

## POLLUTOIN CONTROL

The Toxicity of the product is not very high. Terphthalic acid has low order of toxicity. The normal precautions used in handling industrial chemicals should be observed. If ventilation is inadequate a toxic dust respirator should be used to avoid prolonged exposure. However the industry has other chemicals as waste (Acetic Acid , Para Xylene etc.). The flammability limits for Terephthalic acid are given below.

### *Dust Cloud*

Exposibility index	6.9				
Ignition Sensitivity	3				
Ignition Temperature	680°C				
Min. ignition energy	0.020 J				
Min. Explosive Concentration	0.050 g/L				
Relative flammability, % inert					
By spark ignition	80				
Limiting oxygen concentration,%	15				
Explosive severity	2.3				
Concentration,g/L	0.1	0.2	0.5	1.0	2.0
Max. Pressure, KPa	324	552	607	683	634

The pollution by this plant is contributed by the presence of acetic acid. Acetic acid solution in water or organic solvent can be very strongly corrosive to the skin. Any solution containing more than half of acetic acid should be considered as corrosive acid. Its action is insidious because there is no immediate burning sensation upon applying the strong acid on unbroken skin and blisters appear within 30 min. washing with water or bicarbonate seldom alleviates the pain.

Considering all these factors the waste water from the plant should be treated properly before letting into the water channel. Since the waste water contains organic compounds like acetic acid and p-Xylene it is necessary to recover these organic contents and then

proceed with the treatment of the water. Water treatment procedure contains three stages. Primary and secondary treatment.

The primary method comprises of the removal of large floatation and suspended impurities. The equipments used are Raked bar screens, Sedimentation Tanks, etc.

The secondary treatment is a step where the process of biodegradation takes place. Here the oxygen supplied to the bacteria is consumed under controlled condition. The idea behind it is to consume all the oxygen in the plant rather than in the water course. The process is also known as activated sludge process. Trickling filters are commonly used for this purpose.

The sludge that is formed has to be disposed of properly. The steps involved in the disposal of sludge are.

*Concentration:* This step involves the removal of water so that the volume is reduced as much as possible to facilitate the efficient handling of the sludge.

*Digestion:* This is the stage where the sludge is stabilized by digesting it under aerobic or anaerobic conditions.

*Conditioning:* The stabilized sludge is added with some chemicals like iron salt, alum, lime and polyelectrolyte to improve its dewatering characteristics.

*Dewatering:* The sludge is further processed for removal of water by mechanical means. This product from this stage is a solid waste material.

*Oxidation:* The sludge is oxidized to remove any unoxidized organic matter and stabilized further.

*Ultimate Sludge Disposal:* The sludge is usually disposed by spraying it on cropland where it functions as fertilizer or it is lagooned or it is dumped in the sea..