Causes	Description	Consequences	Lessons Learnt
The Toxic White Beaches of Rosignano			
The Solvay chemical plant in Rosignano has been disposing their by-products (mixture of calcium chloride and limestone) in the sea for decades.	The problem is that mixed in with the calcium chloride and limestone are many toxic chemicals such as mercury, arsenic, cadmium, chromium, lead, and ammonia, which are incredibly harmful to humans and animals. This is because limestone, which is one of the raw materials needed for the Solvay process, has impurities consisting of heavy metals.	Due to the disposal of toxic chemicals in the beach, the Spiagge Bianche is among the 15 most polluted coastal sites on the Mediterranean Sea according to a report published in 1999 by the United Nations Environment Program. In addition, between 2008 and 2010, the town recorded a mortality rate higher than the regional average for the same period, increasing by 2.2 per cent for men and 8.3 percent for women. Lastly, the frequency of tumors and premature mortality (under age 65) are both above the regional average by several percentage points	The purer the limestone used in the Solvay process the more suitable the limestone is for lessening the impact from the production of soda ash on the environment. Additionally, it is necessary to make sure that if by-products are disposed in the sea, they must be purified from toxic chemicals to not contaminate the waterway.
TATA Chemicals Incidents			
Operation of the plant by means of unsafe work methods. Another incident happened o**n** March 12, 2021, when a large fire was ignited in the TATA Chemicals plant which was caused by malfunctioning of electrical equipment within an industrial building.	A contractor employee suffered chemical burns when he was engulfed in hot caustic lime dust. In addition, a worker fell from a walkway 8 feet high and became trapped to his waist.	Workers from the TATA chemicals factory got injured due to the lack of safety measures in the plant. TATA chemicals was fined with almost £350,000.	Both incidents could have been avoided with regular assessment of risks and inspection of work equipment .
mperial Sugar Company Dust Explosion and Fire			
The explosion was fueled by massive accumulations of combustible sugar dust	On February 7, 2008, a huge explosion and fire occurred at the	This explosion caused 14 deaths and injuring 38 others, including 14 with serious and life-threatening burns.	Combustible dust hazard awareness should be incorporated into employee and

throughout the packaging building	Imperial Sugar refinery northwest of Savannah, Georgia		member companies' training programs. Combustible dust characteristics, especially ignition energy and minimum explosible concentration should also be studied. In addition, best practices for minimizing dust accumulation should be incorporate and safe housekeeping practices. Finally, specific combustible dust inspection requirements should be added.