

CR Active Material & CR Based Grenade

Defence Research & Development Establishment (DRDE), Gwalior has developed unique non-lethal munitions, named as CR based grenades, which is totally safe, simple to operate, user-friendly and extremely useful for the above purpose. The body of the grenades is made of plastic, melts when the grenade bursts making its throwing back difficult.

The active component of CR based grenade is CR (Dibenz-[b,f]-1,4-oxazepine), which is one of the peripheral sensory irritants, commonly used as a riot control agent. It is more potent and less toxic than the presently used riot control agents, namely, chloroacetophenone(CN) or o-chlorobenzylmalononitrile (CS). It is a pale yellow solid, having mp 72°C. It has a low vapour pressure of 5.9×10^{-5} mmHg at 20°C as compared to 5.9×10^{-3} mmHg (at 20°C) of CN. CR can easily be dispersed as smoke (aerosol) from pyrotechnic mixture. Immediately after the exposure to the vapours or aerosol of the tear gas compound there will be an irritation and burning sensation (itching sensation) in the eyes, nose throat, mouth and all the exposed parts of the body. There will also be tightness in the chest with difficulty in breathing. All the symptoms disappear within 15-45 minutes after the end of the exposure. No treatment is required after exposure to CR. Individual, once exposed, to CR should come out and breathe fresh air. It is a very effective riot control agent, which is far better than the commonly used agents.

- ❖ Useful for peace keeping purposes and combating terrorism.
- ❖ Can be used to incapacitate terrorists and flushing them out from hideouts (tunnels, fields, dense jungles, broken grounds etc.) without casualties.
- ❖ Highly effective in mob dispersal/riot control operations.

