

TECHNICAL DATA FOR FIRE EXTINGUISHING AGENT AND EQUIPMENTS

HYGOOD FM-200 FIRE SUPPRESSION SYSTEM

1. CLEAN AGENT

- **Manufacturer:** **DuPont Fluoroproducts**
- **Country of Origin:** **USA**
- **Type:** **Liquified compressed gas**
- **Chemical Formulation:** **HFC-227ea (HEPTAFLUOROPROPANE)**
- **Molecular Weight:** **170.03**
- **Boiling Point:** **-16.40°C (2.4°F)**
- **Freezing Point:** **-131°C (-204°F)**
- **Vapor Pressure:** **58.8 psi (at 70°F)**
4.04 bar (at 21°C)
- **Liquid Density:** **87.58 lb/ft³ (at 70°F)**
1.4032 kg/l (at 20°C)
- **Critical Temperature:** **101.7°C (214°F)**
- **Critical Pressure:** **2912kPa (424 psi)**
- **Critical Volume:** **0.0280 ft³/lb**
- **Critical Density:** **621 kg/m³ (35.77 lb/ft³)**
- **Saturated vapor density at 20°C:** **31.18 kg/m³ (1.95 lb/ft³)**
- **Ozone Depletion Potential (ODP):** **Zero (0)**
- **Global Warming Potential (GWP):** **3500**
- **Atmospheric Lifetime:** **36.5 years**
- **NOAEL (% by volume)(1):** **9.0%**
- **LOAEL (% by volume)(2):** **>10.5%**
- **Design Concentration:** **6.7% for Class A, 7.2% for Class C and 9.0% for Class B**
- **Discharge Time:** **10 seconds**
- **Approval:** **-US EPA SNAP Rpt.(Unrestricted Listed Alternative)**
-FM Approved
-Underwriters Laboratories Inc. (UL) Recognized Component

- NFPA 2001 Clean Agent Fire Extinguishing Systems (Listed Alternative)
- Australian Industrial Chemicals Notification
- German Institute for Environmental Hygiene and Medicine
- Malaysia Fire & Rescue Department (BOMBA)

2. STORAGE CYLINDER

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Type: **Welded**
- Material: **Carbon Steel**
- Cylinder Capacity: **8L, 16L, 32L, 52L, 106L, 147L, 180L, 343L**
- Super-Pressurized: **25 bar ± 5% @ 21° (360 psi @ 70°F)**
- Standard of Compliance: **8L, 16L, 32L, 52L, 106L, 147L and 180L cylinders are manufactured in accordance with DOT 4BW500 or 4BW450. 343L cylinder is manufactured in accordance with DOT 4BW450.**
- Hydraulic Test Pressure: **69 bar (1000 psi) for 4BW500**
Working Pressure: **34.5 bar (500 psi) for 4BW500**
- Hydraulic Test Pressure: **62.1 bar (900 psi) for 4BW450**
Working Pressure: **31.0bar (450 psi) for 4BW450**
- Fill Density: **1.0 kg/liter (Max)**
0.5 kg/liter (Min)
- Approval: **LPCB, UL, FM, BOMBA**

3. CONTAINER VALVE ASSEMBLY

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Type: **Pressure Operated**
- Burst Disc rating: **53.4 bar (774.5 psi) @ 50°C (122°F) for 25mm & 50mm valve**
52 bar (760 psi) @ 50°C (122°F) for 80mm valve
- Max Working Pressure: **34 bar (493psi)**
- Material: **Brass CZ 121 for 25mm & 50mm valve**
Brass UNS36000 for 80mm valve
- Size: **25mm, 50mm and 80mm**
- Pressure gauge: **Yes**
- Other Features: **Threaded steel anti-recoil protective cap**
- Approval: **LPCB, UL, FM, BOMBA**

4. DISCHARGE HOSE

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Hose Construction: **Twin steel wire braided oil resistant seamless synthetic rubber core to DIN EN 853 1SN (25mm hose)**
Twin steel wire braided oil resistant seamless synthetic rubber core to DIN EN 853 2SN (50mm hose)
- Connection: **Zinc Passivated Mild Steel**
25mm (1"NPT) / 50mm (2"NPT) straight fixed male
25mm (1"BSPP) / 50mm (2"BSPP) 90° female swivel union
- Max Bend Angle: **15° at 0°C (32°F)**
- Max Working Pressure: **88 bar (1276 psi) for 25mm hose**
80 bar (1160 psi) for 50mm hose

5. LOW PRESSURE SWITCH

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Body: **Hermetically sealed Stainless Steel**
- Switch Point: **Open on fall at 20 bar +/- 0.7 bar (290 psi +/- 10 psi)**
Close on rise at 24.1 bar +/- 0.7 bar (350 psi +/- 10 psi)
- Switch Type: **Normally open at atmospheric pressure**
- Proof pressure: **345 bar (5003 psi)**
- Connection: **Brass 1/8" NPT**
- Max. Current: **2.9 A**
- Voltage Range: **5-28 VDC**
- Wire Leads: **1.82 m (6 ft)**
- Approval: **LPCB, UL, FM, BOMBA**

6. REMOVABLE ELECTRICAL ACTUATOR

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Type: **Solenoid**
- Body: **Mild Steel & Dull Nickel**
- Swivel nut: **Brass CZ121**
- Actuation Pin: **Stainless Steel**
- Actuation Type: **Latching**
- Trip Manually: **YES**
- Trip by detector: **YES**
- Connection: **1" BSPP Brass**
- Nominal Voltage: **24 V DC**
- Nominal Current: **0.25 A**
- Max. monitoring current: **25 mA**
- Manual Actuation Force: **50N (11.24 lbf)**

- Electrical connection: **3-pin plug connector**
- Back EMF Protection: **Suppression Diode**
- Life span: **10 years from manufacture**
- Approval: **LPCB, UL, FM, BOMBA**

7. MANUAL ACTUATOR

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Body: **Brass CZ 121**
- Piston Rod: **Brass CZ 121**
- Min Actuation Force: **25.5N (5.73 lbf)**

8. PNEUMATIC ACTUATOR

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Body: **Brass CZ 121**
- Piston Rod: **Brass CZ 121**
- Min Actuation Pressure: **4 bar (58 psi)**
- Max Working Pressure: **56 bar (812 psi)**

9. NOZZLE

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Type: **F 360° (8 Ports) & F 180° (7 Ports)**
- Material: **Brass / Stainless Steel**
- Nozzle Size: **3/8", 1/2", 3/4", 1", 1-1/4", 1-1/2", 2" with NPT**
- Area Coverage: **95.3 square meters**
- Approval: **LPCB, UL, FM, BOMBA**

10. Flexible Pilot Hose

- Brand: **HYGOOD**
- Manufacturer: **Macron Safety Systems (UK) Limited**
- Country of Origin: **United Kingdom**
- Type: **Flexible Hose**
- Material: **PTFE and Stainless Steel Braided**
- Connection: **Zinc Passivated Mild Steel 2 off ¼” BSP Female Swivel**
- Overall Size: **710mm(L) x 7mm (Dia)**
- Max Working Pressure: **190 bar (2755 psi)**