

GAS ACT 2000

ACCEPTANCE REQUIREMENTS FOR THE COMPOSITION OF FUEL GAS TO BE USED IN A BIOGAS OR INDUSTRIAL 'OFF GAS' PROCESS SUPPLYING A GAS INSTALLATION

GAS (SAFETY) REGULATIONS 2014

SCOPE

Prior to the commissioning of the gas installation, in line with Section 77 of the *Gas Act 2000*, the Director of Gas Safety (the Director) is required to accept any biogas or industrial 'off gas' fuelled installation, to ensure both its compliance with AS/NZS 5601.1 Gas installations, and also the operational safety of the proposed gas installation as outlined in Section 50 of the Act.

CERTIFICATION OF GAS COMPOSITION, REGULATION 46(3)

Prior to assessing any application for a biogas or industrial 'off gas' conditioning and gas installation, the Director may require independently certified details on the composition of the biogas proposed to be supplied to the gas installation.

The process gas, composition analysis is to be undertaken by a tertiary qualified chemist or from an acceptable gas analysis instrument. Results of the composition testing are to be provided to the Director in a table similar to that shown below. In addition to the listed Components of Table 1, details of other gas constituents contained in the fuel gas/biogas are to be provided.

TABLE I

Components	Concentration range	Reliability
	Mol. v %	Indicate level 1/2/3/ see below
Methane		
Nitrogen		
Water vapour		
Hydrogen sulphide		
Carbon dioxide		
Carbon monoxide		
others		
Is gas process anaerobic or aerobic		

Reliability:

1 = consistent controlled process supplying off gas/biogas

2 = waste gas subject to flare reliability monitoring and considered suitable with gas controls
(air concentration/flammable gas concentration /monitoring trip points)

3 = unknown and unreliable concentration

For a gas installation to be fuelled on methane the monitoring controls on gas fuel supply will require the low methane alarm setting to be set at 30% mol.v in air and the supply control trip at 25% mol.v % methane in air. Methane is not combustible at 20% mol.v % in air.

GAS COMPOSITION AND REPORT PROCESS FOR INDUSTRIAL ‘OFF GASES’

The gas certifier must attach a detailed laboratory report of the industrial process ‘off gas’/waste gas composition testing and analysis conducted, including documentation of instruments, laboratory process, time and date of tests, any environmental contaminants detected and range of readings.

CERTIFIER PERSONAL DETAILS REQUIRED

Independent certifier

- Family Name
- Given names
- Business Address

- Business Phone
- Mobile Phone

Certified copies of tertiary qualification in engineering/science

Submission documentation required to be submitted to the Director for acceptance:

- The gas composition certification document
- The composition summary method and analytical chemical report
- Scaled piping and instrumentation diagrams for the gas collection and conditioning plant (dehydration, compression and regulation)
- Detail of gas supply temperature, pressure
- A hazard identification and risk controls of the work and installation environment and hazard and operability analysis for the industrial 'off gas' process and controls of the gas collection, conditioning or any flaring process in accordance with the Directors *Guideline for the preparation of a submission for the acceptance of Gas Installations (major)* 'safety management plan' pursuant to Section 77 of the Gas Act 2000 and Regulations 46 (3) of the Gas Safety Regulations 2014
- Complete independent certification for the design, installation, commissioning and testing of the gas installation as required by the Director.

Following assessment of the gas composition, and dependent on the suitability of the waste gas composition and the proposal to supply a gas installation, the Director may accept the composition analysis and proposed gas collection and conditioning system. At this point the Director will determine the gas supply point applicable to the downstream bio-gas installation and subsequent application for acceptance. Refer to fact sheet '*Gas Installations Supplied From Biogas Facilities - Acceptance Requirements*' available from Building Standards and Occupational Licensing Gas Standards and Safety team for further information – contact details below.

CHANGE MANAGEMENT

Any change or modification to the biogas or industrial 'off gas' that:

- Has the potential to increase significantly the risk in respect of the operation of the gas conditioning or complex gas installation; or
- Influence significantly the level of a specific risk or risk ranking of risk contributing factors; or
- Make or permit a change to the accepted safety management plan in respect of the gas conditioning or complex gas installation;

must be accepted by the Director before the proposed modifications are commissioned.

FURTHER INFORMATION

For more information contact the Gas Standards and Safety team at Building Standards and Occupational Licensing

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