



UL Underwriters Laboratories Inc.

NIST Portable Fire Extinguisher Workshop

January 17, 2007





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Outline of Topics

- UL Fire Test Requirements
- Operating Instructions
- Flammable Liquid Fire Test Method
- Wood Crib Fire Test Methods
- Wood Panel Fire Test Methods

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UL Fire Test Requirements- Rating and Fire Testing of Fire Extinguishers ANSI/UL711

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Operating Instructions

b) The operating instructions shall be in the form of numerically sequenced pictographs. A single pictograph is able to include two written instructions.

c) The sequence of pictographs shall illustrate the recommended actions necessary for intended operation of the extinguisher. The sequence shall be as follows:

- 1) Ready the extinguisher by disengaging the locking device, tamper seal, or both.
- 2) Aiming the extinguisher at the base of the fire, including the recommended distance from the fire at which to begin discharge, and indicating the intended operating attitude of the extinguisher.
- 3) Taking whatever action necessary to initiate intended discharge of the extinguisher.
- 4) Describing the intended method of applying the extinguisher agent on the fire.

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Instructions

ANSUL sentry

1. PULL PIN. HOLD UPRIGHT.

2. START BACK 10 FEET (3 m). AIM AT BASE OF FIRE.

3. DEPRESS PUSH LEVER. SWEEP SIDE TO SIDE.



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Instructions

ANSUL Guard

1. PULL PIN. HOLD UPRIGHT.

2. START BACK 8 FEET (2.4 m). AIM AT BASE OF FIRE.

3. DEPRESS PUSH LEVER. SWEEP SIDE TO SIDE. CONTINUE TO APPLY UNTIL EXTINGUISHER IS EMPTY.




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Instructions

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INSTRUCTIONS

① HOLD UPRIGHT. PULL RING PIN.




JALAR

② START BACK 10 FEET. AIM AT BASE OF FIRE.




APUNTAR

③ SQUEEZE LEVER, SWEEP SIDE TO SIDE AND CONTINUE TO APPLY UNTIL EXTINGUISHER IS EMPTY.




PRESIONAR Y APLICAR HASTA VACIAR

△ FLAMMABLE LIQUID - FUELS



○ COOKING OILS



WARNING: IN CASE OF APPLIANCE FIRE, FIRST ACTIVATE FIRE SUPPRESSION SYSTEM OR TURN OFF APPLIANCE TO REMOVE HEAT SOURCE. PRECAUCION: EN CASO DE INCENDIO EN UN APARATO, PRIMERO ASESURAR DE ACTIVAR EL SISTEMA DE SUPRESION O APAGAR EL APARATO PARA IMPEDIR CONDUCCION DE CALORIFICACION.


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Instructions

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INSTRUCTIONS

① HOLD UPRIGHT. PULL RING PIN.




JALAR

② START BACK 8 FEET. AIM AT BASE OF FIRE.




APUNTAR

③ SQUEEZE LEVER, SWEEP SIDE TO SIDE.




PRESIONAR Y APLICAR

□ LIQUIDS



⊗ ELECTRICAL EQUIPMENT



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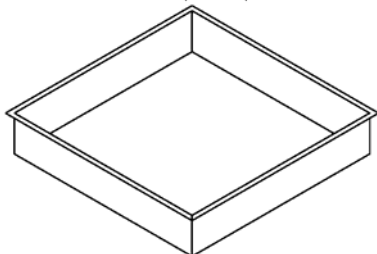
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Class B Flammable Liquid Fire Test Arrangement

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Figure 3
Flammable liquid fire test pan



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Indoor Test Pans

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Flammable liquid fire test, pan size, materials, and arrangement

Rating - class	Minimum effective discharge time, seconds	Pan size, (inside)		Metal thickness		Reinforcing angle size (approximate)		Commercial grade heptane used, (approximate)*	
		m ²	(ft ²)	mm	(in)	mm	(in)	Liters	(U.S. gallons)
Indoor tests:									
1-B	6	0.23	(2-1/2)	6	(1/4)	38 by 38 by 4.8	(1-1/2 by 1-1/2 by 3/16)	11	(3-1/4)
2-B	6	0.47	(5)	6	(1/4)	38 by 38 by 4.8	(1-1/2 by 1-1/2 by 3/16)	23	(6-1/4)
5-B	6	1.16	(12-1/2)	6	(1/4)	38 by 38 by 4.8	(1-1/2 by 1-1/2 by 3/16)	57	(15-1/2)
10-B	6	2.32	(25)	6	(1/4)	38 by 38 by 4.8	(1-1/2 by 1-1/2 by 3/16)	114	(31)
20-B	6	4.65	(50)	6	(1/4)	38 by 38 by 4.8	(1-1/2 by 1-1/2 by 3/16)	227	(60)

