



11Million different chemicals are known

- 70 000 different chemicals are in use
- every year more than 600 Million tons of these 70 000 chemicals are produced
- of them 10 000 agents are toxic for humans and the environment
- since the year 1900 70 agents were used as war fare and in terrorism

In the Tianjin Explosion involved Chemicals

Natriumcyanide (700 tons)

Na CN is used for:

Production of steel

Galvanisation

Gold extractation

Antidot:

Hydroxocobalamin

2,4 - DMAP (not in case of smoke because of inducing Methemoglobin)

Decontamination:

2NaCN + 5 NaClO + 2 NaOH → 2NaCO3 +N2+5NaCl + H2O

Kalium Nitrate K NO3

Calcium Carbide Ca C2

Toluoldiisocyanate C9 H6 N2 O2



Awareness for Chemical Events

- Assessment of circumstances
 - Explosion, clouds, smell
 - Containments of chemical agents with logos & labels
 - Cadavers without wounds
 - Intensity increases to the center
- Assessment of medical symptoms of injured
 - Manny similar symptoms without injuries
 - Chemical toxicants typical symptoms



Gefahr erkennen

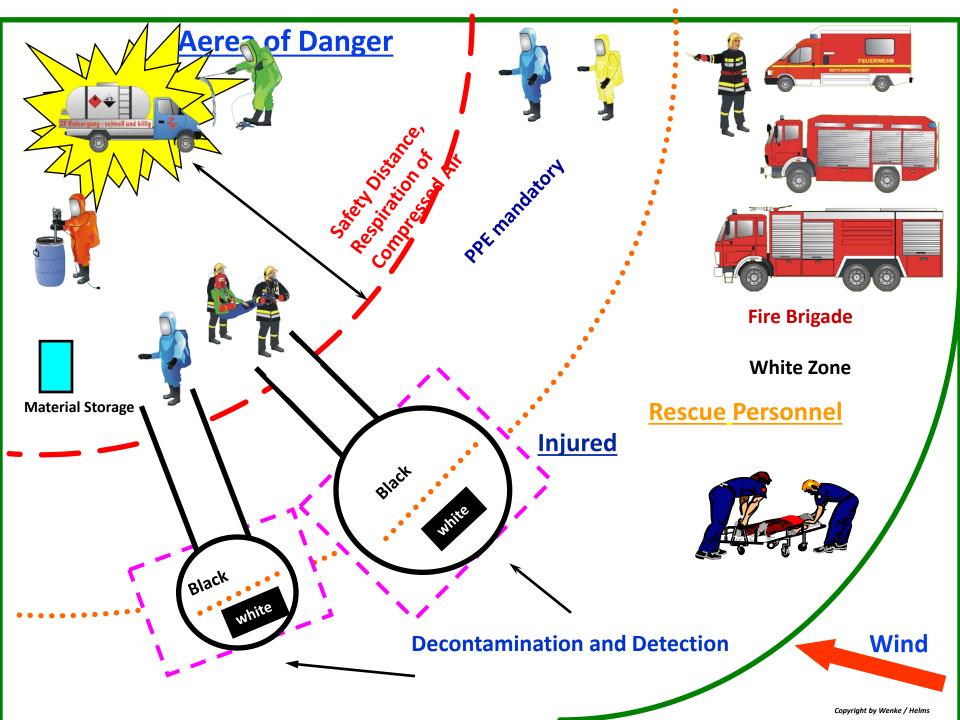
Eigenschutz

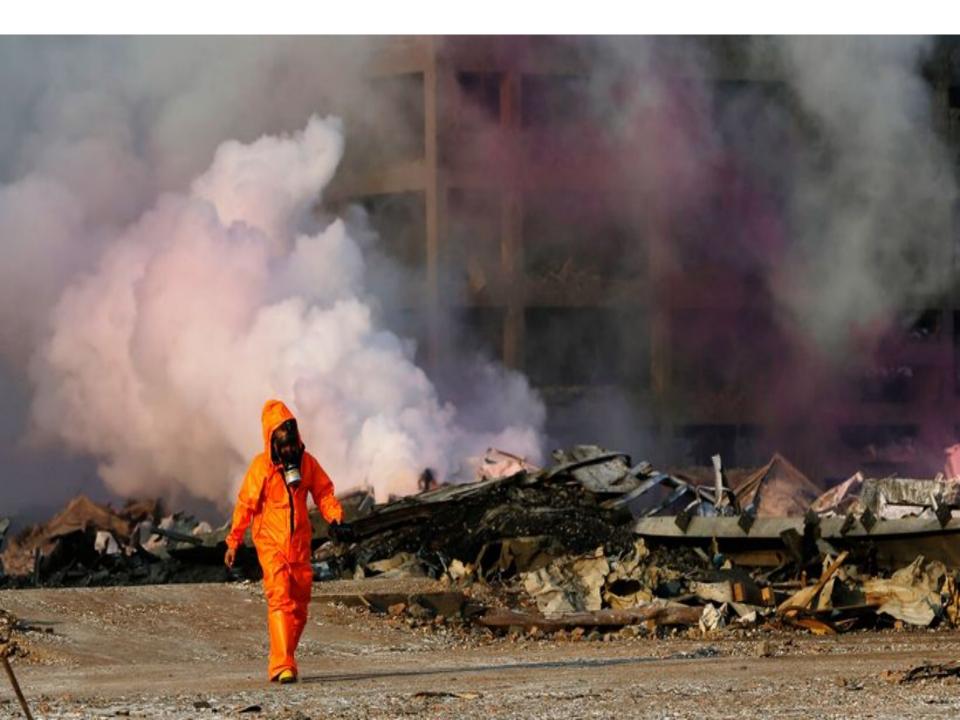
Meldung

Absperrung

Sondermassnahmen

Spezialkräfte







Entkleidung (45 sec – 180sec)

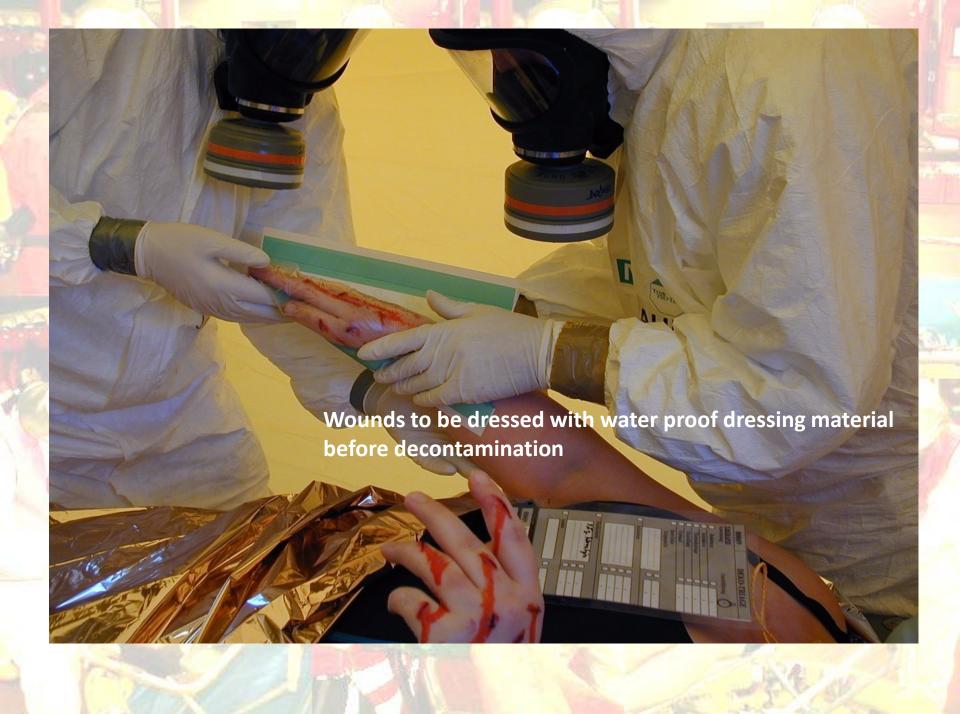


Spot- Decontamination

- eyes, nose, mouth, face
 - (Normal Saline Solution)
- site of injection
 - (0.5 Na-Hypochlorite)
- contaminated areas of the body
 - (Na-Hypochlorite)
- wounds
 - (Hydrogen Peroxid)

