

Nitrous Start Up Guide



Equipment:

The [Nitronox Field Unit](#) from Porter Medical is the only portable nitrous oxide delivery device available for EMS.



The unit is distributed by [Henry Schein Medical](#). Contact Sal Eppolito to setup an account:

Sal.Eppolito@henryschein.com. Each unit costs \$3750.

In addition to the Nitronox unit you will need additional nitrous oxide cylinders and mouthpieces. The cylinders are available through Henry Schein but can be found for much less using a local medical gas supplier.

The unit comes with two empty cylinders. Additional empty cylinders can be purchased through Haun Specialty Gases. Erik Eliason (eeliason@thehaunedge.com) is the contact. Each cylinder costs \$94 to manufacture and an additional \$14 to fill.

You will need a DISS high flow oxygen connector compatible with your ambulance and your oxygen cylinders.

Storage:

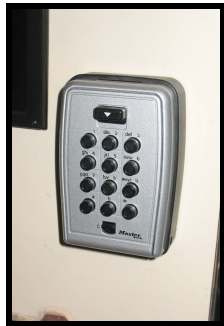
We have a total of 12 cylinders: three on each ambulance and six in reserve. When we get down to zero cylinders in reserve Haun swaps them for full ones.

Cylinders and the nitronox units should be stored in locked cabinets with only AEMTs and paramedics having access to them. Our custom made storage unit is shown on the right.





To store two spare cylinders on the ambulance we found this camera lens bag available on Amazon: G-raphy Camera Backpack DSLR SLR Camera Bag Video Padded Backpack Waterproof 13.3" X 9.8 "X 5.1".



On the ambulance we have a locking key box which allows AEMTs to access the key for the cabinet where the nitrous oxide is stored. This key box is available on Amazon: Master Lock 5423D Push Button Wall Mount Key Safe.



Policy:

Services will need to work with their district and service medical advisers to create a policy that keeps the nitrous oxide from being diverted and adequately tracked.

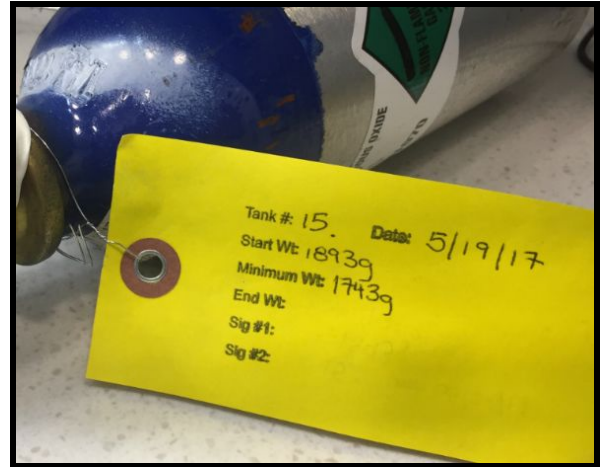
Our policy is included as an example and may not be appropriate for your service. Consult with your service leadership and medical direction.

The Vermont State protocols will be updated with a new nitrous oxide policy. Make sure you are using a current version and not the version that was included in the 2015 revision.

A few things to remember when writing your policy:

- Nitrous oxide is a compressed liquid and will not substantially change its pressure as it is discharged until it is nearly empty. You cannot use a pressure gauge to determine the amount of remaining gas.
- By weighing the cylinders you can reuse a cylinder on a second patient if there is enough nitrous remaining.

- Tyvec tags can be purchased on Amazon: Quality Park G14053B Tyvek Spunbonded Olefin Pre-Wired Shipping Tag, 4-3/4" Length x 2-3/8" Width, Yellow (Case of 100) -
- A custom stamp was used to make the tags: Trodat 4927
- The custom stamp ink pad was refilled with permanent ink available on Amazon: Tsukineko 1/2 Fluid Ounce StazOn Multi-Surface Inker, Jet Black
- Any digital kitchen scale that reads in grams can be used for the weighing the tanks.



Complete at Delivery of Cylinder			Sign Out to Ambulance			Return Used Cylinder				
Cylinder #	Weight (g)	Weight to retire cylinder = (Wt-150g)	Transferred To	Date	Med #	Removed From	Date	Weight	Med #	Returned to Haun Date
			A1 A2			A1 A2				
			A1 A2			A1 A2				
			A1 A2			A1 A2				
			A1 A2			A1 A2				
			A1 A2			A1 A2				
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			A1 A2			A1 A2				
			A1 A2			A1 A2				
			A1 A2			A1 A2				

A fully depleted cylinder will be 250g lighter than the initial weight. Continue to use cylinder until less than 100g of usable nitrous remains.



