

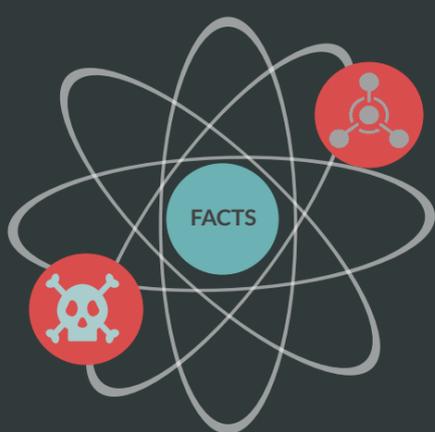
# CHEMICAL WARFARE

**DEF:** Using the toxic properties of chemical substances as weapons

Use is prohibited under customary international humanitarian law



Chemical weapons require relatively low investment, can cause severe psychological and physical effects, and are agents of disruption



## 5 OF THE WORST

- MOST DEADLY** → VX
- Sarin ← **MOST RECENTLY USED**
- MOST POPULAR** → Mustard Gas
- Phosgene ← **MOST DANGEROUS**  
*(not as toxic as VX and Sarin, but easier to produce)*
- MOST ATTAINABLE** → Chlorine

About **70** different chemicals (solid, liquid or gas) have been used or stockpiled as chemical warfare agents during the 20th century

## 3 CATEGORIES

### 1. HARASSING

(not intended to kill or injure i.e. riot control)



Tear gas  
Vomiting agents  
Malodorants (potent smell)

### 2. INCAPACITATING

(debilitating effects with limited probability of permanent injury or loss of life)



Psychological agents  
Other e.g. tranquilisers

### 3. LETHAL

(producing casualties without regard to long-term consequences or loss of life)



Blister agents  
Blood agents  
Choking agents  
Nerve agents

## HISTORY (OVER 2,000 YEARS)

- 600-400 BC** Poisonous arrows and noxious kinds of smoke
- MID 19TH CENTURY** Modern chemical warfare – development of modern chemistry and industry
- WORLD WAR I** 1.3 million casualties (including 90,000 - 100,000 fatalities)
- WORLD WAR II** Chemicals used in Nazi gas chambers – over 3 million fatalities  
*(deadliest use of poison gas in history)*
- 1966/7** North Yemen
- 1980 - 1988** Iran-Iraq war
- 2011-PRESENT** Syrian Civil war

## CHEMICAL WEAPONS TREATIES



1675

Strasbourg Agreement (France and Germany) – outlawing poisoned bullets

1874-1907

Series of international treaties signed by most Western nations - banning use of poison and poisonous weapons in war

1925

Geneva Protocol adopted by League of Nations - banning use of chemical and biological agents in war, but not prohibiting development, production or stockpiling of such weapons

1972

Biological and Toxin Weapons Convention together with Geneva Protocol – banning development, production and possession of biological weapons (but without mechanism to ensure compliance)

1993

Chemical Weapons Convention (CWC), beginning in 1997

As of October 2016, about **93%** of the world's declared stockpile of chemical weapons had been destroyed

### CHEMICAL WEAPONS CONVENTION (CWC)

arms control treaty outlawing production, stockpiling and use of chemical weapons and their precursors

### ORGANISATION FOR PROHIBITION OF CHEMICAL WEAPONS (OPCW)

intergovernmental organisation that administers the CWC, based in the Hague, Netherlands

### UNITARY CHEMICAL AGENTS AND MUNITIONS

scheduled for elimination by the CWC (Chemical Weapons Convention)

**192** nations have given their consent to be bound by the CWC (as of April 2016)

## 3 DISPOSAL METHODS FOR CHEMICAL WEAPONS

### 1. INCINERATION

various elements destroyed in a number of furnaces



PROS

CONS



large furnaces fully automated and can manage large quantities

possible airborne emissions; furnaces are costly and take long to construct

### 2. HYDROLYSIS

chemicals broken down with caustic agents (become less toxic) before incineration



PROS

CONS



neutralises chemicals; large, automated facilities; fewer emissions

facilities are costly and can take years to build

### 3. "BANG BOXES"

explosives attached to weapon and exploded in steel tank



PROS

CONS



mini-incinerators - highly mobile, destroy entire shell and neutralise chemicals, fully sealed

humans need to handle the weapons; some boxes not big enough for large caches

“Despite the reduction of threats as an increasing number of states fulfil their commitments under international conventions, a small number of states still maintain declared and undeclared stockpiles and even active chemical weapons programs presenting a potential future proliferation risk.”