Rinse 2min, wipe by use of a sponge 2min, rinse 3min









S - Mustard, Nerve - Gas; susp. Halabja, 1986









Zivilschutz-Forschung

Schriftenreihe der Schutzkommission beim Bundesminister des Innern Herausgegben vom Bundesamt für Bevölkerungsschutz und Katastrophenhilfe im Auftrag des Bundesministeriums des Innern

Neue Folge Band 56

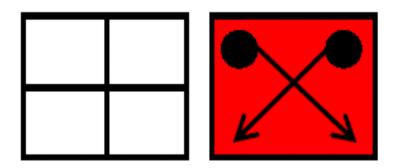
Aufbau und Ablauf der Dekontamination und Notfallversorgung Verletzter bei Zwischenfällen mit chemischen Gefahrstoffen

B. Domres, A. Manger, St. Brockmann, R. Wenke



Rahmenkonzept zur Dekontamination verletzter Personen

der Bund-Länder-Arbeitsgruppe



Endfassung

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Teaching and Training Decontamination

Time	Day 1	Day 2	Day 3	Day 4	Day 5
09:00 – 09:45	Welcome and Course Administration	Search and rescue, medical tasks and caring responsibilities	Scenario Workshop Emergency in Petrochemical Industry with some C-contaminated victims	Introduction and definitions (infectious diseases)	Medical Recourse Management in case of an Outbreak of disease
09:45 – 10:30	Definitions and CB-Scenario. The Response System Theatre	The medical treatment chain of CB-contaminated victims		Infectious diseases and mass gatherings	Respiratory diseases (e.g. Influenza and Coronavirus)
10:45 – 11:30	Tasks, Competencies and Responsibilities of medical CB-Response	Medical treatment of poisoning by toxic industrial chemicals	Medical treatment of burnings and contaminated wounds and SPOT Decontamination if exposed to toxic Industrial chemicals	Epidemic and pandemic Risk reduction strategy, Surveillance and diseases control	Gastrointestinal diseases (e.g. Norovirus and Salmonella)
11:30 – 12:15	Onsite areal planning			Sampling and analysis of biological agents	Tropical diseases (viral hemorrhagic fever viruses)
12:15 – 13:00	Allocation of onsite-facilities in a C-Emergency and Epidemics			Treatment of patients with highly infectious diseases	Immunization and vaccination strategy Demands on the public health care
spare time until 1700h					
17:00 – 17:45	Organization, Structure and Resources of an Emergency management e.g. German Regulation DV100/DV500	Health and Safety Arrangements in CB-Response, Human- biomonitoring	Medical Resource Management	Dealing with highly contagious patients , barrier nursing	Workshop Civil-protection and Citizen Preparedness Risk communications
17:45 – 18:30			Tabletop Exercise Mass casualty of C-contaminated Victims	Table Top Exercise (disease outbreak during mass gathering)	
19:00 – 19:45	Operational procedures in Emergency Management e.g. German Regulations DV100	Introduction and use of Personal Protective Equipment Systems, e.g. - infection protection - intoxication protection			Course evaluation closure
19:45 – 20:30			Lesson Identify TTEX	Lesson Identify TTEX	departure

The most important and most effective decontamination after any chemical or biological exposure is that decontamination done within the first minute or two after the exposure.

This is the personal decontamination. Early action by the injured to decontaminate himself will make the difference between survival (or minimal injury) and death (or severe injury). Good training can save lives.