

Compilation of Result of 3 Air Samples taken in July and August 2010 in SIPCOT Chemical Complex, Cuddalore

Sampling Dates and Locations:

Sample 1 – 7 July 2010, taken downwind of TANFAC on the service road on the Northern side near their pilot plant.

Sample 2 – 9 August 2010, taken downwind of Tagros Chemicals on the SIPCOT service road near the new construction.

Sample 3 – 9 August 2010, taken downwind of Aurobindo Pharma on the SIPCOT Canteen Road.

Results:

- 19 chemicals were found – Dimethyl Sulphide, Propene, Acetonitrile, Isopropyl Alcohol, Ethyl Acetate, n-Hexane, Chloroform, 1-2 Dichloroethane, Carbon Tetrachloride, Cyclohexane, Toluene, 1-2 Dibromomethane, Tetrachloroethene, Chlorobenzene, Napthalene, Acetone, Methylene Chloride, Hydrogen Sulphide and n-butyl Acetate.
- 12 chemical were found to exceed United States Environmental Protection Agency's health based screening levels, or other relevant safety limits. These chemicals were Dimethyl Sulphide, n-Hexane, Chloroform, 1-2 Dichloroethane, Carbon Tetrachloride, Toluene, 1-2 Dibromomethane, Tetrachloroethene, Chlorobenzene, Methylene Chloride, Hydrogen Sulphide and Napthalene.
- 6 out of 19 chemicals are known to cause cancer. These chemicals are – 1,2-Dichloroethane, 1,2-Dibromomethane, Carbon Tetrachloride, Chloroform, Methylene Chloride and Tetrachloroethene.
 - a) 1,2-Dichloroethane was found 3243.2 times above safe levels prescribed by the United State Environment Protection Agency Region 6 (US EPA).
 - b) 1,2-Dibromomethane was found 1724.1 times above safe levels prescribed by the United State Environment Protection Agency Region 6 (US EPA).
 - c) Carbon Tetrachloride was found 1000 times above safe levels prescribed by the United State Environment Protection Agency Region 6 (US EPA).
 - d) Chloroform was found 102.3 times above safe levels prescribed by the United State Environment Protection Agency Region 6 (US EPA).
 - e) Methylene Chloride was found 23.2 times above safe levels prescribed by the United State Environment Protection Agency Region 6 (US EPA).
 - e) Tetrachloroethene was found in three samples, 3.6, 2.5 and 3 times above safe levels prescribed by the United State Environment Protection Agency Region 6 (US EPA).
- Out of the 19 chemicals found – 18 chemicals affect the eyes; 17 chemicals affect the skin; 14 chemicals affect the respiratory system and the Central Nervous System; 10 chemicals affect the Liver; 8 chemicals affect the kidneys; 3 chemicals affect the cardiovascular system; 2 chemicals affect the heart and blood and one chemical affects the lungs, reproductive system and Peripheral Nervous System.

S No.	Name of the Chemical	Odour	Levels detected (ug/m3)	Health based Screening levels	Number of times exceed the screening	Target Organs	Carcinogen
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				(ug/m3)	levels (approx)		
1.	Acetone	A fragrant, mint-like odour	Sample 1 Sample 2 Sample 3 – 100	370 (EPA Region 6 Screening Level)	-- -- --	Eyes, skin, respiratory system, central nervous system	No
2.	Methylene Chloride	A chloroform-like odour	Sample 1 Sample 2 Sample 3 – 95	4.09 (EPA Region 6 Screening Level)	-- -- 23.22	Eyes, skin, cardiovascular system, central nervous system Cancer Site [in animals: lung, liver, salivary & mammary gland tumours]	Yes
3.	Toluene	Sweet pungent benzene like odour	Sample 1 – 11.0 Sample 2 – 510 Sample 3 – 12.0	400 (EPA Region 6 Screening Level)	-- 1.2 --	Eyes, skin, respiratory system, Central nervous system, liver and kidney	No
4.	n-Butyl Acetate	A fruity odour	Sample 1 Sample 2 Sample 3 – 410	--	-- -- --	Eyes, skin, respiratory system, central nervous system	No
5.	Tetrachloroethene / Trichloroethene	A chloroform-like odor	Sample 1 – 8.5 Sample 2 – 9.9 Sample 3 – 12	3.3 (EPA Region 6 Screening Level)	3.6 3 2.5	eyes, skin, respiratory system, heart, liver, kidneys Cancer Site [in animals: liver & kidney cancer]	Yes potential occupational carcinogen
6.	Ethyl Acetate	A fruity like odour	Sample 1 – 23 Sample 2 – 19 Sample 3 – 32	--	--	Eyes, skin, respiratory system	No
7.	Dimethyl Sulphide	Cabbage like Odour	Sample 1 Sample 2 – 40 Sample 3	0.3 (Texas Long-Term Screening Levels)	-- 133.3 --	Eyes, Skin, Respiratory System, Central Nervous System, Blood, Liver	No
8.	Isopropyl Alcohol	Odour of rubbing	Sample 1 Sample 2 – 170	--	--	Eyes, skin, respiratory system	No