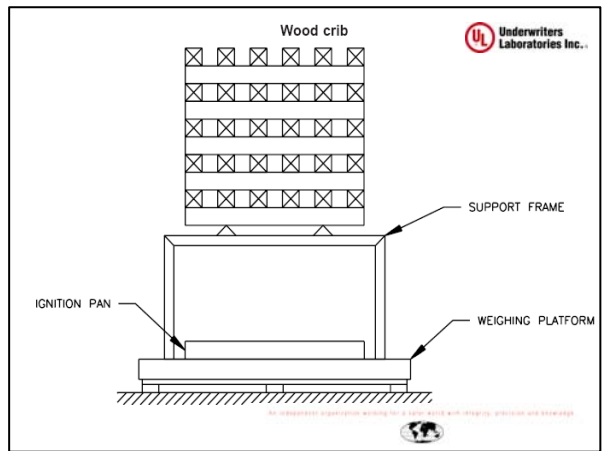
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Outdoor Test Pan Sizes

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Outdoor tests:									
30-B	11	7.00	(75)	12	(1/2)	38 by 38 by 6	(1-1/2 by 1-1/2 by 1/4)	350	(95)
40-B	13	9.30	(100)	12	(1/2)	38 by 38 by 6	(1-1/2 by 1-1/2 by 1/4)	465	(125)
60-B	17	14.00	(150)	12	(1/2)	38 by 38 by 6	(1-1/2 by 1-1/2 by 1/4)	700	(190)
80-B	20	18.60	(200)	12	(1/2)	38 by 38 by 6	(1-1/2 by 1-1/2 by 1/4)	950	(250)

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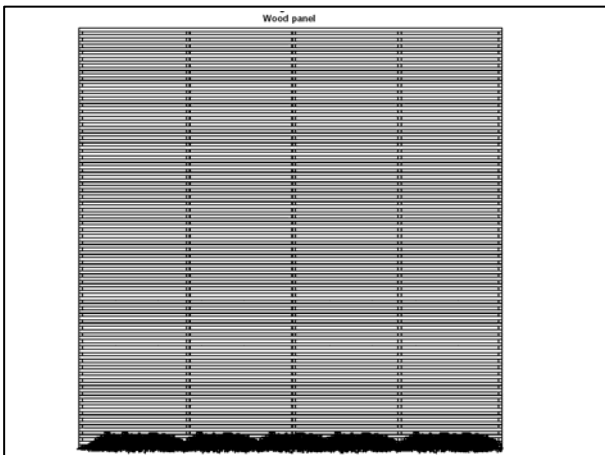


Wood-crib construction

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Classification and rating	Number of wood members	Trade size and length of wood members		Arrangement of wood members in crib
		mm	(in)	
1-A	72	38 by 38 by 500	(2 by 2 by 20)	12 layers of 6
2-A	112	38 by 38 by 635	(2 by 2 by 25)	16 layers of 7
3-A	144	38 by 38 by 735	(2 by 2 by 29)	18 layers of 8
4-A	180	38 by 38 by 800	(2 by 2 by 32)	20 layers of 9
6-A	230	38 by 38 by 925	(2 by 2 by 36)	23 layers of 10
10-A	324	38 by 38 by 1100	(2 by 2 by 43)	27 layers of 12
20-A	256	38 by 80 by 1400	(2 by 2 by 55)	16 layers of 16 on edge 1 top layer of 10 flat
30-A	324	38 by 80 by 1625	(2 by 4 by 64)	18 layers of 18 on edge 1 top layer of 12 flat
40-A	400	38 by 80 by 1750	(2 by 4 by 69)	20 layers of 20 on edge 1 top layer of 14 flat

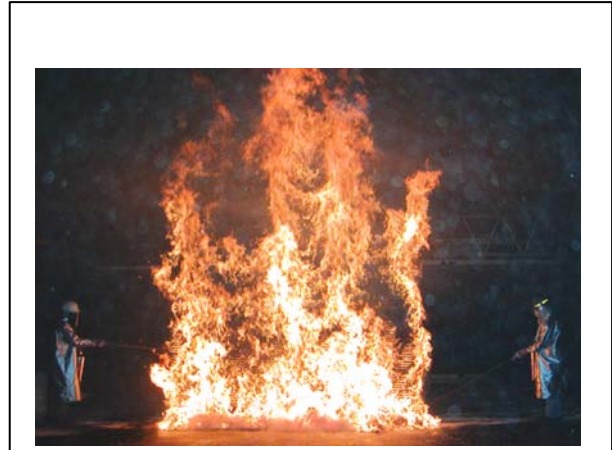
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Wood-panel construction and arrangement

Rating – class	Test panel size		No. 2 fuel oil (ASTM D396) applied		Excelsior window material	
	m	(ft)	Liters	(U.S. Gallons)	kg	(lb)
1-A	2.45 by 2.45	(8 by 8)	3.90	(1)	4.55	(10)
2-A	3.05 by 3.05	(10 by 10)	7.55	(2)	9.05	(20)
3-A	3.65 by 3.65	(12 by 12)	11.35	(3)	13.00	(30)
4-A	4.25 by 4.25	(14 by 14)	15.15	(4)	18.15	(40)
6-A	5.20 by 5.20	(17 by 17)	22.70	(6)	27.20	(60)

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Summary

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