

**PRESENTAION ON**

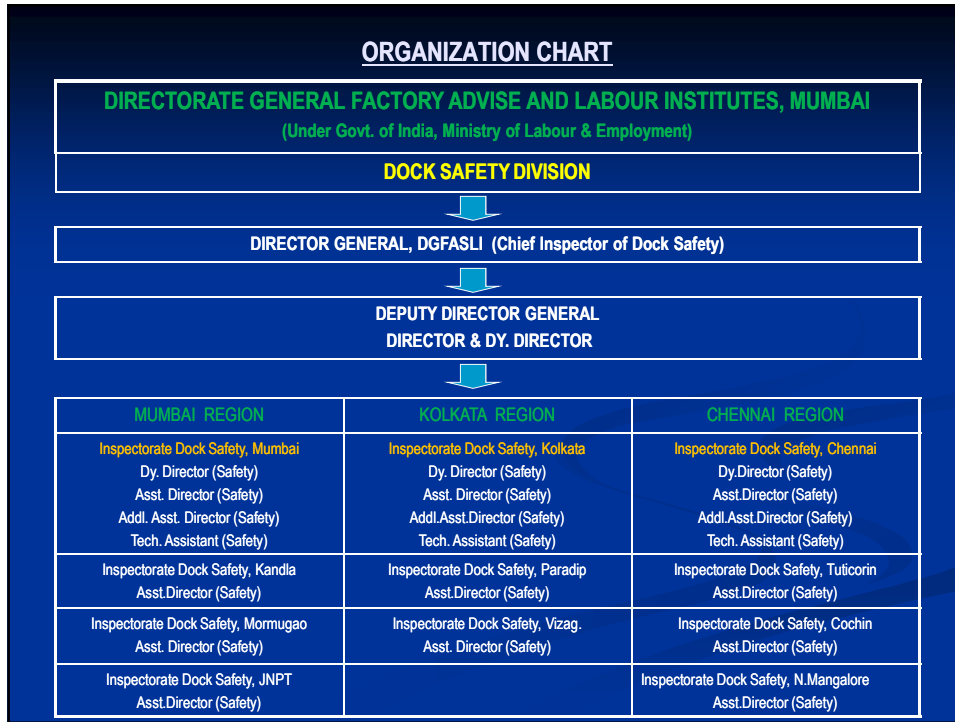
**STATUS ON CHEMICAL AND OCCUPATIONAL  
HEALTH IN DOCKS/PORTS AND AREAS  
REQUIRING RE-ENGINEERING**



**GOVERNMENT OF INDIA  
MINISTRY OF LABOUR & EMPLOYMENT**

**DIRECTORATE GENERAL FACTORY ADVICE  
SERVICE & LABOUR INSTITUTES**

**INSPECTORATE DOCK SAFETY  
CHENNAI**



**DOCK WORKERS (SAFETY, HEALTH & WELFARE) ACT, 1986**  
**[ w.e.f. 15.4.1987 ]**

- 1. SHORT TITLE & EXTENT OF APPLICATION**
- 2. DEFINITIONS**
- 3. INSPECTORS – NOTIFICATION  
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- 4. POWERS OF INSPECTORS**
- 5. POWER TO PROHIBIT**
- 6. FACILITIES TO AN INSPECTOR – INQUIRY  
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- 13. PROTECTION OF ACTION TAKEN IN  
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- 14. PENALTIES**
- 15. PERSONS RESPONSIBLE FOR THE  
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- 16. POWER OF COURT TO MAKE ORDERS**
- 17. PROVISION RELATING TO JURISDICTION**
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- 24. REPEAL OF IDLR 1934**
- 25. SAVINGS – IDLR 1948 TO CONTINUE UNDER THE ACT UNTILL REPEALED.**

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## **DOCK WORKERS (SAFETY, HEALTH & WELFARE) RULES, 1990**

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- PART II : RESPONSIBILITIES
- PART III : SAFETY
- PART IV : HEALTH
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**THE MANUFACTURE, STORAGE AND  
IMPORT OF HAZARDOUS CHEMICALS  
RULES, 1989**

