SFG20
Core

23-04 Rising Fire Mains and Hydrants

Date: 28 Sep 2020
Version: 8
Unit of Measure: Nr

Summary	
Frequencies	**Tasks**
6M (Months) 30 mins	2 5 6 7
12M (Months) 60 mins	3 8 9 11 12 13
Annual Timing	**120 mins**

Introduction

This document specifies the requirements for the periodic maintenance of wet and dry rising fire mains and fire hydrants. It should be read in conjunction with all current statutory requirements and regulations. All maintenance should be in accordance with the manufacturer's or supplier's recommendations. Any accompanying method statements and risk assessments should be read and understood before starting work.

A dry riser is a system of empty pipes and valves used by the fire service to distribute water to the upper floors and remote areas of a building. The fire appliance is connected via hoses to an external inlet valve, usually at ground level, and water is fed via the riser to outlet valves on each level of the building. A wet riser works in the same way but has a dedicated mains-fed water supply which incorporates booster pumps and a storage tank. A fire hydrant is a fixed water connection point used by the fire service to supply water for fire fighting or to refill a pump appliance.

If unforeseen difficulties arise during maintenance and it is necessary to leave an installation not available for use, the fire and rescue service should be informed immediately in order that alternative arrangements can be made to cover this deficiency should the need arise. In addition a suitable notice to indicate that the installation is not available for use should be placed in a prominent position.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Display Order	Tasks
1	**Dry riser**
2	**Inlet and landing boxes** **Criticality:** Red **Frequency:** 6M **Skill Set:** Mechanical **Action:** Check all valves open and close (leave closed and strap and lock). Replace all instantaneous outlet washers. Replace all damaged or missing blank caps and chains. Check all handwheels and nuts are undamaged and in place. Check landing instantaneous outlets are free moving and undamaged. Check air release valve and replace if necessary. Check inlet cabinet and door for corrosion.

2 continued	Check inlet breeching valve springs and rubbers are free moving and in good condition. Check glazing in door. Remove any rubbish from the inlet box. Lightly lubricate all moving parts. Check: 1 inlets 2 landing valves 3 drain valves 4 door hinges 5 locking arrangements Report any defects. **Notes:** Special attention should be given to all valves, spindles, glands and washers, to ensure that they are in satisfactory condition so that all equipment is ready for immediate use. When defective valve assemblies are removed, they should be immediately replaced either with the replacement valve, or plugged or blanked off so that the system remains operative.
3	**Wet test** **Criticality:** Red **Frequency:** 12M **Skill Set:** Mechanical **Action:** Check earthing arrangement and ensure continuity between joints. Carry out physical check of the system. Static pressure test – flush riser by turning on water and allow to flow out of topmost outlet. Charge system to 10 bar measured at the inlet for 15 minutes minimum. Check system during this period for leaks etc. Flow test – after static pressure test a flow test should be carried out if considered necessary. Water should be passed through system under pressure and flow gauge readings recorded. **Notes:** If it is not possible to sustain an effective fire-fighting jet from the topmost outlet, or any undue pressure loss in the rising main (after allowing for the height involved) it should be investigated.
4	**Wet riser**
5	**Inlet and landing boxes** **Criticality:** Red **Frequency:** 6M **Skill Set:** Mechanical **Action:** Check: 1 inlets 2 landing valves 3 drain valves 4 door hinges 5 locking arrangements Report any defects. **Notes:** Special attention should be given to all valves, spindles, glands and washers, to ensure that they are in satisfactory condition so that all equipment is ready for immediate use. When defective valve assemblies are removed, they should be immediately replaced either with the

