluent Treatment and Disposal
27.	U.P. Asbestos Ltd. Hazratganj Lucknow (U.P)	Process : Nil (closed cycle); Domestic : N.A.	Nil No treatment drained
28.	Utkal Asbestos Ltd. Dhenkanal (Orissa)	Process : N.A. Domestic : N.A.	ETP, drained; Soak pit and discharged.
29.	Visaka Industries Ltd. Somajiguda Hyderabad (A.P)	Process : 0.2 Cu.m/day Domestic 2.8 cu.m/day	ETP; drained Septic tanks; soak pits; drained
30.	Assam Asbestos Ltd. Guwahati (Assam)	N.A.	N.A
31.	Electric Wires (I) Ltd. Noida (Gzbd)	Process : Dry process Domestic : N.A	NA drained
32.	Durac Industries Ltd. Badli, Delhi	Process : Dry process Domestic : N.A	NA No treatment, Drained
33.	Udai Brakes Ltd. Badli, Delhi	Process : Dry process Domestic : N.A.	NA No treatment, drained

Table 4.4 Solid Waste Inventory

S.No.	Industry	Installed Production Capacity (MT/Annum) (Asbestos Consumption)	Quantity of Solid Waste Generation	Treatment & Disposal
1.	Allied Nippon Ltd. Ghaziabad (UP)	750 MT/A (400)*	0.42 MT/day	Storage in back yard premises, disposal in far off land river banks as per IS: 11768-1986
2.	Asbestos Packing & Manufacturing Co. Bombay (Maharashtra)	800 (720) T/day 500 (450)	0.03 MT/day (dry)	as per IS : 11768-1986 (P) Ltd. Andheri (E) Actual
3.	Eternit Everest Ltd., Mulund (W) Bombay (Mah) (Note : Pipes plant of capacity is closed)	40,000 (sheets) (4,800)	0.02 MT/day (solid to semi-solid)	Filled in impervious bags; burial as per IS: 11768-1986
4.	Eternit Everest Ltd., Garden Reach Calcutta (WB) (Note: Pipes plant is closed)	37,500 (S) (3000)	0.04 MT/day (dry)	Burial after putting in impervious bags as per IS:11768-1986
5.	Eternit Everest Ltd., Podanur, Coimbatore (TN)	45,000 (36,00)	0.02 MT/day solid, dry	Put in impervious bags: Burial as per IS : 11768-1986
6.	Eternit Everest Ltd., Kymore Works (M.P) Note: Pipes plant closed	90,000 (9900) 45,000 (4,800)	0.05 MT/day Solid and Semi-solid both	Filled in impervious bags, burial as per IS: 11768-1986
7.	Ferolite Jointings Ltd., B.S. Road, Industrial Area Gaziabad (UP)	600 (450)	Negligible	N.A.

S.No.	Industry	Installed Production Capacity (MT/Annum) (Asbestos Consumption)	Quantity of Solid Waste Generation	Treatment & Disposal
8.	Hindustan Ferodo Ltd., Ghatkopar, Bombay (Maharashtra)	8372; 86 presently 5750 MT/A (3,756 MT/A)	2.93 MT/day dry/solid	Sealed in impregnated bags and buried in sites cleared by M.C. Bombay
9.	Hydrabad Industries Ltd. Ballabgarh (Haryana)	1,37,500 (9900) (for) 1,05,000	2.7 cu.m/day (Semi Solid) (2 MT/day on dry basis)	Factory land & approved land-fill:disposal as per IS: 11768-1986
10.	Hyderabad Industries Jaisiddih (Bihar)	30,000 (2,500 to 3000)	1.76 MT/day (semi-solid)	Land filling inside factory area, and covering with soil as per IS: 11768-1986
11.	Hyderabad Industries Ltd. Sanat Nagar Hyderabad 500018	1,50,000 13,500	6cu.mt/day (Semi-solid) (4.25 MT/day on dry basis)	Filled in low lying areas in factory land and covered as per IS : 11768-1986
12.	Malabar Building Products Ltd. Trichur – 680020 (Kerala)	36,000 (3640)	1.5 cu.m/day Semisolid to solid	Buried in factory yard
13.	Newkem Products Ltd. Bhandup, Bombay	N.A.	(stopped use of asbestos in 1984)	
14.	Ramco Industries Ltd. Maksi (Shajapur) (M.P)	75,000 30+45:P+S (8100)	0.8 MT/day (semi-solid)	Burial in own land and excavated earth pits as per IS:11768-1986