- **1. SHORT TITLE AND COMMENCEMENT**
- **2. DEFINITIONS**
- **3. DUTIES OF AUTHORITIES**
- **4. GENERAL RESPONSIBILITY OF THE OCCUPIER DURING INDUSTRIAL ACTIVITY**
- **5. NOTIFICATION OF MAJOR ACCIDENT**
- **6. INDUSTRIAL ACTIVITY TO WHICH RULES 7 TO 15 APPLY**
- **7. [APPROVAL AND] NOTIFICATION OF SITES**
- **8. UPDATING OF THE SITE NOTIFICATION FOLLOWING CHANGES IN THE THRESHOLD QUANTITY**
- **9. TRANSITIONAL PROVISIONS**

- **10. SAFETY REPORTS [AND SAFETY AUDIT REPORTS]**
- **11. UPDATING OF REPORTS UNDER RULE 10**
- **12. REQUIREMENT FOR FURTHER INFORMATION TO BE SENT TO THE AUTHORITY**
- **13. PREPARATION TO ON-SITE EMERGENCY PLAN BY THE OCCUPIER**
- **14. PREPARATION OF OFF-SITE EMERGENCY PLAN BY THE AUTHORITY**
- **15. INFORMATION TO BE GIVEN TO PERSONS LIABLE TO BE AFFECTED BY A MAJOR ACCIDENT**

- **16. DISCLOSURES OF INFORMATION**
- **17. COLLECTION, DEVELOPMENT AND DISSEMINATION OF INFORMATION**
- **18. IMPORT OF HAZARDOUS CHEMICALS**
- **19. IMPROVEMENT NOTICES**
- **20. POWER OF THE CENTRAL GOVERNMENT TO MODIFY THE SCHEDULES**

**SCHEDULE 1****PART I**

- (a) **Toxic Chemicals:** Chemicals having the following values of acute toxicity and which owing to their physical and chemical properties, are capable of producing major accident hazards:

S.No.	Toxicity	Oral toxicity LD <sub>50</sub> (mg/kg)	Dermal toxicity LD <sub>50</sub> (mg/kg)	Inhalation toxicity LC <sub>50</sub> (mg/l)
1.	Extremely toxic	>5	<40	<0.5
2.	Highly toxic	>5-50	>40-200	<0.5-2.0
3.	Toxic	>50-200	>200-1000	>2-10

- (b) **Flammable Chemicals :**

flammable gases  
 extremely flammable liquids  
 very highly flammable liquids  
 highly flammable liquids  
 flammable liquids

- (c) **Explosives**

**PART II**

- **LIST OF HAZARDOUS AND TOXIC CHEMICALS**

**SCHEDULE 2**

- **ISOLATED STORAGE AT INSTALLATIONS OTHER THAN THOSE COVERED BY SCHEDULE 4**

S.No	Chemicals	Threshold Quantities (tonnes) [For application of rules 4,5,7 to 9 and 13 to 15]	Threshold Quantities(T) For application of rules 10 to12

**SCHEDULE 3**

- **LIST OF HAZARDOUS CHEMICALS FOR APPLICATION OF RULES 5 AND 7 TO 15**

**PART -I**

- **NAMED CHEMICALS**

S.No	Chemicals	Threshold Quantities (tonnes) [For application of rules 4,5,7 to 9 and 13 to 15]	Threshold Quantities(T) For application of rules 10 to12	CAS Number

**PART II**

CLASSES OF SUBSTANCES AS DEFINED IN PART I,  
SCHEDULE –1 AND NOT SPECIFICALLY NAMED IN  
PART –I OF THIS SCHEDULE

**SCHEDULE -4**

1. Installation for the production, processing or treatment of organic or inorganic chemicals.
2. Installation for distillation, refining or other processing of petroleum or petroleum products.
3. Installations for the total or partial disposal of solid or liquid substances by incineration or chemical decomposition.
4. Installations for production, processing, [use] or treatment of energy gases, for example, LPG, LNG, SNG.
5. Installation for the dry distillation of coal or lignite.

