



Certificate of Conformity

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Product designation

Ansul, Model R-102, wet chemical type, pre-engineered restaurant fire suppression system

(Refer to the Schedule/enclosures for further specified details)

Agent/distributor

Tyco Fire & Security
Unit 1, 2-8 South Street, RYDALMERE, NSW, AUSTRALIA, 2116

Registrant

Tyco Fire & Security
Unit 1, 2-8 South Street, RYDALMERE, NSW, AUSTRALIA, 2116

Producer

Ansul Incorporated
One Stanton Street, MARINETTE, WI, UNITED STATES, 54143-2542

Conformance criteria and evaluation

The Ansul, Model R-102, wet chemical type, pre-engineered restaurant fire suppression system has been evaluated and verified as conforming with the relevant requirements of the following criteria.

1. SSL Appraisal Specification FAS-111, 'Wet Chemical Pre-Engineered Fixed Fire Suppression Systems for Restaurant Cooking Areas'.

Limitations/conditions of conformance

Limitations/conditions of conformance, where identified on this certificate, are derived from qualifications from evaluation(s) for conformity and/or other related technical documentation. All details with respect to design, assembly and installation instructions and restrictions should be checked against the producer's current technical manual/data sheets and the requirements of the Authority having Jurisdiction.

Specified limitations/conditions, determined from the evaluation for conformity, include the following.

- i. The Ansul, Model R-102, wet chemical type, pre-engineered restaurant fire suppression system is listed only for operation in an ambient temperature range of from 0°C to 54°C.
- ii. An installed Ansul R-102 system is covered by this listing only if the actual installation, its design, and its maintenance comply with the limitations and requirements contained in the Ansul R-102 System Design, Installation, Recharge and Maintenance Manual, Revision 6, dated 6 August 2001 (Ansul Part No. 418087-06). Copies of this Manual are available from Tyco Fire and Safety.

(Limitations/conditions of conformance continue)

Issued by

David Whittaker
Executive Officer – ActivFire Scheme



This certification is issued within the scope of CSIRO Verification Services – Rules governing ActivFire Scheme and is valid only for the product(s) as submitted for evaluation and verification of conformity, subject to the following conditions.

- Reference to details, limitations and requirements, where documented as a schedule/enclosure with this certificate.
- The Registrant is responsible for their attestation of conformity and ensuring that on-going production complies with the conformance criteria defined in this certificate.
- This certificate will not be valid if any changes or modifications are made to the product which have not been notified and validated by CSIRO Verification Services.
- This certificate is subject to periodical re-validation upon verification that all requirements, as determined by the conformity assessment body, continue to be satisfactorily met by the Registrant.
- This certificate may only be reproduced in its published form, without modification and inclusive of all schedules/enclosures.
- Any changes, errors or omissions, must be submitted in writing and if necessary or requested, substantiated with relevant evidence.
- Any representations, such as advertising or other marketing related activities or articles shall reflect the correct contents of this certificate and conform with all relevant trade practices and consumer protection legislation and regulations.
- Any terms or conditions of use as applicable to content and documentation as published or accessed through web sites administered by the CSIRO Verification Services.

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iii. Each Ansul R-102 extinguishing agent tank shall be filled to the correct level, as specified in the above Manual, and only with *undiluted* Ansul ANSULEX® Low pH Liquid Fire Suppressant, Part No. 79694 (1.5 US Gallons) or Part No. 79372 (3.0 US Gallons). This listing is null and void if another extinguishing agent, or water-diluted ANSULEX®, is used with this system.

iv. Agent distribution piping - Galvanized pipe and fittings shall *not* be used in the agent distribution piping. Only Medium black steel pipe to AS 1074, stainless steel, or chrome-plated steel piping shall be used. Only PTFE tape shall be used to seal threaded joints.

Hemp shall not be used. Generally, 3/8" (10NS) agent distribution pipe shall be used throughout (Exception: Where *duct nozzles only* are served by a 1.5 gallon tank, 1/4" (6NS) pipe shall be used throughout). A maximum of two 3.0 gallon tanks shall be manifolded onto one 10NS agent distribution main pipe. For such a manifolded system, the combined length of all branch lines shall not exceed 10.9 metres and the combined length of all supply line sections shall not exceed 9.7 metres.

The supply line shall have a maximum of 8 elbows and 2 tees and shall not rise more than 1.8 metres above the top of the agent tanks. The highest nozzle in the system shall not be more than 3.0 metres above the agent tanks.

