

Annex K (informative)

Manufacture of medical gases on site, Responsibility for medical gas quality

K.1 Responsibilities for medical gas quality

Medical gases are either supplied as a finished product to the healthcare site or manufactured on site by the healthcare facility.

The responsibility for the quality of the medical gas used on site should be assigned to a nominated person within the healthcare facility, normally the Head Pharmacist (or equivalent role). The responsible person should have a suitable knowledge of the gases being used and should carry out audits of the systems at suitable intervals to ensure that the gases being supplied will not adversely affect patient safety. Where the medical gases are supplied to the healthcare facility, the responsibility for the quality of the gases lies with either the manufacturer or the supplier, depending on the national, regional or local regulations.

Typically the supplier will be required to hold an appropriate Product Licence/Marketing Authorisation, that will be issued by the National Regulatory Authority.

In order to obtain the appropriate licence for the gas, the manufacturer is required to demonstrate that they have an appropriate Quality Management System in place that will demonstrate that the medical gases have been manufactured following Good Manufacturing Practice (GMP), on a site that is registered with the Regulatory Authority.

Where the medical gases are supplied by a third party, the healthcare facility responsibilities are limited to the management of the medical gas pipeline system to ensure that it does not impact on the quality of the medical gas(es). Documented procedures should be established to ensure that the persons operating, maintaining and using the medical gas pipeline system are appropriately informed of the correct operating procedures.

In addition to ensuring that the product complies with the specification, the supplier of the medical gas is responsible for managing any defects reported by the customer and for reporting any adverse events to the national Regulatory Authority as part of a pharmacovigilance system. The healthcare facility has a responsibility to report any adverse events or any product quality defects to the supplier.

Where the medical gases are manufactured on site, the healthcare facility is responsible for the safety, quality and efficacy of the medical gases manufactured

K.2 On-site manufacture

K.2.1 General

Medical gases that may be manufactured on site include:

- oxygen 93 manufactured using oxygen concentrators;
- medical air manufactured using compressors;
- synthetic medical air manufactured using a proportioning system;
- air for driving surgical tools manufactured using compressors.

K.2.2 Equipment

Where medical gases are manufactured on site, the equipment used for the manufacturing should be appropriately certified to demonstrate that it is fit for the purpose.

Within the EU, the appropriate approval of the manufacturing plant is that it should be CE marked by a

K.3 Quality management system

Where the medical gases are manufactured on site, the healthcare facility should establish a Quality Management System (QMS) to ensure that the safety, quality and efficacy of the gas supply is maintained.

The QMS should be established so that it is in line with the principles of Good Manufacturing Practice (GMP).

K.4 Responsibilities

The healthcare facility should assign responsibilities to a number of nominated persons on the site including:

- a person responsible for the manufacture of the medical gases;
- a person responsible for the quality control of the medical gases.

These roles should be carried out by persons who are independent of each other. The responsible persons may formally assign their responsibilities to nominated deputies to ensure that the responsible person is available when required.

K.4.1 Manufacturing responsibility

The person responsible for the manufacture of the medical gases produced on site should:

- ensure that the medical gases are manufactured according to the instructions for use provided by the equipment suppliers and any other appropriate documentation in order to obtain the required safety, quality and efficacy;
- approve any instructions for the manufacture and ensure their implementation through training and audit;
- ensure that the manufacturing records are routinely produced and evaluated;
- ensure that the maintenance of the equipment is carried out according to the maintenance plan;
- approve any contractors employed to maintain / repair any of the manufacturing equipment;
- ensure that the manufacturing plant undergoes an appropriate validation plan.

K.4.2 Quality control responsibility

The person responsible for quality control of the medical gases manufactured on site should:

- approve (or reject) the medical gases manufactured on site;
- review the quality control records produced to ensure that the product being supplied for use on site complies with the specification;
- ensure that all necessary quality testing is carried out;
- approve the test procedures and frequencies, based on risk management;
- check the maintenance of the manufacturing equipment;
- ensure the manufacturing equipment is subject to an appropriate validation plan;
- ensure that the personnel carrying out any manufacturing or quality control functions are appropriately trained and the training is documented.

K.5 Quality control

K.5.1 On-line testing

As the medical gases manufactured on site are produced using automated equipment, using on-line analysers, an important requirement is to ensure that the analysis equipment is maintained and calibrated to ensure that the quality requirements are met. Any deviations from the defined quality levels should generate an alarm and operate control equipment to prevent out-of-specification product being supplied for medicinal use.

K.5.2 Continuity of supply

The Quality Management System should also address the requirements for ensuring that there is always a supply of medical gas available for use at an appropriate level of quality.

K.5.3 Secondary and reserve supply

Where the plant is used for filling high pressure reservoir(s) for use as a permanently fitted secondary or reserve source of supply, the process of filling should also be covered by the principles of GMP and the quality management system. It may also be necessary to comply with other pressure system legislation to demonstrate that the high pressure reservoirs(s) are suitable for filling and that they are not subjected to conditions outside their design range.