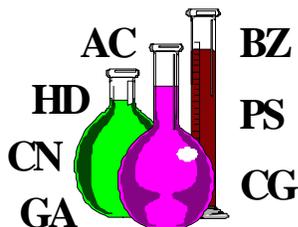


*U.S. Army Center for Health Promotion and Preventive Medicine*



*General Facts About Tear Agent  
O-Chlorobenzylidene Malononitrile  
(CS)*

218-47-1096

**General**

CS was developed in the late 1950s as a riot-control substance. It is a more potent irritant than chloroacetophenone but is less incapacitating. In the late 1960s, stocks of CS replaced CN. Presently, the U.S. Army uses CS for combat training and riot control purposes.

**Description**

CS is a white crystalline solid; burnt to create a colorless gas with an acrid pepperlike smell.

**Overexposure Effects**

CS is disseminated by burning, explosion, and aerosol formation. It is immediately irritating to the eyes and upper respiratory tract. Warm vapors mix with human sweat to cause a burning sensation to the eyes, nose, and mouth. Conjunctivitis and pain in the eyes, lacrimation, erythema of the eyelids, runny nose, burning throat, coughing and constricted feeling in the chest are the effects which will occur immediately and will persist 5 to 20 minutes after removal from the contaminated area.

It is immediately dangerous to life and health at a concentration of 2 mg/m<sup>3</sup>. It is not an accumulative agent in the human body, although it accumulates in the landscape. CS is the most persistent of the tear agents, absorbing into the most porous surfaces including soil and plaster.

**Emergency and First Aid Procedures**

Inhalation: remove the victim to fresh air immediately; perform artificial respiration if breathing has stopped; keep the victim warm and at rest; seek medical attention immediately.

Eye Contact: wash eyes immediately with copious amounts of water for at least 15 minutes; apply an ophthalmic corticosteroid ointment after decontamination; treat delayed erythema with a

bland shake lotion (such as calamine lotion) or a topical corticosteroid depending on severity; do not wear contact lenses when working with this chemical; seek medical attention immediately.

Skin Contact: wash the contaminated skin thoroughly using soap and water; remove the contaminated clothing immediately; if irritation persists after washing, seek medical attention immediately.

Ingestion: give victim copious amounts of water immediately; induce vomiting by having victim touch the back of throat with finger; do not make an unconscious person vomit; seek medical attention immediately.

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