

ISSUED BY THE MINISTRY OF HOME SECURITY

# CHART of WAR GASES

CROWN COPYRIGHT RESERVED.

PUBLISHED BY H.M. STATIONERY OFFICE

To be purchased directly from H.M. STATIONERY OFFICE at the following addresses:  
York House, Kingway, London, W.C. 2; 129 George Street, Edinburgh 2;  
37-40 King Street, Manchester 2; 1 St. Andrew's Crescent, Cardiff;  
80 Chichester Street, Belfast;  
or through any bookseller

1942

Price 2d. net or 1s. 6d. net per 25 copies

# WAR GASES, THEIR NATURE, EFFECTS, AND FIRST AID TREATMENT

## I. TEAR GASES (Harmless)

Name and General Description	Smell	Effects upon Human Body
C.A.P. ( <i>Non-Persistent</i> ). Solid. Used as invisible cloud of small particles.	Aromatic, like floor polish.	Stinging and watering of the eyes with spasms of the eyelids. In the case of C.A.P., there may be slight irritation of exposed skin.
K.S.K. ( <i>Persistent</i> ). Dark brown liquid, giving off an invisible gas.	Pear drops.	
B.B.C. ( <i>Very Persistent</i> ). Brown liquid, giving off invisible gas.	Penetrating bitter-sweet.	

## 2. CHOKING GASES (Deadly)

Name and General Description	Smell	Effects upon Human Body
PHOSGENE ( <i>Non-Persistent</i> ). Almost invisible gas. May be seen as white cloud near point of burst. Corrodes metals. A trace of phosgene in the air makes smoking unpalatable.	Musty hay. Produces suffocating sensation.	Coughing and watering of the eyes; pain in the chest. In some cases there may be a lessening, or even a disappearance, of these symptoms, to be followed later by signs of severe damage to the lungs.
CHLORINE ( <i>Non-Persistent</i> ). Greenish gas. Corrodes metals. Repeated exposure rots clothing.	Penetrating, like bleaching powder.	Generally like phosgene, but more irritant and less poisonous. No lessening or disappearance of symptoms.

### 3. BLISTER GASES\*

Name and General Description	Smell	Effects upon Human Body
<p><b>MUSTARD GAS</b> (<i>Persistent</i>). Heavy oily liquid. Dark brown to straw colour. Iridescent on wet surfaces. Gives off invisible gas. Liquid penetrates all but completely impervious materials (e.g. metals or glass). Slowly destroyed by water or alkali.</p>	<p>Garlic, onions, horse-radish, or mustard; faint; some persons are unable to smell it.</p>	<p>(i) VAPOUR. Effects depend on concentration and period of exposure. <b>After serious exposure:</b> <i>Eyes.</i>—Irritation and inflammation with swelling within 24 hours. <i>Skin.</i>—Redness, irritation, and possibly blisters after about 12 hours or even longer. Tender and moist parts of body most readily affected. <i>Respiratory Passages.</i>—Loss of voice and cough. (ii) LIQUID. <i>Eyes.</i>—Immediate irritation. <i>Skin.</i>—Redness in about 2 hours, blisters in 12 to 24 hours.</p>
<p><b>LEWISITE</b> (<i>Persistent</i>). Heavy liquid, colourless when pure, but usually brown as used. Gives off invisible gas. Great powers of penetration. Contains arsenic. Rapidly destroyed by water or alkali.</p>	<p>When impure, as used<sup>1</sup> in war, strong smell of geraniums.</p>	<p>(i) VAPOUR. <b>After serious exposure:</b> Severe irritation to nose and damage to eyes and lungs and possibly reddening and blistering of skin. (ii) LIQUID. <i>Eyes.</i>—Immediate irritation. <i>Skin.</i>—Similar to mustard gas, but effects produced more rapidly.</p>

\* Lewisite, vapour or liquid, produces immediate irritation, whereas mustard gas normally does so only in the case of liquid in the eyes.

Slight exposure to the vapour of Mustard gas or Lewisite has little, if any, injurious effect.

## FIRST AID TREATMENT FOR:—

**1. TEAR GASES.** Symptoms usually subside when the respirator is put on. If they persist, bathe the eyes (when gas is no longer present and the respirator can safely be removed) with warm water or salt solution (one teaspoonful to a pint of water). If the skin is irritated, wash the affected part with soapy water.