For a system with a single 3.0 gallon tank, the combined length of all branch lines shall not exceed 10.9 metres and the combined length of all supply line sections shall not exceed 12.2 metres. The supply line shall have a maximum of 9 elbows and 1 tee and shall not rise more than 1.8 metres above the top of the agent tanks. The highest nozzle in the system shall not be more than 3.0 metres above the agent tanks.

v. Actuation/expellant gas piping - Actuation/expellant gas piping shall consist only of 6NS steel screwed pipe as specified below. The actuation/expellant Gas piping internal volume shall be kept to a minimum. Larger or longer piping shall not be used.

- a. Black, chrome-plated, or galvanized, Medium (i.e. Schedule 40) steel pipe to AS 1074
- b. Schedule 40 stainless steel pipe to AS 4041

The combined length of expellant gas piping served by a single regulated release assembly or regulated actuator assembly shall not exceed 9.0 metres, and shall not include more than 9 pipe fittings. The actuation gas piping shall not exceed a combined length of 6 metres, and shall not include more than 8 elbows and 1 tee.

vi. Detection System - The detection system wire-rope cable shall be run in zinc-plated or galvanized steel 15NS screwed electrical conduit, Medium pipe to AS 1074, or "EMT" thin-walled electrical conduit. Bulkhead connections and conduit joints shall be made using screwed or compression type electrical conduit fittings. Conduit offsets are only permitted at the point of entry of detection cables and manual-pull cables to the regulated release cabinet, and only Ansul Conduit Offset Assembly, Part No. 79825, shall be used. A pulley tee or elbow shall not be connected directly to a conduit offset.

Two basic types of fusible-link detector are used. They are the Terminal Detector and the Series Detector. Terminal detectors shall be used only at the end of the detection system wire-rope cable most remote from the regulated release mechanism. Hinge Style and Scissors Style fusible-link detectors are used in R-102 systems. The Hinge Style detector shall be used where a greater number of detection points are required in a single run of detection system wire-rope. The installation limitations of the R-102 fusible-link fire detection system are as shown in Table 1.

Detector style	Max. num. of detectors per cable run	Max. num. of elbows per cable run	Max. length of 15NS conduit per cable run (metres)
Hinge	5	8	31.3
Scissors	15	20	45.7

Table 1

If it is intended to mix Hinge Style detectors and Scissors Style detectors in a detection system cable run, a maximum of *four* Series type and *one* Terminal type shall be used, the maximum allowable length of wire-rope is 31.3 metres, and the number of pulley elbows shall not exceed 8.

Other detection system requirements and limitations are as detailed on pages 4-45 to 4-47 of the R-102 System Design, Installation, Recharge, and Maintenance Manual, Part No. 418087-05.

vii. Nozzle placement - The requirements and limitations for nozzle placement are as detailed on pages 4-1 to 4-33 of the R-102 System Design, Installation, Recharge, and Maintenance Manual, Part No. 418087-05. This listing is null and void if they are not observed.

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viii. **Manual-pull system** - A remote manual-pull station enables the R-102 system to be manually operated at some point distant from the regulated release assembly. The pull station shall be installed not higher than 1500 mm above the floor, and should be located on an egress route. The pull station is the only means of manually actuating the regulated release assembly.

The total length of wire-rope cable used for each manual pull station in a system shall not exceed 46 metres, and pulley elbows per cable shall not exceed 20.

The pull-cable run shall have not more than one pulley tee, Part No. 15342. When a pulley tee is used, the pull-cable length shall not exceed 38 metres, and the number of pulley elbows shall not exceed 18.

ix. Modifications to meet Australian requirements

Cabinet:

- Remove the front cover from the cabinet assembly, remove the plug from the pressure regulator and discard.
- Assemble the adaptor P/N 82ZZJ02476 and pressure relief valve P/N 82ZZJ02579 to the pressure regulator outlet using loctite.
- Affix cartridge information label P/N 82AEK05069 onto the inside rear of the cabinet and information label P/N 82AEK 05050 and wiring diagram label P/N 82AEK05041A onto the inside face of the cabinet cover.
- Replace the front cover, repack and seal the carton and stamp "Australian Approved"

Tank:

- Check batch certification and affix tank label P/N AEK05023 onto the agent tank.