**SCHEDULE -5**

S. No	Authority(ies) with legal backing	Duties and corresponding Rule
1.	Ministry of Environment and Forests under Environment (Production) Act, 1986.	1. Notification of hazardous chemicals as per Rules 2(e)(i), 2(e) (ii) & 2(e) (iii)
2.	Chief Controller Imports & Exports under Import & Exports (Control) Act, 1947.	Import of hazardous chemicals as per Rule 18
3.	Central Pollution Control Board or State Pollution Control Board [or Committee] under Environment (Protection) Act, 1986 as the case may be.	(1) Enforcement of directions and procedures in respect of isolated storage of hazardous chemicals, regarding- (i) Notification of major accidents as per Rules 5(1) and 5(2) (ii) Notification of sites as per Rules 7 to 9. (iii) Safety reports in respect of isolated storages as per Rule 10 to 12. (iv) Preparation of on-site emergency plans as per Rule 13. (2) Import of hazardous Chemicals and enforcement of directions and procedures on import of hazardous chemicals as per Rule 18.
4.	Chief Inspector of Factories appointed under the Factories Act, 1948.	Enforcement of directions and procedures in respect of industrial installations and isolated storages covered under the Factories Act, 1948, dealing with hazardous chemicals and pipelines including inter-state pipelines regarding- (i) Notification of major accidents as per Rule 5(1) and 5 (2). (ii) Notification of sites as per Rules, 7 to 9. (iii) Safety reports as per Rules, 10 to 12. (iv) Preparation of on-site emergency plans as per Rule 13. Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No. 9 of this schedule.



**SCHEDULE -5**

S. No	Authority(ies) with legal backing	Duties and corresponding Rule
5.	Chief Inspector of Dock Safety appointed under the Dock Workers (Safety, Health and Welfare) Act, 1986.	Enforcement of directions and procedures in respect of industrial installations and isolated storages dealing with hazardous chemicals and pipelines [inside a port covered under the Dock Workers (Safety, Health and Welfare) Act, 1986] regarding- (i) Notification of major accidents as per Rules 5(1) and 5(2). (ii) Notification of sites as per Rules 7 to 9. (iii) Safety reports as per Rules 10 to 12. (iv) Preparation of on-site emergency plans as per Rule 13. (v) Preparation of off-site emergency plans in consultation with District Collector or District Emergency Authority as per S. No.9 of this Schedule.
6.	Chief Inspector of Mines appointed under the Mines Act, 1952	Same as like IDS
7.	Atomic Energy Regulatory Board appointed under the Atomic Energy Act, 1972.	Same as like IDS
9.	District Collector or District Emergency Authority designated by the State Government	Preparation of off-site emergency plans as per Rule 14
[10.	[CENTRE FOR ENVIRONMENT AND EXPLOSIVE SAFETY (CEES), Defense Research and Development of Organisation (DRDO). Department of defence Research & Development, Ministry of Defence	Enforcement of directions and procedures in respect of laboratories, industrial establishment and isolated storages dealing with hazardous chemicals in the Ministry of Defence]

**SCHEDULE -5**

S. No	Authority(ies) with legal backing	Duties and corresponding Rule
8.	Chief Controller of Explosives appointed under the Indian Explosive Act and Rules, 1983	Enforcement of directions and procedures as per the provisions of [(i) The Explosives Act, 1884(4 of 1884) and the rules made thereunder, namely:- (a) The Gas Cylinders Rules, 1981; (b) The Static and Mobile Pressure Vessel (Unified) Rules, 1981; (c) The Explosive Rules, 1984 (ii) The petroleum Act, 1934 (30 of 1934) and the Rules made thereunder, namely; (a) The Petroleum Rules, 1976; (b) The Calcium Carbide Rules, 1987]; [and in respect of Industrial installation and isolated storages dealing with hazardous chemicals and pipelines including inter-state pipelines regarding. :- (a) Notification of major accident as per rule 5; (b) Approval and notification of sites as per rule 7; (c) Safety report and safety audit reports as per rules 10 to 12; (d) Acceptance of On-site Emergency plans as per rule 13; (e) Assisting the District Collector in the preparation of Off-Site emergency plans as per serial number 9 of this Schedule.]