S.No.	Industry	Installed Production Capacity (MT/Annum) (Asbestos Consumption)	Quantity of Solid Waste Generation	Treatment & Disposal
15.	Rane Brake Linings Ltd. Ambattur, Madras-58 (TN)	4050 (2700)	2.4 T/day (solid) Ground dust, dust from cleaning etc.	Mixed with cement, sand, water. Burial as cake within premises as per IS:11768-1986
16.	Reinz Talbros Ltd. Mohannagar, Gaziabad (UP)	2700 Total (2,010)	1T/day	100% recycled in powder form after grinding
17.	Rohtas Industries Ltd. Dalmia Nagar – 821305 (Bihar)	36,000 (36,000)	0.5 MT/day	Burial in low lying areas with soil cover
18.	Shree Digvijay Cement Co. Ltd (Fibre Products) Digvijay Nagar Ahmedabad	1,04,000 MT/A (42+62=p+s) (11050 MT/A) semi solid	3 MT/day 2 recycled &1 MT/d:disposed	Burial into ground; as per IS: 11768-1986
19.	Shree Pipes Ltd. Hamirgarh-311025 Dist. Bhilwara (Rajasthan)	30,000 (3400 to 3700)	0.08 MT/d (solid sludge)	As per IS: 11768 Burial inside factory as per IS: 11768
20.	Southern Asbestos Cement Ltd. Karur Dharwar, (Karnataka)	N.A.	N.A.	N.A.
21.	Southern Asbestos Cement Ltd. Maksi, Shajapur, M.P.	N.A.	N.A.	N.A.
22.	Standard Clutches & Spares Ltd. Washind (Maharashtra)	480 MT/A (384) MT/A	Insignificant (Mostly used up)	N.A.

S.No.	Industry	Installed Production Capacity (MT/Annum) (Asbestos Consumption)	Quantity of Solid Waste Generation	Treatment & Disposal
23.	Sundaram-Abex Ltd. Padi, Madras-50	2580 1,080/2080(P)	1.5 MT/day Dry powder & pieces	Disposal into a pit with polythin lining-Covered with top soil
24.	T.N. Asbestos (Sheets)Ltd. Alangulam, Kamrajar (T.N.)	30,000 (3000)	4 T/week (dry sludge)	Burial in factory yard and also far off abandoned land/river banks
25.	T.N. Asbestos (Pipes)Ltd. Mayanur, Trichy (Tamilnadu)	30,000 (3600)	Process waste 1 T/day wasted pipes = 0.4 T/day	sludge in dry/semidry form may be disposed off on river banks and far off land and covered
26.	U.P. Asbestos Ltd. Hazaratganj Lucknow (U.P)	36,000 (3000 to 3600)	0.5 MT/day (dry)	Filled and covered in factory land as per IS: 11768
27.	Utkal asbestos Ltd. Dhenkanal, (Orissa)	36,000 (3,600)	N.A.	Burial in lowing areas as per IS: 117698-1986
28.	Visaka Industries Ltd. Somajiguda, Hyderabad (82)	39,400 (upto 3. 900)	0.367 MT/day	Burial within factory premises
29.	Assam Asbestos Ltd. Guwahati, Assam	N.A.	N.A.	
30.	Electrical Wires (I) Ltd. Noida (U.P)	30 (19.8)	N.A.	Burial within factory Premises
31.	Durac Industries Ltd. Badli, Delhi-42	30 (19.8)	N.A.	Thow it in general domestic waste
32.	Udai Brakes Ltd. Badli, Delhi – 42	35.6 (25)	N.A.	same as above

* Asbestos consumption

Table 6.1 Annual Bburden Vs. Annual Turnover of Four Representative Industry

Year	Industry (I)			Industry(II)			Industry (III)			Industry (IV)		
	(AB)	(AT)	(AB/AT)	(AB)	(AT)	(AB/AT)	(AB)	(AT)	(AB/AT)	(AB)	(AT)	(AB/AT)
1988-89	0.81427	203.29	0.4%	6.857	4291.21	0.16%	19.25	3710	0.52%	-	-	-
1989-90	1.303	428.21	0.3%	8.45	4648.2	0.18%	19.25	3713	0.52%	-	-	-
19990-91	-	-	-	-	-	-	19.25	2423	0.79%	-	-	-
1991-92	-	-	-	-	-	-	19.251	4656	0.40%	1.90	142.22	1.3%
1992-93	1.642	988.32	0.17%	9.913	4031.636	0.24%	19.25	5169	0.37%	2.60	142.42	1.8%

Abbreviations : - **Industry (I):** Allied Nippon Ltd. Gzbd

Industry (II): Hyderabad Industries Ltd. Fbd.

