

Fire Extinguisher's contribution to fire safety in tunnels

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FEU

FEU is the *independent* organization in the EU which provides expertise of *professional fire fighters* from 21 EU countries & Norway

FEU è l'organizzazione indipendente nella UE che esprimono la conoscenza degli esperti dei vigili del fuoco professionisti da 21 paesi dell'UE e la Norvegia

- Föderation der Feuerwehrverbände der Europäischen Union
- Federation of the European Union Fire Officer Associations
- Fédération des Associations de Sapeurs-Pompiers dans l'Union Européenne
- Federatie van Brandweerverenigingen in de Europese Unie
- Federazione delle Associazioni degli Ufficiali dei Vigili del Fuoco dell'Unione Europea
- Federación Europea de Asociaciones de Oficiales de Bomberos
- Federace Asociací Hasičských Důstojníků Evropské Unie
- Ομοσπονδία Ενώσεων Αξιωματικών Πυροσβεστικής της Ευρωπαϊκής Ένωση
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AIM

- **The principal aim of FEU is**
 - ...to enhance fire safety ...
 -and provide expertise to European bodies
 -
- **L'obiettivo principale della FEU è**
 - ... per aumentare la sicurezza antincendio ...
 - e fornire consulenza agli organismi europei

**Every fire starts small
and develops... if not extinguished**



Consequences of tunnel fires trucks



**Holland Tunnel –
New York (USA)
13.05.1949**

Cause:
Accident of truck with
explosives
Dead: 0
Injured: 66

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Consequences of tunnel fires trucks



**Tauerntunnel
(Austria)
29.05.1999**

Cause:
Rear-end collision with truck
which was loaded with
aerosol cans (microsleep)

Dead: 12

Injured: 42

© APA, Source: www.oe24.at

Consequences of tunnel fires

cars



**Gleinalmtunnel - Pyhrnautobahn
Highway north of Graz, Austria
6. August 2001**



Cause:

Two cars had collided head-on.

Dead: 5

Injured: 4

Consequences of tunnel fires

cars



**Viamala Tunnel,
A13 highway
Chur, Switzerland
16.september 2006**

Cause:

Car and bus collided head-on.

Dead: 6

Injured: 6

© Keystone; source: www.blick.ch

Consequences of tunnel fires cable cars



**Kaprun Glacier Express
Austria
11.November 2000**

Cause:
technical defect in a heater in a
vacant cabin

Dead:	155
Injured:	4

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Can fire extinguisher contribute to fire safety in tunnels ?

Could that be another option – or is it only a stupid idea ?

Fire Extinguisher's contribution to fire safety in tunnels

- Fire extinguishers mandatory in cars
 - Bulgaria
 - Greece
 - Turkey
 - Estonia
 - Latvia
 - Lithuania
 - Belgium
 - Poland
- Fire extinguishers recommended in cars
 - Denmark
 - Norway
 - Sweden
 - ...

Fire Extinguisher's contribution to fire safety in tunnels

Portable Fire Extinguishers min. 2kg dry Powder

Are they efficient, easy to handle, expensive..... ?

Portable Fire Extinguishers - Activation



Portable Fire Extinguishers - Use



Fire Extinguisher Sprays Activation and Use



Fire extinguisher sprays

Suitable for extinguishing fires of various substances



Fire Extinguisher Sprays initial motor fire



Fire Extinguisher Sprays initial tire fire



Fire Extinguisher Sprays initial fire in the luggage trunk



Fire Extinguisher Sprays fully developed fire in the cabin



Fire-extinguisher-sprays on German TV



German TV-star Günther Jauch extinguishing a fat fire

Standards

Fire Extinguisher sprays

- British Standard BS 6165:2002
 - Specification for small disposable fire extinguishers of the aerosol type
 - Specification pour les petits extincteurs a jeter de type aerosol
- Defined test conditions for
 - Class A – fires
 - Class B – fires



Class A - fire performance

Extinguish a fire of pine-wood sticks
pre-burn time 8 minutes

- **Rating**

- 5 A

- Dimension (L*W*H)

Testfire **50***50*56 cm

- 8 A

- Dimension (L*W*H)

Testfire **80***50*56 cm

- 13 A

-

- 21 A

-

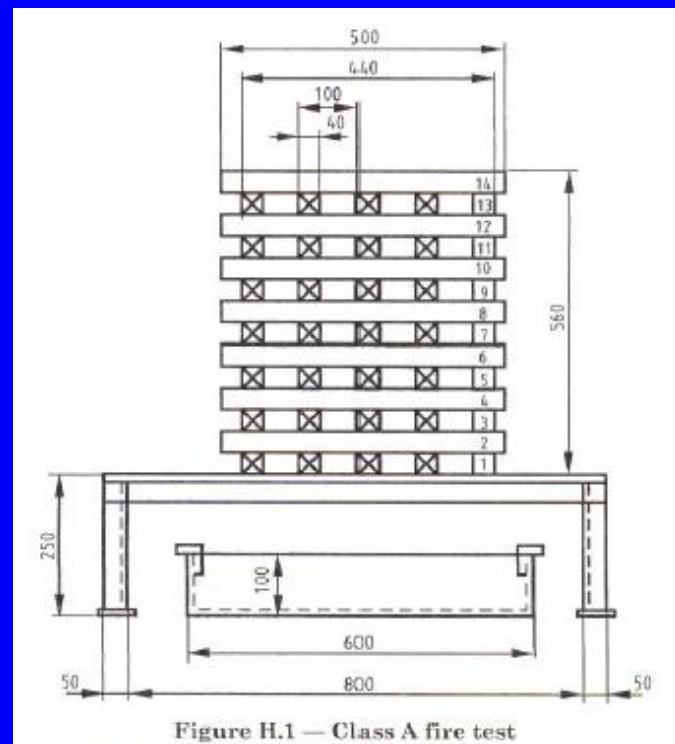


Figure H.1 — Class A fire test



Class B - fire performance

Extinguish a fire of a hydrocarbon/water mixture
pre-burn time 60 seconds

- **Rating**

- 21 B

- 15 Litres fuel + 6 Liters water, area on fire 0,66 m²

- 34 B

- 25 Litres fuel + 9 Liters water, area on fire 1,07 m²

- 55 B

-

- 70B

-

Proposal – Legal requirements

Fire extinguisher sprays

- Only fire extinguisher sprays should be allowed to be marketed in the EU which have a **certified fire performance** of at least
 - **5A** when designed for Class A fires (solids)
or
 - **21B** when designed for Class B fires (liquids)
or
 - **5F** when designed for Class F fires (edible fat)

Minimum EN3

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Thanks for your
attention

Grazie per l'attenzione

