

# RDX and its usage

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## Manifest Pedagogy:

The chemicals which make news are very important as far as prelims is concerned, may they be the chemicals used in firecrackers or taste enhancers (Like MSG) or RDX. One has to learn the chemical composition of them. As far as the Mains is concerned, the regulation of the chemicals is very important.

## In news

80kg high-grade RDX used by Jaish terrorist in Pulwama Attack

## Placing it in the syllabus

Science and Technology- developments and their applications and effects in everyday life.

Security challenges and their management in border areas; linkages of organized crime with

terrorism

## Static dimensions

- RDX and its uses.
- Explosives Act 1884 provisions

## Current dimensions

- High-grade RDX used by Jaish terrorist in Pulwama Attack

## Content

### RDX and its uses

RDX is a hard, white crystalline solid, insoluble in water and only slightly soluble in some other solvents. Sensitive to percussion, its principal nonmilitary use is in blasting caps.

It is often mixed with other substances to decrease its sensitivity.

**Chemically, it is classified as a nitramide, chemically similar to HMX.** A more energetic explosive than TNT, it was used widely in World War II and remains common in military applications.

Royal Demolition Explosive (RDX), formally cyclotrimethylenetrinitramine, also called cyclonite, hexogen, a powerful explosive, discovered by Georg Friedrich Henning of Germany and patented in 1898 but not used until World War II, when most of the warring powers introduced it. It is safe and inexpensive to manufacture, The name RDX was coined by the British.

### **Uses of RDX**

- RDX is a nitramine explosive compound (Turley and Brewster 1987) that can be utilized as a propellant, gunpowder or high explosive depending on the initiation type.
- RDX has both military and civilian applications. As a military explosive, RDX can be used alone as a base charge for detonators or mixed with another explosive such as TNT (Trinitrotoluene) to form cyclotols, which produce a bursting charge for aerial bombs, mines, and torpedoes.
- Common military uses of RDX have been as an ingredient in plastic bonded explosives or plastic explosives, which have been used as explosive fill in almost all types of munition compounds.

### **Provisions of the Explosives Act 1884**

- According to the act **“explosives” means** gunpowder, nitroglycerine, nitroglycol, gun-cotton, di-nitro-toluenetri-nitrotoluene, picric acid, di-nitor-phenol, tri-nitor-resorcinol (styphnic act), cyclo-

trimethylenetrinitramine, penta-erythritol-tetranitrate, tetryl, nitroguanidine, lead azide, lead styphnate, fulminate of mercury or any other metal, diazo-di-nitrophenol, coloured fires or any other substance whether a single chemical compound or a mixture of substances, whether solid or liquid or gaseous used or manufactured with a view to produce a practical effect by explosion or pyrotechnic effect; and includes fog-signals, fireworks, fuses, rockets, percussion caps, detonators, cartridges, ammunition of all descriptions.

- As per the provisions of the act **the Central Government may, for any part of India, make rules** consistent with this Act to regulate or prohibit, except under and in accordance with the conditions of a licence granted as provided by those rules, the manufacture, possession, use sale, [transport, import and export] of explosives, or any specified class of explosives.
- It gives the Power for Central Government to prohibit the manufacture, possession or importation of specially dangerous explosives.
- It also prohibits sale or transport of explosives by;
  1. Young persons (below 18 years) and certain other persons.
  2. A person who has been sentenced on conviction of any offence involving violence or moral turpitude for a term of not less than six months, at any time during a period of five years after the expiration of the sentence.
  3. A person whose licence under this Act has been cancelled, whether before or after the commencement of the Indian Explosives (Amendment) Act, 1978, for contravention of the provisions of this Act or of the rules made thereunder, at any time during a period of five years from the date of cancellation of such licence
    - **Refusal of licences:** According to the Act the license can be granted if the licensing authority is satisfied that the person by whom licence is

required possesses technical know-how and experience in the manufacture of explosives and has good purpose. It can refuse to grant licence to where such licence is required in respect of any prohibited explosive. The Act mentions that the government **may or may not grant licence** after making inquiry

- **Variation:** The licensing authority may vary the condition subject to which a licence has been granted except such of them is have been prescribed and may for that purpose require the holder of licence by notice in writing to deliver-up the licence to it within such time as may be specified in the notice.
- **Appeals: Any person aggrieved by an order of the licensing authority refusing to grant a licence or varying the conditions of a licence or by an order of the licensing authority suspending or revoking a licence may prefer an appeal against that order to such authority (hereinafter referred to as the appellate authority) and within such period as may be prescribed, Provided that no appeal shall lie against an order made by, or under the direction of, the Central Government.**
- Inquiry into more serious accidents: The central government may appoint the Chief Collector of Explosives or any other competent person to hold enquiry, and may also appoint one or more persons possessing legal or special knowledge to act as assessors in such inquiry.
- The person appointed to hold an inquiry under this the act shall have all the powers of a Civil Court under the Code of Civil Procedure, 1908 (V of 1908), for the purposes of enforcing the attendance of witnesses and compelling the production of documents and material objects; and every person required by such person as aforesaid to furnish any information shall be deemed to be legally bound so to do within the meaning of Section 176 of the Indian Penal Code (45 of (1860)).

## **Punishment of certain offences**

1. Whoever, in contravention of rules made under the Act or of the conditions of a licence granted under the said rules shall be punishable and it also mentions whoever manufactures, imports or export any explosive shall be punishable with imprisonment for a term which may extend to three years, or with fine which may extend to five thousand rupees, or with both.
2. Whoever possesses, uses, sells or transports any explosive shall be punishable with imprisonment for a term which may extend to two years or with fine which may extend to two years or with fine which may extend to three thousand rupees or with both

## **High-grade RDX used by Jaish terrorist in Pulwama Attack**

According to the officials High-grade RDX explosive, weighing about 80 kilogram, was used in a suicide attack on a CRPF bus that killed 40 security personnel in one of the deadliest terror strikes on security forces in a decade.

The officials said the scattered remains of the bus, reduced to blackened bare frames after the blast, does not reflect that an improvised explosive device (IED) was used to target it. They opined that the fatal damage can be wrecked by a better grade of explosive like RDX.