

Medical Gas Systems

Newsletter

January 2007

There has been a lot of buzz in the industry regarding medical vacuum pumps that also supply the Waste Anesthesia Gas Disposal (WAGD) system. Some verifiers have read paragraph 5.1.3.7.2 in NFPA 99 – 2005, as meaning that this is the only type of vacuum pump that can be used for WAGD combined systems.

(Included for reference)

5.1.3.7.2 WAGD Producers.

5.1.3.7.2.1 Vacuum pumps used for WAGD service shall be as follows:

- (1) Compliant with 5.1.3.6.2
- (2) **Designed of materials and using lubricants and sealants that are inert in the presence of oxygen, nitrous oxide, and halogenated anesthetics**

These verifiers have interrupted this to mean, any vacuum pump being used for WAGD must meet these requirements. The problem in this section is that it can not be regarded as a stand alone paragraph. The intent of this section, according to the committee for NFPA 99 chapter 5, is for this requirement to be followed only when the vacuum pump is supplying the Waste Anesthesia Gas Disposal system alone. The reader of NFPA 99 -2005 must read all sections of the Standard as a whole to get the full meaning of its requirements. Paragraph 5.1.3.7.1.2 of NFPA 99 – 2005, is the section of the Standard that guides the designer to the requirements of the vacuum producer in a combined medical vacuum and WAGD system.

(Included for reference)

5.1.3.7.1.2 If WAGD is produced by the medical–surgical vacuum source, the following shall apply:

- (1) The medical–surgical vacuum source shall comply with 5.1.3.6.
- (2) **Flammable anesthetics or other flammable vapors shall be diluted below the lower flammable limit prior to disposal into the medical–surgical vacuum system or the vacuum pumps shall comply with 5.1.3.7.2.1(2).**
- (3) The medical–surgical vacuum source shall be sized to accommodate the additional volume.

If you understand how the anesthesia circuit works, you would see that the exhaled anesthesia is diluted with room air prior to being drawn into the piped vacuum system. This alone may cause the system to comply with the requirements of 5.1.3.7.1.2(2). Additionally, with a combined medical vacuum and WAGD system, the volume of medical vacuum being drawn into the system is far greater than the WAGD system and this further dilutes the system. Unfortunately, verifiers will often misinterpret this section and cause un-needed costs to project budgets and ultimately the facility owners. It is virtually impossible for a verifier to field verify how much of the exhaled anesthetic is remaining in the vacuum system, mainly because at the time of verification there are not any procedures being performed, and thus no exhaled anesthetic being drawn into the system. As verifiers, we must rely on our knowledge of how the systems work, to make informed decisions in our code interpretations, along with the expertise of the design engineers and manufacturers providing reliable sources that meet the code requirements.

For more information on the Waste Anesthesia Gas Disposal systems please visit Beacon Medaes web page and view Mark Allen’s paper. www.beaconmedical.com/PDFs/Library/WAGD.pdf
This is a very informative paper regarding the subject.

Sincerely,
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President
Medical Gas Systems, Inc.

(Remember: Medical Gas Verifiers are not the “Authority having Jurisdiction”)