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# Investigating the legality of White Phosphorus as an inhumane weapon of war.

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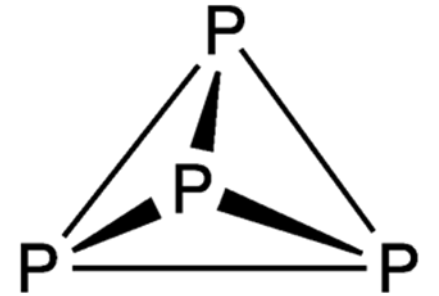
# Aim of research

This research aims to discuss the environmental and physiological consequences of using White Phosphorus, and to analyse its legality regarding military practices, thus questioning if White Phosphorus should be classed as **an inhumane weapon of war**.

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# White Phosphorus



- A highly toxic compound, which is highly volatile, hyper reactive and exists in two crystalline forms: form  $\alpha$  and form  $\beta$ .
- Made up of discrete tetrahedral P<sub>4</sub> molecules which react with atmospheric dioxygen, resulting in **spontaneous combustion** upon exposure to air.

Matchstick girls: Matches sold under the name ‘Lucifers’ in 1830 were linked to the industrial disease ‘phossy jaw’.

- European countries began banning WP matches in 1872 – A complete ban was not put in place in 1910, **over 50 years after the emergence of medical reports.**
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# Military uses of White Phosphorus

## Smoke

- Used to conceal movements, signal/conceal targets and to disorientate enemy vision.

## Illumination

- Used to illuminate battlefields
- Efficient burst height of 500 meters.

## Munitions

- May be used in training grounds to simulate combat situations.
  - ‘Shake and Bake’ missions - Used as a psychological and physical weapon and relies on noxious properties of smoke.
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# Environmental consequences

- WP bombs release phosphorus pentoxide which reacts with moisture to form phosphoric acid and could be transported via wind.
  - Fires will not only destroy the biodiversity of land/forest, but also host a multitude of socio-economic consequence
  - Phosphorus is a key nutrient in aquatic ecosystems, however in excess will cause eutrophication leading to algal blooms and oxygen depletion
  - Standardized technical guidance assumes the spatial distribution is homogenous.
  - WP has a highly unpredictable heterogeneous spatial distribution
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# Physiological consequences

- Severe burns, respiratory distress, delayed-onset lung oedema, corneal burns/perforation, ocular irritation, photophobia and metabolic changes.
- Burn patients with 10-15% TBSA burns are of high risk of sudden death and have a higher risk of morbidity/mortality compared to regular thermal burns.
- A gruesome aspect of WP is its ability to reignite upon exposure to oxygen in open wounds.

Example: Patients with shrapnel penetration, the shrapnel may reignite producing smoke and causing further internal burns.

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# Legal Analysis

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# Convention on Certain Conventional Weapons

Adopted 10<sup>th</sup> October 1980 and entered into force in 1983.

Based on the principles of international humanitarian law.

Protocol III – Prohibits the use of incendiary weapons within a concentration of civilians, of which were **primarily** designed to set fire to objects and cause burns to personnels.

Does **NOT** cover weapons/munitions which have an **incidental** incendiary effect.

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# Chemical Weapons Convention

Adopted 1992 and entered into force 1997

- WP produces an incendiary response to oxygen not to **life processes** .
  - Burns are acquired via its thermal not toxic properties.
  - WP may produce liver/kidney abnormalities and metabolic changes and thus in that instance is altering 'life processes'.
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# Stockholm Convention on Persistent Organic Pollutants

Inclusion may be argued due to its ability to remain for extended periods of time, its wide distribution and its ability to accumulate in fatty tissues of humans and wildlife.

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# Customary International Humanitarian Law

## Rule 14 Principle of Proportionality

- It is not the specific weapon but how the weapon is used.
  - Under rule 14 WP could legally be dispersed if there is no risk of incidental loss of civilian life or injuries to civilians.
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# Should WP be classed as an inhumane weapon of war?

Inhumane weapon - Unnecessary suffering/superfluous injury or may have indiscriminate effects against civilians.

1. WP produces long term life altering injuries
  2. WP in soil and water has shown negative environmental consequences and poses risk to future generations.
  3. Can WP be used discriminately?
    - WPs highly unpredictable heterogenous spatial distribution complicates how discriminate WP's use really is.
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# Conclusions:

## **Stockholm Convention on Persistent Organic Pollutants**

- May be argued due to, its harmful effects on humans and the environment, its ability to remain in the environment for extended periods of time, its wide dispersal and ability to accumulate in fatty tissue of humans and wildlife.

## **Convention on Certain Conventional Weapons**

- Its 'primary' purpose is for smoke/illumination and its incendiary effects are incidental.
- Focuses on civilians and is not applicable to military personal.

## **Chemical Weapons Convention**

- Defines a chemical weapon of which effects 'life processes' and as such WP does not reach the requirements of this definition.
  - WP could, however, be argued for its inclusion in the CWC when used in 'shake and bake' missions, as these rely on the noxious properties of WP smoke.
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## **Customary International Humanitarian Law**

- It is not the specific weapon but how the weapon is used.
  - As such, if one can prove that WP can be used discriminately then it is legal under Customary International Humanitarian law, however, due to the unpredictable spatial distributions and its ability to remain in deep soils and bodies of water for extended periods of time complicates whether it can truly be used discriminately.
  - Ability to remain in deep soil and bodies water poses threat to future generations.
  - Its continual potential risk to civilians further complicates its discriminate/indiscriminate classification.
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