**SCHEDULE -6**

INFORMATION TO BE FURNISHED  
REGARDING NOTIFICATION OF A MAJOR  
ACCIDENT

**SCHEDULE -7**

INFORMATION TO BE FURNISHED FOR THE  
NOTIFICATION OF SITES

**PART -I**

1. The name and address of the employer making the notification.
2. The full postal address of the site.
3. The area of the site covered by the notification

4. The date on which it is anticipated that the notifiable industrial activity will commence.
5. The name and maximum quantity liable to be on the site of each dangerous substance for which notification is being made.
6. Organisation structure namely organisation diagram
7. Information relating to the potential for major accidents
8. Information relating to the site
9. The arrangement for training of workers and equipment

**PART -II**

Same as like above but particulars to be included regarding pipeline

**SCHEDULE -8****INFORMATION TO BE FURNISHED IN A SAFETY REPORT**

1. The name and address of the person furnishing the information.
2. Description of the industrial activity
3. Description of the processes
4. Description of the hazardous chemicals
5. Information on the preliminary hazard analysis
6. Description of safety -relevant units
7. Information on the hazards assessment
8. Description of information or organizational systems

9. Information on assessment of the consequences of major accidents
10. Information on the mitigation of major accidents

**SCHEDULE -9****SAFETY DATA SHEET**

1. CHEMICAL IDENTITY
2. PHYSICAL AND CHEMICAL DATA
3. FIRE AND EXPLOSION HAZARD DATA
4. REACTIVITY DATA
5. HEALTH HAZARD DATA
6. PREVENTIVE MEASURES
7. EMERGENCY AND FIRST AID MEASURE

8. ADDITIONAL INFORMATION / REFERENCES

9. MANUFACTURER / SUPPLIER DATA

10. DISCLAIMER

**SCHEDULE -10**

PRESCRIBED FORMAT FOR MAINTAINING RECORDS OF HAZARDOUS CHEMICALS IMPORTED TO BE FURNISHED

**SCHEDULE -11**

DETAILS TO BE FURNISHED IN THE ON-SITE EMERGENCY PLAN

**SCHEDULE 12**

DETAILS TO BE FURNISHED IN THE OFF-SITE EMERGENCY PLAN

**MAH INSTALLATIONS IN MAJOR PORTS**

S. No.	Port	Substance	Type of Installation	Number	Maximum Quantity	Threshold Quantity
1	Mumbai	Highly Flammable Liquid (HSD & SKO)	Storage	1	68800 MT	10,000
2	JNPT	None		-	-	-
3	Kandla	Flammable Liquid	Storage	1	24254 MT	15,000 MT
4	Morumgao	Ammonia	Storage	1	5000 MT	60 MT
5	Kolkata	None	-	-	-	-
6	Paradeep	None	-	-	-	-
7	Vishakhapatnam	LPG	Pipeline	1	111 MT	15 MT
			Pipeline	1	31 MT	15 MT
			storage	1	7500 MT	15 MT
		Ammonia	Pipeline	1	70	60 MT
			Storage	1	10000 MT	60 MT

### MAH INSTALLATIONS IN MAJOR PORTS

S. No.	Port	Substance	Type of Installation	Number	Maximum Quantity	Threshold Quantity
8	Chennai	None	-	-	-	-
9	Cochin	Ammonia	storage	1	10,000 MT	60 MT
		Highly Flammable Liquid (LSHF, HSD)	Storage	1	14100 MT	10000 MT
		Flammable Liquid (LVFO,LSFO, JP 5, FO)	Storage		31160 MT	15000 MT
10	New Mangalore	Ammonia	Storage	1	10,000 MT	60 MT
		Very Highly Flammable Liquid	Storage	1	122,452 KL	7,000 MT
11	Tuticorin	Ammonia	Storage	1		
		Very Highly Flammable Liquid	Storage	1		
12	Ennore	Very Highly Flammable Liquid (MS, Benzene, Hexane, IPA, Toluene, Naphtha, Styrene etc.)	storage	1	48442 MT	5000 MT

### STATUS OF COMPLIANCE OF PROVISIONS OF MSIHC RULES 1989

S. No.	Port	No. of MAH installations	Onsite Emergency Plan	Internal Safety Audit	External Safety Audit	Safety Report	Off site Emergency Plan
1	Mumbai	1	yes	Yearly	Once/3 years	No	Not Available
2	JNPT	None					
3	Kandla	1	yes	Once in 3 Years	Once in 6 months	Yes	Not Available
4	Morumgao	1	yes	-	Once/Year	yes	Yes (by Distt. Em. Auth.)
5	Kolkata	None	-	-	-	-	-
6	Paradeep	None	-	-	-	-	-
7	Vishakhapatnam	5	-	-	-	-	-
8	Chennai	None	-	-	-	-	-
9	Cochin	3	yes	Yes	Yes	yes	Inf. Not available
10	New Mangalore	3	yes	yes	yes	yes	Yes (by Distt. Em. Auth.)
11	Tuticorin						
12	Ennore	1	yes	yes	yes	yes	No