5 continued	replacement valve, or plugged or blanked off so that the system remains operative.
6	**Storage cistern and tanks** **Criticality:** Red **Frequency:** 6M **Skill Set:** Mechanical **Action:** Check cleanliness and condition. **Notes:**
7	**Booster pumps** **Criticality:** Red **Frequency:** 6M **Skill Set:** Mechanical **Action:** Thoroughly check pumps and associated mechanical and electrical equipment. **Notes:** For more detailed instructions see Pumps (SFG 45).
8	**Controls and electrics** **Criticality:** Red **Frequency:** 12M **Skill Set:** Multi-skilled **Action:** Check electrical supplies and equipment to prevent freezing. Check operation of system monitoring and alarms. Where pressure regulating valves are installed, the manufacturer's maintenance recommendations should be followed. Check lagging and trace heating (if fitted). **Notes:**
9	**Wet test** **Criticality:** Red **Frequency:** 12M **Skill Set:** Mechanical **Action:** Check earthing arrangement and ensure continuity between joints. Carry out physical check of the system. Static pressure test – flush riser by turning on water and allow to flow out of topmost outlet. Charge system to 10 bar measured at the inlet for 15 minutes minimum. Check system during this period for leaks etc. Flow test – after static pressure test a flow test should be carried out if considered necessary. Water should be passed through system under pressure and flow gauge readings recorded. Check internal cleanliness, condition and water level of storage tanks, including the operation of float valves and any water level alarms. Check booster pumps and their associated mechanical and electrical equipment. **Notes:** If it is not possible to sustain an effective fire-fighting jet from the topmost outlet, or any undue pressure loss in the rising main (after allowing for the height involved) it should be investigated.
10	**Fire hydrants**
11	**Condition** **Criticality:** Red **Frequency:** 12M **Skill Set:** Mechanical **Action:** Check for visible damage or signs of corrosion.

11 continued	Check lagging and trace heating (if fitted). **Notes:** Report to client if remedial work necessary.
12	**Caps and valves** **Criticality:** Red **Frequency:** 12M **Skill Set:** Mechanical **Action:** Check for ease of movement. **Notes:** See notes above in respect of landing boxes.
13	**Tests on private fire hydrants** **Criticality:** Red **Frequency:** 12M **Skill Set:** Mechanical **Action:** Where the local fire and rescue service provides a private hydrant inspection and test service, inspection of and, where practicable, a wet test of private underground fire hydrants should be made in conjunction with the owner or occupier of the premises or their representative. Where the local fire and rescue service does not provide a private hydrant inspection and test service, the activity should be undertaken by a suitable contractor. Where private fire hydrants are supplied from mains, arrangements should also be made with the water undertaker before tests are carried out. During these inspections and tests the condition of the following should be checked and noted for remedial action if necessary: 1 pits 2 frames 3 covers 4 surface paving round edges of frames 5 depth of outlet below the frame, which should be no more than 300 mm below ground level 6 method of indication by means of hydrant indicator plate or sticker The test should include flushing out the outlet and checking the outlet connection. The flow and pressure at the outlet should also be measured and noted. On completion of the test, the operation of the frost valve (where fitted) should be checked and the pit should be left empty and clean. **Notes:** All hydrants that are found to comply with the standards and are therefore in a satisfactory condition and ready for immediate use in an emergency are to be issued with a Certificate of Conformity. **Any non-conforming items found which prevent the contractor from issuing a certificate of conformity are to be immediately reported along with a quotation for carrying out the necessary remedial works to make the hydrant fully compliant.**

Legislation, Regulations and Guidance
http://shop.bsigroup.com/ProductDetail/?pid=000000000030301828 BS 9990:2015 Non automatic firefighting systems in buildings. Code of Practice
http://shop.bsigroup.com/ProductDetail?pid=000000000030357099 BS 9999:2017 Fire safety in the design, management and use of buildings. Code of practice
http://www.gov.scot/policies/building-standards/monitoring-improving-building-regulations/ Building Standards (Scotland) Regulations
http://www.legislation.gov.uk/asp/2005/5/contents Fire (Scotland) Act 2005

http://www.legislation.gov.uk/nisi/2006/1254/contents Fire And Rescue Services (Northern Ireland) Order 2006
http://www.legislation.gov.uk/ssi/2006/456/contents/made Fire Safety (Scotland) Regulations 2006
http://www.legislation.gov.uk/nisr/2010/325/contents/made Fire Safety Regulations (Northern Ireland) 2010
http://www.legislation.gov.uk/uksi/2005/1541/contents/made Regulatory Reform (Fire Safety) Order 2005

SFG20
Core

23-05 Gas Extinguishing Systems

Date: 13 Jul 2020
Version: 10
Unit of Measure: System

Summary	
Frequencies	**Tasks**
1W (Week) 10 mins	3
1M (Month) 5 mins	4
3M (Months) 15 mins	5
6M (Months) 90 mins	6 7 8 9 10 11 12
12M (Months) 30 mins	13 14 15
120M (Months) 240 mins	16
0U (Unspecified)	1 2
Annual Timing	**874 mins**

Introduction

This document specifies the requirements for the periodic maintenance of gas extinguishing systems used for the extinction of fire. It should be read in conjunction with all current statutory requirements and regulations. All maintenance should be in accordance with the manufacturer's or supplier's recommendations. Any accompanying method statements and risk assessments should be read and understood before starting work.