Policy on Use of Nitrous Oxide

Revision:5/18/17

Review Date: (1 year from adoption)

Purpose:

To define the standard operating procedures for the proper handling of nitrous oxide during ambulance operations.

Scope:

This policy applies to all full-time, per diem and volunteer staff with an AEMT or Paramedic license employed by or serving on Richmond Rescue. This procedure encompasses the handling of nitrous oxide equipment and gas cylinders, but not the medical circumstances governing the use of nitrous oxide, which is set forth by the Vermont Department of Health's Office of EMS and Injury Prevention (OEMS).

Definitions:

- Nitrous Oxide: A colorless and odorless gas used primarily as an anesthetic or pain reliever.
- Nitronox Field Unit (Nitronox): A manufactured medical device that delivers a 50% nitrous oxide gas and 50% oxygen mixture for patient self administration.

Policy / Procedure:

Authorized Nitrous Users

Paramedics and AEMTs are authorized to dispense nitrous oxide to patients under Vermont EMS protocols 2.17A and 2.17P. Under this policy only paramedics and AEMTs shall utilize the Nitronox unit and conduct control activities (inventory) of nitrous oxide gas cylinders. No other personnel shall handle nitrous oxide gas cylinders or Nitronox equipment without supervision of a Richmond Rescue, inc. Paramedic or AEMT.

Training

All personnel shall complete an initial and annual refresher training approved by the Training Officer. Initial training shall be completed prior to a Paramedic or AEMT receiving access to the Nitronox system and nitrous oxide storage cabinet. Refresher training shall occur annually and shall be considered a required competency for all ALS providers.

Ventilation

Prior to administration of nitrous oxide the following precautions shall be taken:

- The patient compartment exhaust fan must be turned on
- A patient compartment window will be opened approximately 1"
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Nitrous Equipment Onboard Ambulances

The Nitrous equipment on board the ambulances at a minimum shall consist of:

- Nitronox unit with one (1) attached nitrous oxide cylinder
- Oxygen feeder hose with quick connect
- Patient delivery hose
- Reusable valve and valve housing
- Disposable mouth pieces
- Two (2) secured reserve nitrous oxide cylinder
- One (1) carrying case

Initial Receipt of Nitrous Oxide Cylinders

A fully depleted nitrous oxide cylinder will weigh 250 grams less than a new cylinder. When a cylinder has 150 grams used on a call it will be considered empty and retired from service for refilling. Each new cylinder will be tagged by a full time staff member (Director of Operations, Supply Officer or Training Officer) with the following information:

- Tank #
- Start weight in grams
- Minimum weight to continue using

This information will also be listed on the log sheet.

Restocking of Nitrous Oxide on Ambulances

At the end of each call the nitrous oxide cylinder that was used will be weighed and the weight, date and signature will be documented on the attached tag. A witness signature will also be required in addition to the AEMT or paramedic.

- If the new weight is below the minimum weight it will be marked as empty and returned to the used cylinder area of the secured storage area.
- If the new weight is above the minimum weight documented on the tag, the cylinder may be placed back in the bag for use on another call.

Accountability, Control and Storage of Nitrous Oxide Cylinders

Each ambulance shall carry no more than three nitrous oxide bottles.

Used cylinders shall be returned to a designated locked cabinet in the supply room. The Director of Operations, or a person designated by the President, shall be responsible for granting and removing access to the nitrous oxide cabinet.

A log sheet will be completed for any cylinder exchange. The log sheet will include at a minimum:

- Date
- Incident number
- Provider administering nitrous oxide
- Serial number of cylinder that was returned

- Serial number of the full cylinder being returned to the ambulance
- The initial weight of cylinder (g) measured on initial receipt of tank
- The weight at which tank needs to be retired from use and returned to used section of secured storage (initial weight - 150g)

Cylinders will be appropriately tagged and segregated into full and used cylinders in the storage area.

Each quarter the Director of Operations, or a person designated by the President, will conduct an audit of the log sheet. Any discrepancies will be reported to the president, board of directors, and the district medical advisor.

Resupply of Nitrous Oxide Cylinders

The supply officer shall be responsible for ordering new cylinders when the supply has been depleted.

Decontamination

After each use the Nitronox pre-attached mouthpiece and 15mm adapter will be disposed.

After each patient use of the Nitronox unit, the reusable supply valve and the rest of the unit will be wiped clean with a disinfecting wipe and allowed to dry.

Posting of Contraindications & Warnings

At all times contraindications for providing a patient access to nitrous oxide for self-administration shall be posted in plain view or otherwise obviously accessible for reference.

Warnings will be posted regarding proper use of exhaust fans and other ventilation procedures during the use of Nitrous.

Date

Dr. Laurel Plante - District 3 Medical Advisor