## QUANTITY OF HAZARDOUS CHEMICALS IMPORTED

S. No.	Year	Quantity (MT)	No. of Industries	Mode of Transport		No. of Chemicals
				By Sea	By Air	
1	2003-04	4217*	13	3	-	25
2	2004-05	306584	28	6	-	46
3	2005-06	386740	34	7	-	51
4	2006-07	423939	63	8	-	90
5	2007-08	325396	82	12	2	117
6	2008-09	442811	70	15	-	86

**Note : \* - from May 2003 to March 2004**

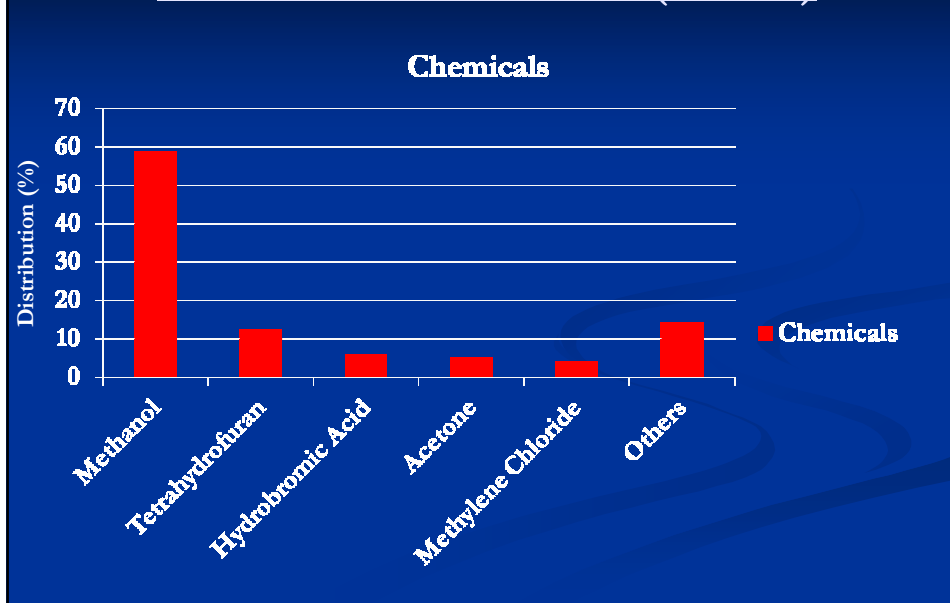
## CHEMICALS IMPORTED THROUGH VARIOUS SEA PORTS

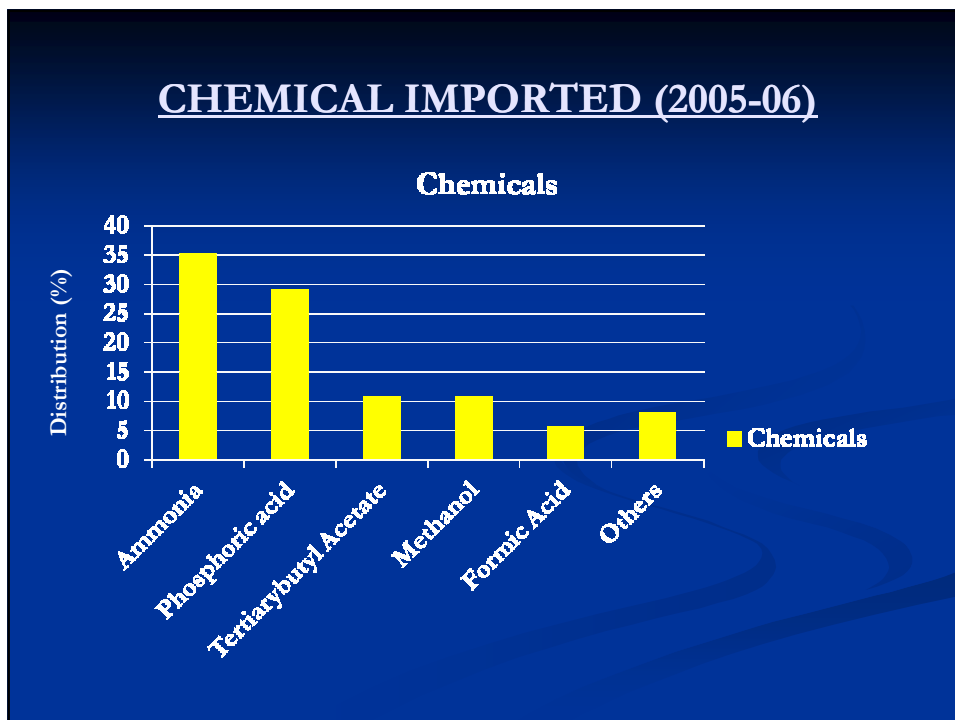
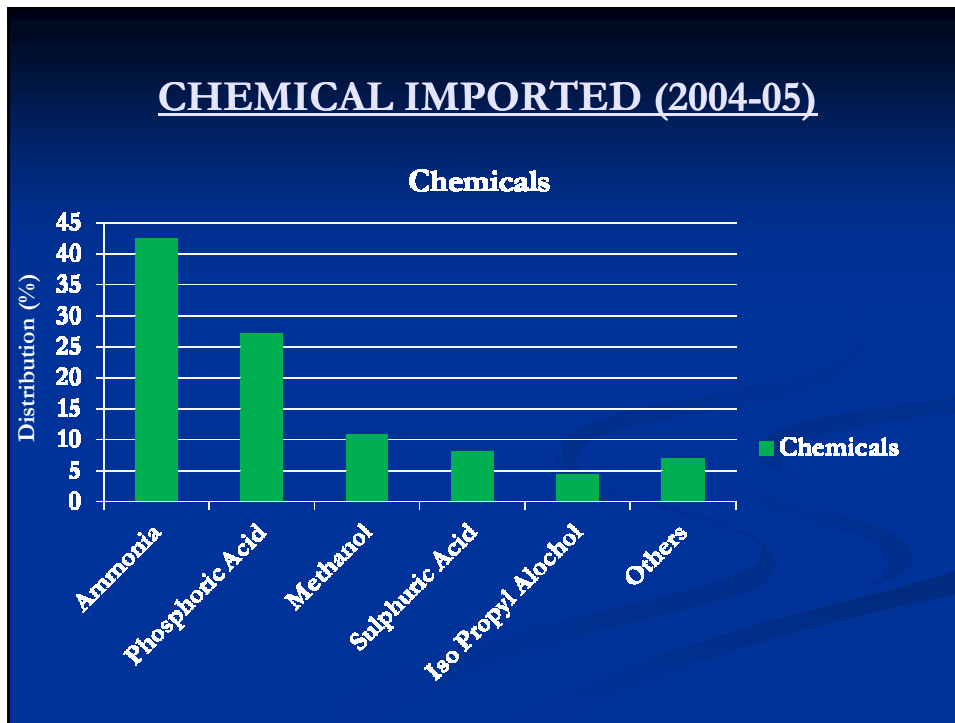
PORTS	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Chennai	1324.54 (31.41%)	5866.09 (1.91%)	67360.57 (17.42%)	8156.21 (1.92%)	11282.25 (3.47%)	141054.7 (31.85%)
Cochin	-	-	1795.2 (0.46%)	442.63 (0.10%)	319.6 (0.10%)	-
Kakinada	-	8500 (2.77%)	4200 (1.09%)	120 (0.03%)	12500 (3.84%)	5768.9 (1.30%)
Kandla	-	18427.51 (6.01%)	16188.47 (4.19%)	27473.84 (6.48%)	26590 (8.17%)	6505.201 (1.47%)
Mumbai	-	5803.44 (1.89%)	3034.1 (0.78%)	19606.8 (4.63%)	59174.5 (18.19%)	2125.51 (0.48%)
Nhava Sheva	88.5 (2.10%)	866.7 (0.28%)	852.06 (0.22%)	14795.05 (3.49%)	6788.126 (2.09%)	224530.1 (50.71%)
Vizag	2804 (66.49%)	267119.73 (87.13%)	293309.73 (75.84%)	352864.81 (83.23%)	202213.3 (62.14%)	7445.305 (1.68%)
Kolkata	-	-	-	480 (0.11%)	125 (0.04%)	150.28 (0.03%)