		alcohol	Sample 3				
9.	Chlorobenzene	Almond like odour	Sample 1 Sample 2 – 49 Sample 3	46.0 (Texas Long-Term Screening Levels)	-- 1.06 --	Eyes, skin, respiratory system, central nervous system, liver	No
10.	Propene	An unpleasant odour	Sample 1 Sample 2 – 7.4 Sample 3	--	--	Eyes, Skin, respiratory system	No
11.	Acetonitrile	An aromatic odour	Sample 1 Sample 2 – 21 Sample 3	34 (Texas Long-Term Screening Levels)	--	Respiratory system, cardiovascular system, central nervous system, liver, kidneys	No
12.	n-Hexane	A gasoline-like odour	Sample 1 Sample 2 – 870 Sample 3	176 (Texas Long-Term Screening Levels)	-- 4.94 --	Eyes, skin, respiratory system, central nervous system, peripheral nervous system	No
13.	Chloroform	Pleasant Odour	Sample 1 Sample 2 – 8.6 Sample 3	0.084 (EPA Region 6 Screening Level)	-- 102.3 --	Liver, kidneys, heart, eyes, skin, central nervous system	Yes Cancer Site [in animals: liver & kidney cancer]
14.	1,2 – Dichloroethane	Pleasant, chloroform-like odour	Sample 1 Sample 2 – 240 Sample 3	0.084 (EPA Region 6 Screening Level)	-- 3243.2 --	Eyes, skin, kidneys, liver, central nervous system, cardiovascular system	Yes Cancer Site [in animals: forestomach, mammary gland & circulatory system cancer]
15.	Carbon Tetrachloride	A characteristic ether-like odour	Sample 1 Sample 2 – 130 Sample 3	0.130 (USEPA Region 6 Screening Levels)	-- 1000 --	central nervous system, eyes, lungs, liver, kidneys, skin	Yes Cancer Site [in animals: liver cancer]
16.	Cyclohexane	A sweet chloroform	Sample 1 Sample 2 – 50	--	--	Eyes, skin, respiratory system, central nervous	No

		like odour	Sample 3			system	
17.	1,2 – Dibromoethane	A sweet odour	Sample 1 Sample 2 – 15 Sample 3	0.00870 (USEPA Region 6 Screening Levels)	-- 1724.1 --	Eyes, skin, respiratory system, liver, kidneys, reproductive system	Yes Cancer Site [in animals: skin & lung tumors]
18.	Napthalene	Odour of moth ball	Sample 1 Sample 2 – 5.40 Sample 3	3.10 (USEPA Region 6 Screening Levels)	-- 1.74 --	Eyes, skin, blood, liver, kidneys, central nervous system	No
19.	Hydrogen Sulphide	Rotten eggs	Sample 1 – 7.8 Sample 2 Sample 3	1.0 (EPA Region 6 Screening Level)	7.8 -- --	Eyes, respiratory system, Central Nervous System	No