Producer's description

The Ansul, R-102, Wet Chemical Type Pre-Engineered Restaurant Fire Suppression System is a gas-cartridge expelled, non-stored-pressure wet-chemical solution type fixed system which discharges only "ANSULEX®" Low pH Liquid Fire Suppressant solution from its nozzles. The system has been designed to extinguish or suppress restaurant cooking area fires involving equipment such as deep fat fryers, tilt-skillets and braising pans, griddles, range-tops, woks, upright broilers, chain-broilers, and electric and gas radiant char-broilers which use lava rock, natural charcoal, or mesquite wood, and their associated exhaust canopies, grease-filters, plenums, and duct work.

The Ansul, Model R-102, wet chemical type, pre-engineered restaurant fire suppression system is operated automatically by mechanical or electrical means, and can be supplied with remote manual back-up actuation by a cable-pull arrangement. The basic Ansul R-102 system consists of an ANSUL AUTOMAN® regulated release assembly and a wet-chemical agent storage tank housed within a single enclosure. The agent tank is available in 11.4 litre or 5.7 litre sizes only, and is pressurised only while agent is being discharged from the system nozzles. To ensure that liquid agent in the tank is not siphoned into the discharge pipe work by temperature changes, the agent tank's outlet fitting incorporates a replaceable seal-disc which readily ruptures when expellant gas is admitted to the tank. Nozzles, wet chemical agent, expellant-gas cartridges, fusible-link fire-detectors, wire-rope cable, pulley tees, and pulley elbows, are supplied in separate packages in the quantities needed for each chosen fire suppression system arrangement. Additional system-listed equipment covered by this ActivFire listing, such as remote manual-pull stations, mechanical and electrical gas valves, pressure switches, and electrical switches for automatic gas shut-off and control of other equipment, is supplied where required.

For protection of large cooking groups and exhaust canopies, this listing also includes appropriately-sized stainless steel enclosures which contain the following:

- one tank only, or
- two tanks only, or
- an agent tank and an ANSUL AUTOMAN® pneumatically-actuated Regulated Actuator, or
- an ANSUL AUTOMAN® mechanically-actuated Regulated Release Assembly only. The pneumatically-actuated Regulated Actuator is intended to be slave-actuated from the mechanically-actuated type Release Assembly, via small-diameter actuation-gas piping.

A wall-mounting bracket is supplied where additional agent tanks are not required to be in a stainless steel enclosure. This bracket, and the above tank enclosures, will accept either the 11.4 litre or 5.7 litre tank as both tanks have the same outside diameter.

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Technical specification

The following details are a representative extract of the technical specification for the Ansul, Model R-102, wet chemical type, pre-engineered restaurant fire suppression system and may be subject to change. Complete and current details should be determined from the designated producer's technical manual/data sheets.

Regulated release and regulated actuator assemblies:

Approx. Enclosure Dimensions (mm)	598 H x 420 W x 190 Deep
Enclosure Material	Stainless Steel, Satin Finish
Solution Tank Capacities	5.7 litres and 11.4 litres
Solution Tank Test Pressure	20.7 bar
Solution Tank Min. Burst Pressure	1.4 bar
Pressure of Expellant Nitrogen	6.9 bar (set outlet pressure of regulator)
Nitrogen Relief Valve Setting	10.0 bar
Rated Voltage of Pull-Solenoid	120 Vac, 60 Hz. (intermittent duty)

Tank Enclosures:

Dimensions, Single Tank Type (mm)	598 H x 230 W x 190 Deep
Dimensions, Double Tank Type (mm)	598 H x 420 W x 190 Deep
Enclosure Material	Stainless Steel, Satin Finish

'AUTOMAN 101' remote mechanical release assembly:

Approx. Enclosure Dimensions (mm)	598 H x 230 W x 190 Deep
Required Gas Cartridge	Carbon Dioxide Cartridge, Type 101-10 (P/N 15850)
Output Pressure of Actuation Gas (bar)	6.9

Fusible link fire detectors:

Fusible link fire detectors for the R-102 system are available as follows:

Fusible link part num.	Temperature rating, °C	Use where temp. will not exceed °C
415739	74	38
415740	100	66
415741	138	107
415742	182	143
415743	232	182
56816	260	204

Expellant gas cartridges:

Only Ansul AUTOMAN[®] Cartridges filled with nitrogen to 145 bar at 21°C, or with carbon dioxide to 60 bar at 21°C, shall be used, as follows:

Size of tank (litres)	Max. flow num. rating of tank	Required size of Ansul nitrogen cartridge
5.7	5	LT-20-R (101-10)
11.4	11	LT-30-R (101-30)