

## SCHEDULE 3

Regulation 8

## Content and other characteristics of gas

## Part I

## Requirements under Normal Conditions

1. The content and characteristics of the gas shall be in accordance with the values specified in the following table.

Content or characteristic	Value
hydrogen sulphide content	$\leq 5 \text{ mg/m}^3$ ;
total sulphur content (including H <sub>2</sub> S)	$\leq 50 \text{ mg/m}^3$ ;
hydrogen content	$\leq 0.1\%$ (molar);
oxygen content	$\leq 0.2\%$ (molar);
impurities	shall not contain solid or liquid material which may interfere with the integrity or operation of pipes or any gas appliance (within the meaning of regulation 2(1) of the 1997 Regulations) which a consumer could reasonably be expected to operate;
hydrocarbon dewpoint and water dewpoint	shall be at such levels that they do not interfere with the integrity or operation of pipes or any gas appliance (within the meaning of regulation 2(1) of the 1997 Regulations) which a consumer could reasonably be expected to operate;
WN	(i) $\leq 51.41 \text{ MJ/m}^3$ , (ii) $\geq 47.20 \text{ MJ/m}^3$ ;
ICF	$\leq 0.48$
SI	$\leq 0.60$

2. The gas shall have been treated with a suitable stenching agent to ensure that it has a distinctive and characteristic odour which shall remain distinctive and characteristic when the gas is mixed with gas which has not been so treated, except that this paragraph shall not apply where the gas is at a pressure of above 7 barg.

3. The gas shall be at a suitable pressure to ensure the safe operation of any gas appliance (within the meaning of regulation 2(1) of the 1997 Regulations) which a consumer could reasonably be expected to operate.

4.—(1) Expressions and the abbreviations used in this Part shall have the meanings assigned to them in Part III.

(2) ICF and SI shall be calculated in accordance with Part III.

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## Part II

### Requirements for Gas Conveyed to Prevent a Supply Emergency

1. The requirements of the gas referred to in regulation 8(2) and (4) are—

(a) WN—

(i)  $\leq 52.85 \text{ MJ/m}^3$ , and

(ii)  $\geq 46.50 \text{ MJ/m}^3$ ; and

(b)  $\text{ICF} \leq 1.49$ ,

and in all other respects the gas shall conform to the requirements specified in Part I, as if those requirements were repeated herein.

2.—(1) Expressions and the abbreviations used in this Part shall have the meanings assigned to them in Part III.

(2) ICF and SI shall be calculated in accordance with Part III.

## Part III

### Interpretation

1. In this Schedule—

“bar” means bars (absolute);

“barg” means bars (gauge);

“°C” means degrees Celsius;

“C<sub>3</sub>H<sub>8</sub>” means the percentage by volume of propane in the equivalent mixture;

“equivalent mixture” means a mixture of methane, propane and nitrogen having the same characteristics as the gas being conveyed and calculated as follows—

(i) the hydrocarbons in the gas being conveyed, other than methane and propane, are expressed as an equivalent amount of methane and propane which has the same ideal volume and the same average number of carbon atoms per molecule as the said hydrocarbons; and

(ii) the equivalents derived from head (i), together with an equivalent for all of the inert gases in the gas being conveyed, expressed as nitrogen, are normalised to 100%, such that the equivalent mixture of methane, propane and nitrogen has a Wobbe Number equal to that of the gas being conveyed;

“ICF” means the Incomplete Combustion Factor;

“mg/m<sup>3</sup>” means milligrams per cubic metre at 15°C and 1.01325 bar;

“MJ/m<sup>3</sup>” means megajoules per cubic metre where the calorific value of a dry gas is determined on the basis that the water produced by combustion is assumed to be condensed;

“N<sub>2</sub>” means the percentage by volume of nitrogen in the equivalent mixture;

“PN” means the sum of the percentages by volume of propane and nitrogen in the equivalent mixture;

“relative density” means the ratio of the mass of a volume of the gas when containing no water vapour to the mass (expressed in the same units) of the same volume of air containing no water vapour under the same conditions of temperature and pressure;

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“SI” means the Soot Index;

“WN” means the Wobbe Number;

trigonometric functions are to be evaluated in radians.

2. In this Schedule, ICF, SI and WN shall be calculated in accordance with the following formulae—

$$\text{ICF} = \frac{\text{WN} - 50.73 + 0.03\text{PN}}{1.56}$$

$$\text{SI} = 0.896 \tan^{-1} (0.0255\text{C}_3\text{H}_8 - 0.0233\text{N}_2 + 0.617)$$

$$\text{WN} = \frac{\text{calorific value}}{\sqrt{\text{relative density}}}$$