This document is applicable to the extinguishants listed below:

1 FK-5–1-12 (Dodecafluoro-2-methylpentan-3-one)
2 HCFC Blend A
3 HCFC-123 (Dichlorotrifluoroethane)
4 HCFC-22 (Chlorodifluoromethane)
5 HCFC-124 (Chlorotetrafluoroethane; Isopropenyl-1-methylcyclohexene)
6 HFC 125 (Pentafluoroethane)
7 HFC 227ea (Heptafluoropropane)
8 HFC 23 (Trifluoromethane)
9 IG-01 (Argon)
10 IG-100 (Nitrogen; Nitrogen (50 %))
11 IG-55 (Argon (50 %); Nitrogen (52 %))
12 IG-541 (Argon (40 %); Carbon dioxide (8 %))

It is against the law to work with F-Gas if you do not have the correct qualifications. To work on these systems you must have the following qualifications:

1 Category 1 certificate to carry out installation, servicing, repairing, maintenance or recovery of refrigerant from all sizes of system.
2 Category 2 certificate to carry out installation, servicing, repairing, maintenance or recovery of refrigerant from systems containing F-Gas equivalent to less than 5 tonnes of CO_2.
3 Category 3 certificate to recover refrigerant from systems that contain less than 3 kg of F-Gas.
4 Category 4 certificate to check equipment for leaks if you do not break into the refrigeration circuit.

To comply with current regulations, equipment containing an F-Gas above a certain threshold must be checked for leaks at specific intervals. Leak checks are required for systems containing fluorinated greenhouse gases in quantities of 5 tonnes of CO_2 equivalent or more. Hermetically sealed equipment containing less than 10 tonnes of CO_2 equivalent of fluorinated greenhouse gases are exempted from regular leak checks, providing that the equipment is labelled as such.

Leak checks may be carried out using the 'indirect' method where reliable information is available - this involves comparing actual performance with design criteria and visually inspecting for leaks. In cases where the system is underperforming and a leak is suspected, the 'direct' method should be used - this involves breaking into the refrigeration circuits and checking the system components to identify faults. Where a leak is identified, there is a legal requirement for it to be repaired without undue delay (note that it is an offence to charge or top up the refrigerant charge against a known leak). A follow up check must be carried out within one month of the repair being done.

The thresholds for fluorinated greenhouse gases are expressed in tonnes of CO_2 equivalent. To calculate the tonnes of CO_2 equivalent for the refrigerant in your system, multiply the kilogram weight of the gas by its global warming potential (GWP) using the figures from the UK Government guidance document on fluorinated gases (refer to the Legislation, Regulations and Guidance table at the end of this schedule for a link to this document). The frequency of leak checks can then be determined from this table:

Fluorinated greenhouse gases	Frequency of leak checks without leakage detection system	Frequency of leak checks with leakage detection system
5 tonnes CO_2 equivalent	12 months	12 months
50 tonnes CO_2 equivalent	6 months	12 months
500 tonnes CO_2 equivalent	Leakage detection system is mandatory	6 months

Where, due to unforeseen difficulties, it is necessary to leave an installation not available for use, the fire and rescue service should be informed immediately in order that alternative arrangements can be made to cover this deficiency should the need arise. In addition a suitable notice to indicate that the installation is not available for use should be placed in a prominent position.

Please refer to the overarching introduction (SFG 00-01) to make sure you are of the correct skill level as indicated within the task schedule to carry out the described works. Ensure you have read and understood the manufacturer's recommendations, carried out risk assessment(s) on each item of plant to identify the correct frequency of maintenance, identified all safety procedures that need to be applied and recorded in order to carry out the work in a safe and reliable manner.

