



**DECCAN INDUSTRIAL EXPLOSIVES PVT. LTD.**  
**Manufacturers of safety fuse & gun powder**

'Amrut Chambers', F. C. Road, 1216/7, Shivajinagar, Pune - 411 004. Maharashtra State, India.  
Tel - 0091- 20 - 25532142 Fax - 0091- 20 - 66027999

[www.deccanfuse.com](http://www.deccanfuse.com)

## **MATERIAL SAFETY DATA SHEET**

1) PRODUCT IDENTIFICATION:  
SYNONYMS: **SAFETY FUSE**

2) COMPOSITION / INFORMATION OF INGREDIENTS:

The safety fuse consists of a train of Gun Powder / Black Powder enclosed in paper tape or strands of wound Jute or Cotton yarn, then covered with one more layer/s of Jute or Cotton yarn, which is then coated with Bitumen and a colouring composition. It may also be covered with another suitable water proofing material such as PVC (Poly Vinyl Coating) or LDP (Low density Plastic), etc. to produce a fuse which stands to the specified condition of use.

Gun powder contains a mixture of Sulphur, Charcoal, & Potassium Nitrate.

3) PROPERTIES OF SAFETY FUSE:

As the black powder core of a safety fuse burns it produces gases, which must escape. At the same time heat of the combustion melts the bitumen and gutta-percha and thus produces side ventilation through the textile layers. This results in the production of an increased but constant gas pressure determined by the equilibrium between gas generation and gas lost side ways. As the rate of burning of black powder depends mainly on the pressure it is referred to as a process of equilibration, which determines the speed of burning of the fuse.

With a properly constructed safety fuse the casing is almost impermeable to gases but should faults occur, either during manufacture or due to mishandling, cracks causing leakage may develop later, which may lead the hot gases to penetrate inward. In this case the burning speed of the safety fuse can increase and even become hazardous.



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The actual rate of burning of the safety fuse depends on the ambient pressure. On ignition, if the pressure is reduced to less than one fifth of the atmospheric pressure, it burns instantly. In deep mines the extra pressure can be sufficient to give an increase in burning speed of the safety fuse. Compared with the effect of pressure other influences on the burning speed are small.

Temperature and humidity have little effect on the safety fuse but, if kept for a prolonged period in conditions humid enough to cause lower quality of the Potassium Nitrate in the core. The gas evolved by safety fuse consists mainly of Carbon dioxide and Nitrogen with small quantities of Carbon Monoxide and oxides of Nitrogen. The amount of gas produced is likely to be 15 to 20 ml/cm of the safety fuse.

No other chemical reaction takes place in the safety fuse.

4) SPECIFICATIONS:

**(i)**

<b>Product Name</b>	<b>Diameter (mm)</b>	<b>Burning Speed (Sec/mtr)</b>	<b>Gap Sensitivity (mm)</b>
Blue Label Safety Fuse	4.60 to 5.00	115 +/- 10	25
Polycoated Safety Fuse	5.00 to 5.50	130 +/- 10	25

**(ii)** Safety fuse passes the lateral transmission test.

5) APPLICATIONS:

- (i) Safety fuse is an explosive accessory used in mining, quarries and well-sinking and well-digging activities.
- (ii) Safety fuse itself burns to ignite other explosives.
- (iii) Blue label Safety fuse is used in both dry and moist condition.
- (iv) Polycoated safety fuse is used in very rugged and under-water condition.



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6) PACKING:

Coiled safety fuse material inserted in polythene bags, which is then packed in corrugated boxes OR Safety fuse material wounded on wooden reels and inserted in a polythene bag, which is then packed in corrugated boxes.

Export oriented material will be packed in IIP (Indian Institute of Packaging) approved corrugated boxes bearing valid IIP certificate.

7) HAZARDOUS IDENTIFICATION:

Fire fighting measures: Ignition by spark or naked flame.

Fire extinguishing media: Water spray, dry chemical foam or carbon dioxide.

Environmental toxicity: No toxic vapours or odour is emitted.

Disposal consideration: Approved waste, accumulated material and unused contents can be burnt in open space.

Handling and storage:

- (i) Store in dry location, protected from excess heat or cold.
- (ii) Safety fuse is not to be exposed to oil or any other solvents.
- (iii) NO SMOKING, NO NAKED FLAME or SPARKS and No articles/substances of flammable nature/prone to ignite spontaneously, should be present within 10mtrs of any capping operation.
- (iv) No child under 16 years of age and no person who is in the state of intoxication shall be employed on the loading and unloading or transport of safety fuse.
- (v) Never bend or twist the safety fuse as it can cause misfires.
- (vi) Never try to force the safety fuse into the detonator.
- (vii) Safety fuse is totally safe to transport, handle and store.

8) SAFETY PRECAUTIONS:



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- (i) Do not expose to extreme heat and cold conditions.
- (ii) Do not expose to oil or any other solvents.
- (iii) To ensure better results, use ISI approved crimper to crimp detonators with safety fuse.
- (iv) Never use less than 1.25mtrs length in the blast hole on surface Bench Whole. The length of the safety fuse should be increased proportionally to the depth of the blast hole.
- (v) NO SMOKING, NO NAKED FLAME or SPARKS and No articles/ substances of flammable nature/prone to ignite spontaneously, should be present within 10mtrs of any capping operation.
- (vi) Capping should not to be done within 10mtrs from magazine or explosive.
- (vii) Never blow or prick a detonator with a pin or stick to remove foreign matter (dirt).
- (viii) Never twist or screw the detonator to the safety fuse.
- (ix) Ensure that the safety fuse is cut squarely (detonator insertion side)
- (x) It is safe to use safety fuse as an explosive accessory.
- (xi) Capping the safety fuse is the act of crimping a plain detonator to a length of the safety fuse. It is important to know that the detonator is free of foreign matter in the tube and that the safety fuse will burn at the approved rate.
- (xii) Cut one meter from the roll and test burn it to ensure that it burns at the appropriate burning rate and then cut the required length for the shot.
- (xiii) Remember that no less than one meter may be used to test-burn.
- (xiv) In any situation, where there is a delay time between lighting the fuse and the explosion, it could pose a danger in PUBLIC areas where the PEOPLE could gain undetected access.



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9) STATUTORY INFORMATION:

(i) For indigenous market, as per the Explosives rules 1983, Govt of India.

- a) Safety distance category : **X**
- b) Class 6 Div.1
- c) Supplies against furnishing Form 37, duly supported by a Photostat copy of License, granted by Department of Explosives to Store and sell/use Safety Fuse.

(ii) For overseas markets

a) UN Classification:

Class:	I
Division:	1.4.2
Group:	S
UN No.:	0105
Page No.:	1267
Storage Category:	1

b) Permission of buyer's Government is necessary in pursuance with the Explosives Rules of respective country, for import of explosives.