Industry (III): Hindustanb Ferodo Ltd. bombay

Industry (IV) : Ferolite Jointings Ltd, Gzd.

AB : Annual Burden in lacs

AT : Annual Turnover in lacs

6.2.3.1 *Details of air pollution control equipment status are as follows*

<u>No. of Industries</u>	<u>Air Pollution Control Equipment Status</u>
14	complete
8	Partial
5	Information not available (N.A.)
3	Only exhaust fans
2	Closed

Above information has been depicted in Figure 6.1 and 6.2.

6.2.3.2 *Compliance status of industries is as follows*

<u>Time Frame</u>	<u>No. of Industries</u>	<u>Status</u>
Pre-1981	7	Compliance
	8	Non compliance
1981- 1991	2	Compliance
	6	Non Compliance
(Post-1991)	0	Compliance
	2	Non – compliance
Others	2	Closed out
	5	Data N.A.

Above information has been depicted in Figure 6.3 and 6.4 Figure 6.5 and 6.6 show additional information in ‘installation of air pollution control Equipment’ and ‘compliance status’ in industries.

Table 10.1 Monitoring Results of Few Selected Industries

S.NO	Name of the Industry	Monitored Emission Value	Air Pollution Control Equipment Installed	Installation Year of Air Pollution Control Equipment	Observations	Compliance Status
1.	Eternit Everest Ltd. Bombay	Pure asbestos material: Not detectable Total dust : 61 mg/NM ³ Cement dust : 720 mg/Nm ³	Bag House	1977	-No monitoring platform exists. - Bag house and stack are not properly maintained - operations are intermittent	Industry is not complying with the emission standards.
2.	Hindustan Ferodo Ltd., Bombay	Total Dust : 4.8 mg/Nm ³	Bag House	1956	- Bag house is based on old design and does not have stacks.	Industry is not complying with the emission standards.
3.	Asbestos Packing Manufacturing company Ltd., Bombay	Not available	Bag House	1981	- Monitoring was not possible without the provision of monitoring port holes.	Compliance/ non compliance could not be determined
4.	Standard Clutches and Spares Ltd., Bombay	Not available	Bag house	1985	- Monitoring could not be carried out because plant was closed.	Compliance/ non compliance could not be determined.
5.	Allied Nippon Ltd., Ghaziabad	Pure asbestos material : 103.4 and 65.8 fibre/cc, 114 mg/NM ³ Total dust : 188 mg/Nm ³ and 178 mg/Nm ³	Bag house	1983	- Bag house is under design. - Bag house not well maintained (ruptured bags, leakage etc.)	Industry is not complying with the emission standards.
6.	Ferolite Joinings Ltd., Ghaziabad	Pure asbestos material: 103mg Nm ³	Bag house	1991	- Bag house is not being repaired and maintained properly, leading to excessive fibrous dust.	Industry is not complying with the emission standards.

S.NO	Name of the Industry	Monitored Emission Value	Air Pollution Control Equipment Installed	Installation Year of Air Pollution Control Equipment	Observations	Compliance Status
7.	Reinz Talbros Ltd., Ghaziabad	Pure asbestos material: 126 mg/Nm ³	Bag house	1970	- No monitoring platform exists. - Bag house and chimney are not properly maintained - operations are intermittent.	Industry is not complying with the emission standards.
8.	Hyderabad Industries Ltd., Ballabgarh	Pure asbestos material : 0.194 fibre/cc Total dust : 166 mg/ Nm ³ and 194mg/Nm ³	Bag house	1982	- operations are intermittent	Industry is not complying with the emission standards.

S.NO	Name of the Industry	Monitored Emission Value	Air Pollution Control Equipment Installed	Installation Year of Air Pollution Control Equipment	Observations	Compliance Status
7.	Reinz Talbros Ltd., Ghaziabad	Pure asbestos material: 126 mg/Nm ³	Bag house	1970	- No monitoring platform exists. - Bag house and chimney are not properly maintained - operations are intermittent.	Industry is not complying with the emission standards.
8.	Hyderabad Industries Ltd., Ballabgarh	Pure asbestos material : 0.194 fibre/cc Total dust : 166 mg/ Nm ³ and 194mg/Nm ³	Bag house	1982	- operations are intermittent	Industry is not complying with the emission standards.