Notes:
F-Gases fall within the scope of the dangerous substances and explosive atmospheres regulations. This means that for all installations a risk assessment must be undertaken to cover any work relating to the gas being used. This risk assessment must be produced in accordance with current regulations, codes of practice, and industry guidance documents.

Display Order	Tasks
1	**Leak checking** **Criticality:** Red **Frequency:** 0U **Skill Set:** Specialist **Action:** To comply with current regulations, equipment containing an F-Gas above a certain threshold must be checked for leaks at specific intervals. This should be done as follows: 1 Identify the correct frequency for leak checking the system. 2 Determine whether to use a direct check or an indirect check. **Direct check** Direct leak checking involves one or more of the following: 1 Checking of circuits and components representing a risk of leakage, with gas detection devices adapted to the refrigerant in the system. 2 Application of ultraviolet (UV) detection fluid or suitable dye in the circuit. 3 Using proprietary bubble solutions/soapsuds. 4 Using oxygen free nitrogen (OFN) to pressurise the circuit after recovering the refrigerant gas. **Indirect check** Indirect leak checking involves comparing the actual system performance with the design criteria and analysing the following parameters: 1 Pressure(s). 2 Temperatures. 3 Compressor run current. 4 Liquid level checks. 5 Recharge volume where applicable.

1 continued

6 Visual inspection.

Where indirect checks have proved unsatisfactory, for example where the analysis has raised a suspicion of leakage due to one or more of the parameters being out of sync with what would be expected, then the indirect checks shall be followed up with a direct check.

One or more of the following situations arising from an indirect check shall constitute a presumption of leakage demanding that further direct checks be carried out:

1 A fixed leak detection system indicates a leak.
2 The equipment produces abnormal noises or vibration.
3 There is ice build up or insufficient cooling capacity.
4 Signs of corrosion, oil leaks or component damage – particularly at possible or likely leak points.
5 Indication of low charge via sight glass, level indicators or other visual aids.
6 Deviations from normal operating parameters indicated during the analysis or by readings from real time monitoring systems/software.
7 Other signs of leakage.

Where a leak is identified there is a legal requirement for it to be repaired without undue delay. Severe leakage that threatens imminent failure of performance or where the gas has a very high global warming potential (GWP) may demand immediate action, whereas a minor leak that is of a low GWP gas or is insufficient to cause major loss of performance may be left until a return visit under routine service visits occurs.

When the repair is carried out it must be made by personnel certified to undertake that activity. Prior to the repair a pump down and/or recovery shall be carried out as necessary. The system shall then be pressure tested using oxygen free nitrogen (OFN) under standard leak testing procedures prior to evacuation, re-charge and leakage test. A follow up check must be carried out within one month of the repair being made. In practical terms this may mean a further indirect check being conducted a short time after the system has been put back into use and normal operating conditions can be analysed.

Notes:

2

F-Gas log books

Criticality: Red **Frequency:** 0U **Skill Set:** Refrigeration Engineer

Action: Both the operator of the equipment and the company that services it must keep the following records in an F-Gas log book about any equipment that has to be checked for leaks:

1 The quantity and type of gas in the equipment when it is installed.
2 The quantity and type of gas added during any maintenance, e.g. leak repairs.
3 The name, address and certificate number if relevant of any companies that install, service or decommission the equipment.
4 The dates and results of all mandatory leak checks.
5 The measures taken to recover and dispose of gases when the equipment is disposed of, e.g. through a registered waste carrier.

If the gas used in the equipment is recycled or reclaimed, the following information must be recorded:

1 The details of the recycling or reclamation facility (name, address and certificate number if it has one).
2 The quantity of any gases recovered.

You must keep records for 5 years and make them available to government officials if they ask for them.

Notes: Equipment owners have legal responsibilities for record keeping as well as for physical leak checks. Both the owner/operator of the equipment and their service contractors have an obligation to keep copies of records for five years. Log books are not required for systems that contain less than 3 kg charge.

3

Weekly checks

Criticality: Red **Frequency:** 1W **Skill Set:** Competent Person

Action: The client/user of the system should:

1 Visually check the hazard and the integrity of the enclosure for changes which might reduce the efficiency of the system.
2 Carry out a visual check that there is no obvious damage to pipework and nozzles, check they are free from dust and dirt, that the nozzles are not obstructed in any way and remains in its design position.

