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## Factsheet – Chlorine

**Note:** Information contained in this factsheet has been generated using information from Public Health England under the open government licence<sup>1</sup>.

### General Information

- Chlorine is a reactive chemical that is approximately three times heavier than air and smells similar to bleach. Chlorine is a gas at room temperature
- Chlorine is frequently used in the disinfection of water.
- The most likely cause of chlorine in the environment is following accidental release from an industrial site or transport vehicle, it does not persist in the environment
- Exposure is most likely to occur by inhalation or by contact with the eyes.
- Exposure may result in a burning sensation of the eyes and throat, coughing or breathing difficulties. There may be irritation and burns to the skin.
- Exposure to high levels of chlorine gas may damage the lungs and airways that can be fatal.

### Health risks with exposure

Minor exposures may result in a burning sensation of the eyes and throat. More substantial exposure may cause coughing or breathing difficulties. Exposure to high concentrations of chlorine gas can damage the lungs and airways; this may cause a build-up of fluid in the lungs that can be fatal. Following severe injuries from inhaling chlorine, there may be a lasting effect on the lungs and airways. However, most people who develop symptoms of poisoning following exposure to chlorine will not suffer any long-term effects.

- Exposure to liquid or gaseous chlorine may cause irritation and burns to the skin and eyes.
- Due to its gaseous nature inhalation and ocular exposure are most likely to occur
- Causes irritation to the eyes, respiratory system and skin
- Inhalation may cause sore throat, cough, chest tightness, headache, fever, wheeze, tachycardia and confusion; chemical pneumonitis, tachypnoea, dyspnoea and stridor due to laryngeal oedema may follow
- Dermal exposure may cause erythema, pain, irritation and cutaneous burns
- Contact with liquefied gas can cause frostbite
- Gaseous chlorine will irritate the skin and may cause burns in high concentrations

### Decontamination processes

A risk assessment should be conducted to decide the most appropriate method of decontamination, as the process will depend on the nature of the incident, location of casualties and the presence of any other chemicals. As chlorine is a volatile gas at room temperature, decontamination may not be required. However, gaseous chlorine will irritate the skin at high concentrations and liquid chlorine may cause cutaneous burns. This should be considered in the risk assessment when deciding on the need for disrobe and decontamination.

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<sup>1</sup> <http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>



## Mass Casualty Scenario

### **Session 1 : 09:30**

**It is a weekday morning, and the rush hour is busy with children going to school and workers heading into the capital city to work.**

Just outside the city, at the junction of two busy highways near the airport, a serious road traffic crash has occurred between a chemical tanker, with trailer, transporting chlorine gas and a bus full of workers heading to the city.

The tanker has overturned and the tanks have ruptured, releasing their gaseous contents into the surrounding area, including towards the airport. The bus has ended up in the ditch on its side. Some passengers have been thrown from the vehicle, others are still trapped inside. Some bystanders have been affected by the chlorine as they rushed to help.

The accident is being widely reported on the local radio, and the main hospital in the city has been informed. First reports from police at the scene are that there are more than 50 injured and many more contaminated by the chlorine that is leaking from the tanker.

Ambulances are waiting to transport casualties to hospital, but are relying on the fire service to extricate them from the hazardous area. The first casualties are expected to arrive at hospital by 09:30. The road to the national airport has been temporarily closed.



## Mass Casualty Scenario

### Session 2 : 11:00

**The latest report from the scene is that there are a total of 6 fatalities and 55 injured, of which 21 have minor injuries and 34 have more serious or major injuries. Many of those with injuries are also complaining of running eyes, coughing and difficulty breathing. A formal decontamination process of the casualties has not been undertaken at the scene. Many of the injuries seen are severe limb injuries and chest trauma.**

Currently, the hospital is treating 13 casualties with minor injuries and 22 with major injuries from the scene of the incident. These casualties arrived at the hospital in a variety of transport, including ambulances, taxis and private vehicles.

The influx of casualties from this incident, along with the usual demand on the emergency department means that the department has reached capacity and casualties are waiting in the corridors. Some healthcare workers, including nurses and ambulance staff, are reporting symptoms of breathing difficulties, coughing, wheezing and skin irritation.

A local private healthcare clinic in the nearby town has reported that it is treating some patients from the incident. They are unsure about the effects of chlorine, and at the moment are keeping everyone indoors.



## Mass Casualty Scenario

### Session 3 : 13:00

**All of the casualties at the scene of the incident have now been transported to healthcare facilities. Final casualty numbers are 7 fatalities and 56 injured, 19 have minor injuries and 37 have more serious or major injuries.**

Local media are wanting interviews with officials following footage of the incident being posted online. Some of these reports suggest that the incident was caused deliberately by the driver of the tanker.


Officials from the MoH are wanting to visit the hospital and talk to survivors.

Friends and relatives of those injured in the accident are starting to arrive at the hospital. This is causing crowding at the emergency department, and staff have raised concerns about security in the hospital as they go about their work. Some hospital staff who reported symptoms of chlorine exposure have gone home at the end of their shift.

Local communities living near the accident site have taken to social media to express their worries that they might be affected by the chlorine gas, and they are unhappy at not being kept informed about the dangerous chemicals.






## Social Media Conversation on 'Squawk'




Blue\_Fish  
@blue\_f


I agree. The authorities need to come and sort it out, all this bleach will kill my crops. How do we clean this up? We are all coughing and our eyes are sore.  
[#tankercrash](#), [#hospitalemergency](#)

12:36pm






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Ice\_Water  
@ice\_water


I hear there are health officials visiting the hospital. What good will that do? We need someone to get rid of this chemical before someone dies.  
[#tankercrash](#), [#hospitalemergency](#)

12:05pm






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Mr\_Timber  
@timber


The hospital is not coping with the crash, I heard the staff are getting sick too. I am worried about my chickens and vegetables that they will get sick and die too.  
[#chemicalrelease](#), [#hospitalemergency](#)

11:41am






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Pink\_boots  
@pinky

My sister was on the bus and I can't find her. I want to go to the hospital, but I am scared to go outside with this foul smell, I might get sick.  
[#tankercrash](#), [#hospitalemergency](#)

11:37am





Rock\_Man

@rocky\_m



No information from authorities about how dangerous this stuff is. The smell is terrible, like bleach. My kids are coughing and crying.

[#tankercrash](#), [#chemicalrelease](#)

11:11am

