# ■ CORRESPONDENCE

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## Desflurane Degradation to Carbon Monoxide

*To the Editor:*—As manufacturers of Sodalime based $CO_2$ absorbents, Grace takes issue with the recommendation (*Desflurane Degradation to Carbon Monoxide*, ANESTHESIOLOGY, 1997; 86:1061–5) that a practitioner consider the rehydration of Baralyme $CO_2$ absorbent when dehydration of the absorbent is suspected.

We caution against the adulteration of these products because it is known that moisture content in excess of the USP standards will decrease $CO_2$ absorption efficiency. Current moisture content standards as prescribed in the United States Pharmacopoeia—National Formulary for Barium Hydroxide Lime and Soda Lime are 11–16% and 12–19%, respectively. We believe that attempts by practitioners to add moisture to the absorbent, without a predetermination of the existing moisture level, or in disregard of the USP standards could lead to agglomeration of the absorbent granules in addition to a significant loss in absorption capacity if moisture content standards are exceeded.

As Baxter and Kharasch point out in the article, dehydration of the absorbent is often reported when the anesthesia equipment has been idle for extended periods, and it is frequently associated with high gas flows through the absorbent bed during idle periods.

The presumption in the article that a practitioner can use rehydration as a cost-effective alternative to discarding the absorbent, rather than the FDA recommended procedure of discarding the absorbent whenever dehydration is suspected, seems not to address the root cause of dehydration—the practice of allowing extended high gas flows through the absorbent bed during idle equipment periods—and further compounds the issue by introducing a second questionable practice—uncontrolled moisture addition.

W. R. Grace stands by its recommendation to *always* replace any $CO_2$ absorbent whenever there is suspicion that absorbent moisture loss has occurred. To do otherwise may pose patient safety hazards as a result of loss of $CO_2$ absorption efficiency, disregards the FDA's recommended procedure of discarding absorbent when dehydration is suspected, and may result in inadvertent use of absorbent containing moisture levels in excess of those prescribed by the USP.

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## Nasal End-tidal $CO_2$ Monitoring

*To the Editor:*—I would make an obvious suggestion to solve Dr. Pan's problem of a misplaced intravenous catheter used as a portal for $CO_2$ monitoring with the nasal cannula.[1] The intravenous catheter may be eliminated entirely by using a system adapted at our Outpatient Surgical Center. I cut the Leur lock off at a 45° angle on the male end of the standard capnograph tubing that usually comes with each anesthesia circuit. An extra whole sampling capnograph tubing should always be at hand. After making a small cut with a No. 18 large needle into the supporting tube opposite one nasal prong, I pass the capnograph tubing tip so that it fits flush with the tip of one side of the nasal cannula, as depicted in Dr. Pan's letter, wherein he uses the intravenous catheter. The sampling tubing is taped to the nasal cannula for support. This system works well and follows $CO_2$ exhalation during monitored $CO_2$ care. If the anesthesia circuits are ordered with the capnograph tubing included, a supply of extra tubing occurs. By using these as described, an intravenous catheter cost is saved, and the described danger is eliminated.

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### Reference

1. Pan PH: A choking hazard during nasal end-tidal $CO_2$ monitoring [letter]. ANESTHESIOLOGY 1997; 87:451

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