3 continued	3 Check that all operating controls and components are properly set, accessible and undamaged. 4 Check pressure gauges and weighing devices, if fitted, for correct reading and that they are functioning correctly and take the appropriate action specified in the user manual. **Notes:** The servicing and maintenance provisions for all systems state that the permissible loss should be not more than 5% of the extinguishant mass and, in the case of super-pressurised systems, more than 10% loss in pressure, adjusted for temperature.
4	**Monthly checks** **Criticality:** Red **Frequency:** 1M **Skill Set:** Competent Person **Action:** The client/user of the system should check that: 1 All personnel who may have to operate the equipment or system are properly trained and authorised to do so. 2 New employees have been instructed in its use. **Notes:**
5	**Electrical detection and alarm systems** **Criticality:** Red **Frequency:** 3M **Skill Set:** Specialist **Action:** 1 Test and service in accordance with appropriate manufacturer's standards and recommendations. 2 Examine and test batteries and their connections as specified by the supplier to ensure they are in good serviceable condition and not likely to fail before the next quarterly inspection. 3 Where applicable, examine secondary batteries and ensure that the specific gravity of electrolyte in each cell is correct. **Notes:**
6	**System** **Criticality:** Red **Frequency:** 6M **Skill Set:** Specialist **Action:** 1 Check generally for mechanical damage. **Notes:**
7	**Pipework and nozzles** **Criticality:** Red **Frequency:** 6M **Skill Set:** Specialist **Action:** 1 Externally examine pipework to determine its condition. 2 Examine nozzles for blockages and clean as necessary. 3 Replace or pressure test and repair as necessary any pipework showing corrosion or mechanical damage. **Notes:**
8	**Control valves** **Criticality:** Red **Frequency:** 6M **Skill Set:** Specialist **Action:** 1 Check all control valves for correct manual function. 2 Check automatic valves for correct automatic function. **Notes:**
9	**Valve actuators** **Criticality:** Red **Frequency:** 6M **Skill Set:** Specialist **Action:** 1 Where possible, remove cylinder valve and replace action caps. **Notes:** Carry out procedure in accordance with the manufacturer's recommendations.
10	**Fire suppressant containers (cylinders) - general inspection** **Criticality:** Red **Frequency:** 6M **Skill Set:** Specialist **Action:** 1 Check labels are securely fixed and legible.

10 continued

2 Check security of brackets and fixings.
3 Check liquid level.
4 Check pressure in cylinder(s).
5 Externally examine containers for signs of damage or unauthorised modification and for damage to system hoses. If the visual examination shows any defect, the hose(s) should be replaced.

Notes: For liquefied gases, check weight or use a liquid level indicator to verify correct content of containers. If weight loss exceeds 5%, cylinder should be replaced or recharged.

Pressure gauges - liquefied gas should be within 10% and non-liquefied gases within 5% of correct pressure; replace or recharge any showing a greater loss.

The date of inspection and the name of the person performing the inspection should be recorded on a tag attached to the container.

11

Master/slave system

Criticality: Red **Frequency:** 6M **Skill Set:** Specialist

Action: 1 Check slave actuation system including pistons in pneumatic valve actuators.

Notes:

12

Auxiliary electric device/alarm, door closures etc.

Criticality: Red **Frequency:** 6M **Skill Set:** Specialist

Action: 1 Test operation of auxiliary electric device/alarm, door closures etc.

Notes: Operational test to be carried out in accordance with manufacturer's recommended procedure.

13

Cylinder gauges

Criticality: Red **Frequency:** 12M **Skill Set:** Specialist

Action: 1 Where container pressure gauges or weight-monitoring devices are used for this purpose they should be compared to a separate calibrated device.

Notes: Operational test to be carried out in accordance with manufacturer's recommended procedure.

14

Enclosure integrity test

Criticality: Red **Frequency:** 12M **Skill Set:** Specialist

Action: 1 Check the enclosure for any boundary penetrations or other changes to it that could affect leakage of gas on operation. If this cannot be visually determined, an integrity test should be carried out in accordance with current standards.
2 Where it is established that changes to the volume of the enclosure or to the type of hazard within the enclosure, or both, have occurred, the system shall be redesigned to provide the original degree of protection.