## CHEMICALS IMPORTED THROUGH VARIOUS SEA PORTS

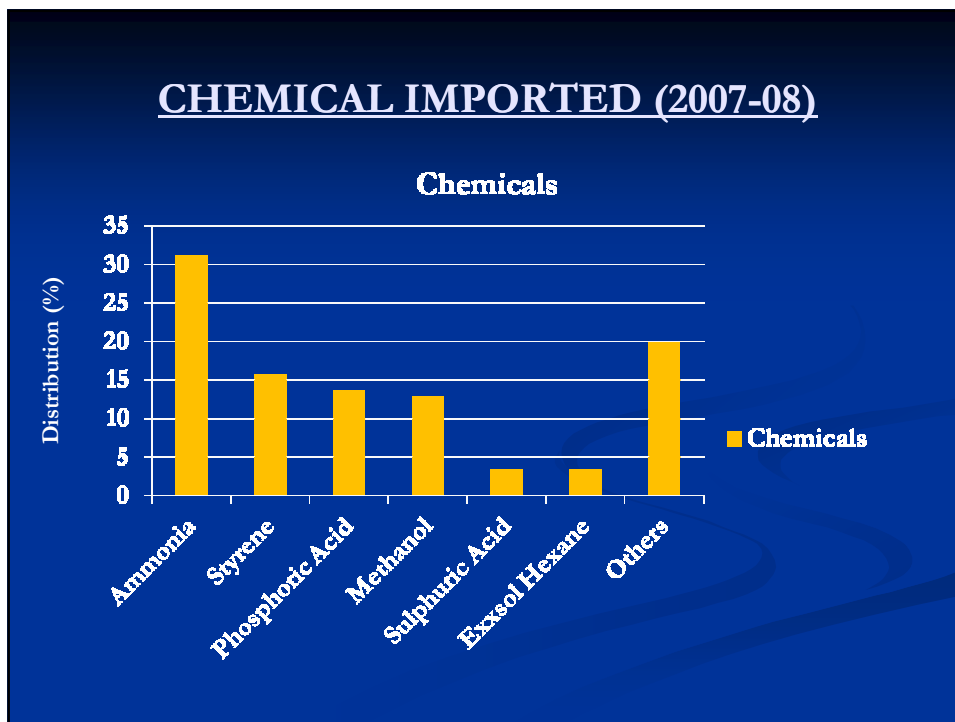
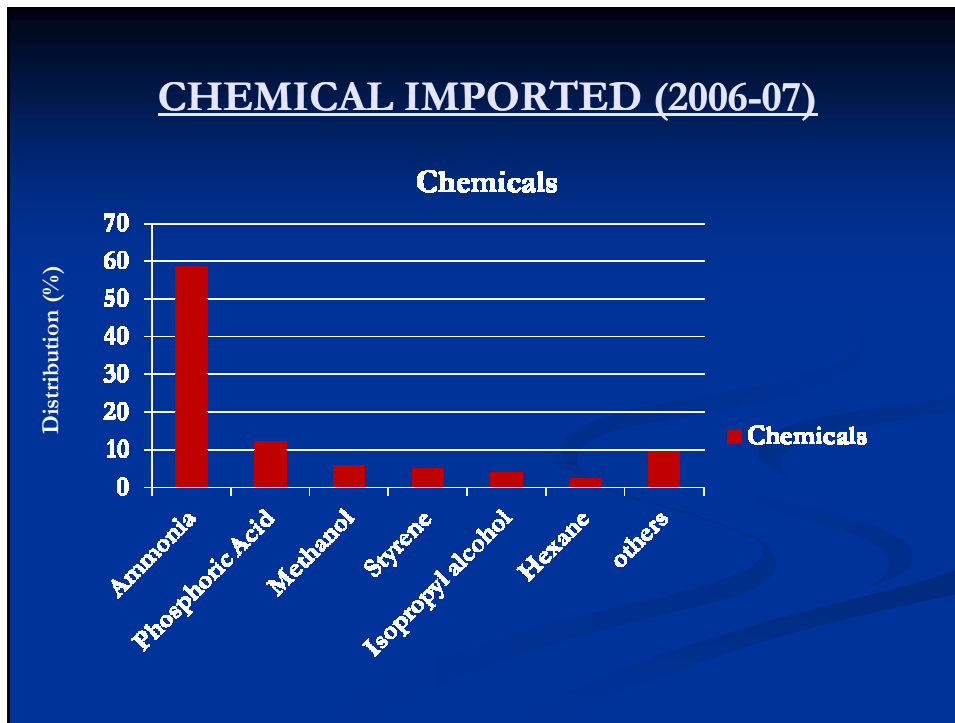
PORTS	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
New Mag'lre	-	-	-	-	2100 (0.65%)	
Pipivav	-	-	-	-	160 (0.05%)	77.6 (0.02%)
Ennore	-	-	-	-	4135 (1.27%)	12108.66 (2.73%)
ICD Delhi	-	-	-	-	5 (0.007%)	445.08 (0.10%)
Dadri	-	-	-	-	-	39731.43 (8.97%)
Dahej	-	-	-	-	-	2515.87 (0.57%)
Tughlakabad	-	-	-	-	-	182.3 (0.04%)

