

REPORT

No.: P 653/99-530-2

ABOUT RESEARCH of fire extinction efficiency of oil-wire with Automatic fire extinguishing system BONPET

Ordered by: **BONPET d.o.o., Ravne 100, 8281 SENOVO**

Order/contract: **No. 3/99 from 11.05.1999**

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FIRE IN KITCHEN CAUSED BY FRYING - OIL IGNITION

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1. **PRODUCT:** Automatic Fire Extinguishing Expedient BONPET
2. **SUPPLIER:** BONPET d.o.o, Ravna 100, R281 SENGVO, Slovenia
3. **PRODUCER:** Kabo Kogyo Co. Ltd TAD Corporation, Japan
4. **SAMPLING:** Testing pieces were supplied and assembled by orderer's representative

5. DESCRIPTION OF EXTINGUISHING EXPEDIENT BONPET:

BONPET extinguishing liquid is in red coloured glass ampoules dimensions $\phi 60 \times 280$ mm. The liquid is transparent pink coloured. By temperature increase of the liquid (85-90°C) increases pressure in the ampoule that causes a burst of ampoule and liquid sprays into the room. Ampoules are fixed with special tin-iron holders that are placed in the room by producer's instructions. In general on 8 m³ or approximately 4 m² of space one BONPET ampoule should be placed.

6. CONDITIONING OF SAMPLES:

Conditioning is not required.

Date of testing: 14.6.1999, environment temperature: 24°C, relative humidity: 58%

7. TESTING PROCEDURE:

While there is no standard testing prescribed for testing efficiency of extinguishing expedients for fire extinguishing in closed spaces we made the test in the room built in accordance with standard SIST ISO 9705. This is a room 2,4m width, 3,6m length and 2,4m height made of gas-concrete blocks. In one wall there is a opening 0,8m x 2m.

With a test we should find out how BONPET extinguishes a fire caused by frying-oil ignition.

7.1 FIRE BURDEN:

One liter of frying-oil in frying-pot on a gas burner in the kitchen. Gas burner with frying-pot was placed on the kitchen-desk approximately 40 cm diagonal from BONPET ampoule. Kitchen-desk (width 110cm) was placed on kitchen chest under kitchen cupboard (width 94cm). Chest and cupboard were made of surface treated chipboard. Door edges were made of plastic.

7.2 FIRE EXTINGUISHING EXPEDIENT:

One ampoule of BONPET is fixed in the wall under cupboard.

7.3 MEASUREMENTS:

Temperature of the air is measured as shown in appendix No.1. Measuring place No.9 is in the frying-oil, measuring place No.7 is placed 30 cm under ceiling, measuring place No.5 is 83cm under ceiling, No.3 is 113cm under ceiling and No.1 is 173cm under ceiling.

7.4 VENTILATION

Room door is opened under test. Outgoing smoke is scooped and forced-led away.

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8. TEST OBSERVATIONS:

| Time (mins) | Observation |
|-------------|--|
| 0:0 | Start of oil heating |
| 0:12 | Oil ignition (oil temperature 380°C) |
| 0:16 | Ignition of the lower edge of the kitchen cupboard, plastic edge is also burning and partly outer surface of kitchen cupboard is burning. The room is heavily filled with smoke |
| 0:19 | BONPET activation, fire extinguishing of frying pot. Plastic edge of the kitchen cupboard is still weakly burning |
| 0:23 | Fire on the plastic edge of the kitchen cupboard extinguishes. |

9. TEST RESULTS:

Test has shown that one ampoule of automatic extinguishing expedient BONPET placed over cooking stove under kitchen cupboard extinguishes frying-oil burning because of overheating as well as starting burn of kitchen elements.

10. APPENDICES:

- 1 ... sketch of the testing place,
- 2 ... temperature development diagram,
- 3 ... photos:
 - 1 ... view through the room door
 - 2 ... placement of the cooking stove with frying pot
 - 3 ... oil ignition in the frying pot
 - 4 ... 4 minutes after ampoule activation small fire on the edge of kitchen cupboard

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