



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
(पर्यावरण एवं वन मंत्रालय, भारत सरकार)
(MINISTRY OF ENVIRONMENT & FORESTS, GOVT. OF INDIA)

B-23012/1/PCI-III/

Speed Post

Dated: March 18, 2011

To

Shri D.Raja
IITM Research Park, Phase-1,
10th Floor, No.1, Kanagam Village,
Behind Tidel Park, Taramani,
Chennai-600 113

Subject: Request for information on pollutants released from sugar industries under the Right to Information (RTI) Act 2005.

Sir,

This is in reference to your RTI application dated 10.02.2011 forwarded by Ministry of Consumer Affairs, Food & Public Distribution vide their letter dated 07.03.2011. I am directed to forward the following information/documents:

- i. Characteristics/ Pollution potential of molasses generated by sugar industry, which is placed at Annexure-I.
- ii. Characteristics of wastewater generated from various process/ plant house of sugar industry, which is placed at Annexure – II.
- iii. National average for water requirement, raw material consumption and effluent generation from sugar industry, which is placed at Annexure –III.
- iv. The Wastewater discharge standard under the Environment (Protection) Rules 1986, which is placed at Annexure –IV.
- v. Some of the treatment/disposal methods employed by Sugar industry are Extended aeration (surface aeration) / Aerated lagoons with surface aeration followed by clarifier/ Anaerobic lagoons followed by extended aeration / Activated sludge process /Anaerobic digester followed by extended aeration /Aeration followed by tertiary treatment etc.
- vi. A copy of CREP action plan for sugar industry is also enclosed at Annexure V.

This is for your information, please.

Yours faithfully,

A.K. Vidyarthi
18/03/11

(A.K. Vidyarthi)

Senior Environmental Engineer

Encl: As Above

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Annexure - I

Pollution Potential of Molasses

Parameters	Molasses	Admissible Effluent in Inland watercourse
pH	3.5 - 4.1	5.5 - 9.0
Colour	Dark Brown	Colourless
Solids (mg/l) Total Dissolved	200000 to 320000	2100
BOD (mg/l)	440000	30
COD (mg/l)	960000	250
Chlorides (mg/l)	32000	600
Sulphates (mg/l)	15000	1000
DO (mg/l)	Nil	5
Source: COINDS, Minimum National Standards Sugar industry, Central Pollution Control Board		

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Annexure - II

Characteristics of Wastewater from different sections of Sugar Industry.

S.No	Various Process/ Plant House	Range of Parameter						
		Temp °C	pH	TDS mg /l	SS mg /l	O&G mg/l	COD mg/l	BOD mg/l
1	Milling Plant	25-30	5-5.5	350-400	500-550	30-50	1000-1500	700-1000
2	Pump cooling at Milling Plant and at Boiler house	30-50	6-6.5	400-500	30-50	-	200-300	50-80'
3	Boiler Blow down	85-90	5.8-6.0	450-500	50-100	-	500-550	30-40
4	Boiling House	40-60	4.5-5.0	400-450	400-600	5.0-1.0	2000-3000	1500-2000
5	Excess condensate	60-70	6.0-6.2	80-1000	5-10	-	250-300	100-150
6	Sulphate House	30-35	-	-	-	-	-	-
7	Lime House	25-30	9.0-10	1400-1500	3500-4000	4.0-6.0	200-250	100-150

Source: Central Pollution Control Board

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National Average for Water requirement, raw material consumption & effluent generation from sugar industry

S.No	Particulars		< 2500		2500 - 5000		5000 - 7500		Suggested norms irrespective of the capacity
			Avg	SD	Avg	SD	Avg	SD	
1.	Water Requirement (Lit/MT)	Process	268	80	236	63	250	90	50
		Cooling	147	150	161	71	130	70	50
		Domestic (m ³ /day)	109	105	193	234	250	130	100
2.	Raw material consumption (Kg/quintal of sugar produced)	Bagasse	314	30	276	39	233	40	250
		Lubricants	0.116	0.068	0.123	0.085	0.105	0.049	0.050
		Lime	1.60	0.50	1.50	0.30	0.90	0.48	1.000
		Sulphur	0.460	0.150	0.430	0.14	0.40	0.16	0.350
		Caustic soda	0.053	0.029	0.027	0.015	0.024	0.012	0.015
		Coagulants	0.0059	0.0082	0.0095	0.011	0.0048	0.0050	0.010
		HCL	0.08	0.08	0.18	0.189	0.10	0.105	
		O.P. Acid	0.073	0.043	0.20	0.274	0.090	0.080	0.050
3.	Bye products Kg per tonne of cane crushed	Bagasse	313.46	11.41	291.22	44.56	300	30.0	260-300
		Molasses	43.58	3.17	41.00	1.89	40.00	1.90	38-42
		Press mud	33.00	4.01	35.12	3.52	38.00	2.00	35-40
4.	Effluent generated (Lit/TCD)	230	145	250	132	233	83	100	
5.	Capital and recurring cost of ETP in Rs/TCD	Capital cost	1236	620	1180	890	1000	333	3000-4000
		Recurring cost	460	312	525	480	466	200	1200-1500
6.	Steam	Kg/T of cane crushed	490.00	30.0	500.00	20.00	480	15.0	460-480
7.	Power	kW/MT cane crushed	22.00	3.00	20.00	2.00	24	5.00	19-28

Source: CPCB & CREP guidelines

Avg. - Average value

S.D. - Standard Deviation

Lit/MT - Liters per Metric tonne

TCD - Tonnes of Cane crushed per day

Note: The water consumption, effluent generated, capital and recurring expenditure appears to be highly unreliable as there are no proper cross-checks. Most of the industries have not provided the water meters to calculate the exact quantity of water used for various operations (Process, Cooling, and Domestic). In many cases, the effluent quantity measurements are not made with calibrated 'V' notches and not a single unit has provided continuous flow

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Annexure-IV

Wastewater discharge standards under the Environment (Protection) Rules 1986:

S.No.	Parameter	Standard(Concentration not to exceed mg/lit except for pH and colour & odour)
1.	pH	5.5-9.0
2.	Colour and odour	All efforts should be made to remove colour and unpleasant odour as far as practicable
3.	Suspended solids	100
4.	BOD (3 days at 270C]	
	Disposal in to inland surface water or river streams	30
	Disposal on land or for irrigation	100

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14.0 SUGAR INDUSTRY**1. Waste Water Management**

- Operation of ETP shall be started atleast one month before starting of cane crushing to achieve desired MLSS so as to meet the prescribed standards from day one of the operation of mill.
- Reduce wastewater generation to 100 litres per tonne of cane crushed by April 2004.
- To achieve zero discharge in inland surface water bodies by December 2004.
- To provide 15 days storage capacity for treated effluent to take care of no demand for irrigation by April 2004.

2. Emission Control

To install ESP/bag filter/high efficiency scrubber to comply with standards for particulate matter emission to $<150 \text{ mg/Nm}^3$ by April 2004.