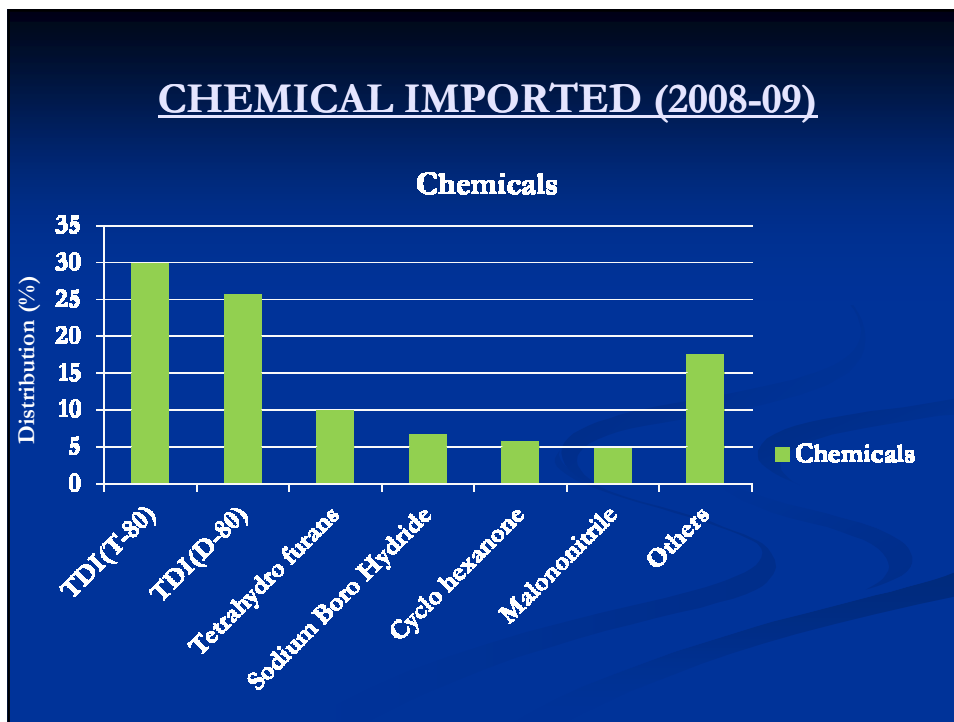
## CHEMICAL IMPORTED (2003-04)











### **AREAS REQUIRED FOR REENGINEERING**

- ❑ The volume of cargo handling in the port sectors is found increasing gradually year by year. Such increasing trend is posing lot of transportation problems inside the port area. Hence it is required to reengineering the road infrastructures in a modernized way to come out from such hazards with a mechanized lay out systems
- ❑ The loading and unloading of chemicals in the port sectors have been reengineered slowly to a modern mechanized facilities thereby reducing the hazards involved in the handling of chemicals in the Port Sectors.
- ❑ Some of the Ports in the country are required to compliance of onsite/offsite emergency plans which needs to conduct periodical mock-drills accordingly.

**THANK YOU**