**2. CHOKING GASES.** Persons definitely affected by phosgene or chlorine, or suspected of being so affected, must be removed from the gas area as soon as possible and be treated as follows:

- (1) They should be placed flat on the back, and on no account be allowed to move or even sit up, even though they may feel better.
- (2) They must be kept as warm as possible with blankets and hot water bottles, and may with advantage be given hot, sweetened tea.
- (3) A doctor must be summoned, or the casualty sent to hospital as a stretcher case, at once.
- (4) No artificial respiration must be given.

**3. BLISTER GASES.** Successful treatment for contamination by blister gases depends on the speed with which the remedy is applied. Always move victims as quickly as possible from proximity of gas and adopt the method of treatment most readily available.

### *Vapour.*

1. Remove seriously contaminated clothing.
2. Wash exposed skin and, if practicable, whole body with soap and water, preferably warm.

### *Liquid.*

1. Dab off any visible liquid on the skin with a dry rag and rub in anti-gas ointment or apply bleach cream. The latter should be wiped off or washed off with water after two minutes. If anti-gas ointment or bleach cream is not available, wash affected part with soap and water.
2. If liquid has got into the eyes, wash them out *at once* with plenty of water (or salt solution, if available).
3. Remove contaminated clothing and, if possible, bathe all over with soap and water, preferably warm.
4. Always avoid spreading contamination, taking special care when washing a contaminated eye not to contaminate the unaffected eye.
5. Anti-gas ointment or bleach cream should not be applied to the skin where reddening has already developed. Blisters should not be opened.

**BLISTER GASES ARE NOT KILLERS BUT TO PREVENT INJURY SPEEDY TREATMENT IS ESSENTIAL**

# PRACTISE PUTTING ON YOUR RESPIRATOR



1. Hold your breath. (To inhale gas may be fatal.)
2. Hold mask in front of face, thumbs inside straps.
3. Thrust chin well forward into mask. Pull straps as far over head as they will go.
4. Run finger round face-piece taking care head-straps are not twisted.

## MAKE SURE IT FITS

See that the rubber fits snugly at sides of jaw and under chin. The head-straps should be adjusted so that they hold the mask firmly on the face. To test for fit, hold a piece of soft, flat rubber or of soft tissue paper to end of mask and breathe in. The rubber or paper should stick.



## YOUR RESPIRATOR

COMPLETELY PROTECTS YOUR EYES, NOSE, THROAT AND LUNGS AGAINST ALL WAR GASES

ALWAYS KEEP YOUR RESPIRATOR SAFE, CLEAN AND EFFICIENT

IF YOU SUSPECT GAS, AT ONCE PUT ON YOUR RESPIRATOR AND GET UNDER COVER

7/42 (257/1327) (W) 1627 200M 5742 A, 1 & S, Ltd. 428.

35/199

Replica

#### 4. NOSE IRRITANT GASES (Harmless)

Name and General Description	Smell	Effects upon Human Body
D.A., D.M., D.C. (Non-Persistent). Arsenical solids, used as cloud of small particles, invisible except near the point of release.	Practically odourless.	Burning and aching pain in nose, mouth, and throat, and later in the chest, accompanied by sneezing. In more severe cases, vomiting and mental depression may be caused.

#### Delayed Action of Nose Irritant Gases

The symptoms caused by these gases may not appear for some minutes after exposure. Thus they may not be felt until after the respirator has been put on, causing a victim to think the respirator is defective and want to remove it. The respirator must not be removed until fresh air is reached, however, as other and more dangerous gases may be present at the same time as the nose irritants, which may be used to force people to discard their respirators.

#### 5. SYSTEMIC POISONING GAS

Name and General Description	Smell	Effects upon Human Body
ARSINE ( <i>Arseniuretted Hydrogen</i> ) ( <i>Non-persistent</i> ). Invisible gas. May be liberated by action of moisture on calcium arsenide, which is a dark or greyish-white powder.	Odourless in low concentrations.	Weakness and breathlessness on exertion. Headache, nausea, and vomiting. Pain in the back and stomach. Affects blood, liver and kidneys (blood in urine). Severe symptoms delayed for an hour or two.

#### FIRST AID TREATMENT FOR:

- 4. NOSE IRRITANT GASES.** Symptoms will usually subside fairly soon if the respirator has been put on promptly, and no treatment except possibly fresh air and rest will be required. In severe cases, gargling and washing out the nose with warm sodium bicarbonate solution (a teaspoonful of baking soda—sodium bicarbonate—to a pint of warm water) will allay the irritation of the nose and throat. Because of the acute mental depression, victims should be carefully watched for some time.
- 5. ARSINE.** Complete rest and warmth are essential. Hot sweetened tea may be given. Persons definitely affected by arsine should be treated as stretcher cases and medical advice sought.