Notes: Where the integrity test reveals increased leakage that would result in an inability to retain the extinguishant for the required period, remedial action should be carried out.

It is recommended that the type of hazard within the enclosure, and the volume it occupies, be regularly checked to ensure that the required concentration of extinguishant can be achieved and maintained.

15

Automatic leak detection system (if installed)

Criticality: Red **Frequency:** 12M **Skill Set:** Specialist

Action: 1 Test the automatic leak detection system in accordance with the manufacturer’s instructions.

Notes:

16

Fire suppressant containers (cylinders) - pressure test

Criticality: Red **Frequency:** 120M **Skill Set:** Specialist

Action: 1 Wet chemical containers, auxiliary pressure containers and hose assemblies should be subject to a

16 continued		hydrostatic pressure test at intervals not exceeding 10 years.
	Notes:	All extinguishant removed from containers during service or maintenance procedures shall be collected and recycled, or disposed of in an environmentally sound manner, and in accordance with existing laws and regulations.

Legislation, Regulations and Guidance
http://shop.bsigroup.com/ProductDetail/?pid=000000000030182749 BS 5306-0:2011 Fire protection installations and equipment on premises. Guide for selection of installed systems and other fire equipment
http://shop.bsigroup.com/ProductDetail/?pid=000000000030173377 BS 7273-1:2006 Code of Practice for the operation of fire protection measures. Electrical actuation of gaseous total flooding extinguishing systems
http://shop.bsigroup.com/ProductDetail?pid=000000000030357099 BS 9999:2017 Fire safety in the design, management and use of buildings. Code of practice
http://shop.bsigroup.com/ProductDetail/?pid=000000000030339865 BS EN 15004-1:2019 Fixed firefighting systems. Gas extinguishing systems. Design, installation and maintenance
http://www.legislation.gov.uk/nisr/2010/160/contents/made Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (Northern Ireland) 2010
http://www.legislation.gov.uk/uksi/2009/1348/contents/made Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009
http://www.legislation.gov.uk/nisr/2011/239/contents/made Controls on Ozone-Depleting Substances Regulations (Northern Ireland) 2011
http://www.legislation.gov.uk/uksi/2002/2776/contents/made Dangerous Substances & Explosive Atmospheres Regulation (DSEAR) 2002
http://www.legislation.gov.uk/nisr/2003/152/contents/made Dangerous Substances and Explosive Atmospheres Regulations (Northern Ireland) 2003
http://www.feta.co.uk/publications/feta-publications FETA - Guidance on Risk Assessments for compliance with Dangerous Substances and Explosive Atmospheres Regulations (DSEAR)
http://ec.europa.eu/clima/policies/f-gas/legislation/documentation_en.htm F-Gas Regulation No. 517/2014 on fluorinated gases
http://www.legislation.gov.uk/nisi/2006/1254/contents Fire And Rescue Services (Northern Ireland) Order 2006
http://www.legislation.gov.uk/ssi/2006/456/contents/made Fire Safety (Scotland) Regulations 2006
http://www.legislation.gov.uk/nisr/2010/325/contents/made Fire Safety Regulations (Northern Ireland) 2010
http://www.legislation.gov.uk/uksi/2018/98/contents/made Fluorinated Greenhouse Gases (Amendment) Regulations 2018
http://www.legislation.gov.uk/all?title=The%20fluorinated Fluorinated Greenhouse Gases Regulations (Northern Ireland) 2015 and 2018 Amendments
http://www.hse.gov.uk/pubns/books/l138.htm L138 - Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance
http://www.legislation.gov.uk/uksi/2015/168/contents/made Ozone-Depleting Substances Regulations 2015
http://www.refcom.org.uk/resources/downloads/f-gas-downloads/ REFCOM Technical Guidance documents
http://www.legislation.gov.uk/uksi/2005/1541/contents/made Regulatory Reform (Fire Safety) Order 2005

http://www.gov.uk/guidance/fluorinated-gases-f-gases
UK Government Guidance on Fluorinated gases (F gases)