



CASE STUDY

Organisations involved:

Chloros Environmental,
Hotel and Spa Facility,
Pool Chemical Supplier

Chemicals involved:

Sodium Hypochlorite
solution, Sodium Bisulphate
and Chlorine gas

Safe Handling and Clean up of Chemical Reaction at Hotel Leisure Facility

THE CHALLENGE

Chloros Environmental were made aware by the chemical supplier that a member of hotel staff had been filling the dosing tank for a swimming pool complex when a reaction had taken place. The staff member had been overcome by fumes and was taken to hospital. He was later discharged and suffered no long term ill effects.

The customer required Chloros Environmental to attend site and handle the clean up. This involved establishing the chemical reaction and the fumes generated, ensuring the chemical reaction had stopped, packing the waste materials, cleaning the dosing system and transporting the residual wastes safely to an approved disposal facility.

THE SOLUTION

The task was conducted in three phases:

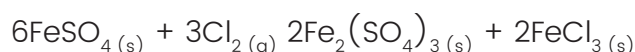
Phase 1: Initial inspection

Chloros Environmental attended site to assess the incident. Wearing appropriate PPE, they entered the area containing the chemical reaction. Fumes were still present, which were known to be chlorine. After a number of in situ tests that proved the solution to be oxidising and corrosive, the dosing system was closed whilst Wastesafe assessed the chemical reaction and the next phase for its safe removal.



Phase 2: Risk Assessment, Method Statement and Chemical Reaction

In order to stabilise the solution and stop the evolution of chlorine gas, a reducing agent, ferric sulphate, was used to trap the chlorine gas. The Chloros environmental chemist believed that on the addition of ferric sulphate, the following reaction would take place:



A controlled batch reaction was made during which a flocculent was formed (ferric chloride). The solution became acidic however the solution was deemed safe for transport as chlorine gas was no longer being evolved.

Phase 3: Decanting of Dosing Tank and Stabilising Free Chlorine

A ferrous sulphate solution was added to the waste solution then pumped into UN approved containers. The vent was open and the fan switched on at all times to prevent build up of Chlorine gas. Chemical spill pads and booms were used to soak up the remainder of the liquid in both the bund and dosing tank.

The waste was labelled and all relevant paperwork signed by the customer. Chloros Environmental provided aftercare advice and transported the waste chemicals to our hazardous waste transfer facility in Droitwich.

THE RESULTS

- Chemical dosing tank cleaned and cleared for reuse.
- Chemical reaction safely controlled by Chloros Environmental Chemist
- Minimal disruption to customer's business